

U DLCR Records of the Liquid Crystals and Advanced 1929-2015
Materials Research Group, University of Hull

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Historical Background:

The Liquid Crystals Research Group at the University of Hull Chemistry Department

The Beginnings - The 1930s-1940s

The beginnings of the Liquid Crystals Research Group at the University of Hull are to be found in the 1930s with the research of Brynmor Jones (later Sir Brynmor Jones, Chancellor of the University of Hull) into liquid crystal materials. Having joined the University of Hull from Sheffield University's chemistry department, Jones began to establish a strong basis for research into this emerging area.

George William Gray - The 1950s-1960s

The mantle of liquid crystal research passed to George William Gray after he joined the Department of Chemistry in 1946 and completed his PhD thesis in 1953. Gray's first papers were published in collaboration with Jones but during the 1950s and 1960s it was his own interest and personal drive that kept research alive at a time when liquid crystals were less than fashionable and could attract little funding. In these decades the focus of Gray's research was the extension of earlier studies of the relationships between molecular structure and liquid crystal properties. This research centred on studies of alkoxy-aromatic carboxylic acids derived from benzene, biphenyl, naphthalene, fluorene, fluorenone and anthracene, and also studies of their methyl, halogeno and nitro substituted analogues. Findings led to the development of working rules surrounding the following: regular trends in liquid crystal transition temperatures within homologous series; the dependence of nematic thermal stability on molecular breadth and lateral substituent size; the more subtle dependence of smectic thermal stability on a combination of lateral group size and dipole moment; the strong influence of steric twisting by a lateral group in depressing mesophase thermal stability; the role of aromatic core size and type on phase type and phase stability; core shielding effects in diminishing the depressing effects of lateral groups; the important nematic terminal group efficiency order. Believing that his research into liquid crystals must come to an end because of lack of wider interest or industrial application, Gray decided to write up all he knew in the first English book to be published on the subject, his 'Molecular Structure and Properties of Liquid Crystals' (1962).

Discovery of Cyanobiphenyls - The Early 1970s

The publication of this book proved fortuitous as interest into liquid crystals was to revive in the mid-1960s and Gray became recognized as a leading light in this area of research. In October 1970, a Ministry of Defence contract was granted to the Liquid Crystals Research Group at the University of Hull. The research led to the discovery of a group of liquid crystals that became stable at room temperature and were known as cyanobiphenyls. The discovery, made by Gray, Ken Harrison and J.A. Nash, allowed the group at Hull to synthesise stable nematic liquid crystal material which could be used to realise the technological development of LCD. Initially made in 1972, the findings of this discovery weren't published until March 1973.

Funding for Further Research - The 1970s

The profile of the group was elevated with the publication of this research and new blood was attracted to Hull. The group expanded and the names of John Goodby (Hull, AT&T Bell Laboratories in New Jersey, Hull, York), David Coates (Hull, Standard Telecommunication Laboratories in Harlow, Research Manager at Merck UK Ltd), Alan Mosley (Hull, Senior Scientist at GEC Hirst Research Laboratories), Stephen Kelly (Hull, Brown Boveri et Cie, F. Hoffmann-La Roche in Switzerland, Hull), Damien McDonnell (Hull, Senior Scientist in electronics at DRA Malvern) and Kenneth J. Toyne all came to be associated with developments arising from this pioneering research. Other MoD contracts followed and valuable research was undertaken which helped to develop a detailed picture of structure/property relationships in LC systems. This work centred around the following: better understanding of smectics and their polymorphism consequent upon the synthesis and study of new materials exhibiting SmB, SmF and SmI phases; rationalisation of smectic nomenclature; development of new alicyclic mesogens (bicycle-octanes, cubanes); molecular factors determining SmC formation; Synthesis of Deuterio-mesogens for neutron studies; development of novel chiral mesogens and high order parameter dyes. In 1979 the dedication of the group was recognized with the award of the Queen's Award for Technological Achievement.

Technological Applications - The 1980s

After the successful research developments of the previous decade, the 1980s saw engagement with more commercially oriented projects in conjunction with collaborators at RSRE Malvern, BDH Chemicals (later Merck Ltd UK) and various other universities including Oxford and Durham. Research contracts around liquid crystal polymers, Langmuir-Blodgett thin films, and ferroelectric LC displays helped to develop industrial applications for liquid crystal materials.

Latter Years of the Liquid Crystals Research Group - 1990 Onwards

In 1990 Professor Gray retired from the University and Professor John Goodby inherited leadership of the group ensuring it continued to develop its research focus. In 2000 a spin-out company was established under the name of Kingston Chemicals to provide a commercial complement to the academic research being undertaken at the University, and to manufacture liquid crystals for industrial and research applications. In 2005 the University of Hull became a Royal Society of Chemistry 'Historic Landmark' in recognition of the significance of its LC research. In March 2013 the University ran the 'LCD40' campaign to raise awareness of Hull's integral role in the development of LCD technology. With the work of Professor Stephen Kelly and Mary O'Neill research into organic light-emitting diodes developed and in 2008 a second spin-out company associated with the group was founded under the name of Polar OLED. By 2014 the Hull Liquid Crystal Research Group had come to be known as the Liquid Crystals and Photonics Group. Research had been expanded to include investigation of Organic Light Emitting Diodes and their application to the improvement of LCD technology. The group's membership included Professor Stephen Kelly, Professor Mary O'Neill, Professor Georg Mehl, Dr Mike Hird, Dr Rob Lewis, Dr Ali Adawi, and Dr Neil Kemp.

Biographical Background:

George William Gray (1926-2013) - Pioneer in the Area of Liquid Crystal Research

Early Years

Born 4 September 1926 in Denny, Scotland, he was educated at Denny Public School before undertaking his undergraduate degree at the University of Glasgow.

Academic Career

Upon graduating from Glasgow in 1946, financial constraints meant he had to find work and so he found employment as a laboratory demonstrator at the University of Hull in 1946. In 1947 he was made an assistant lecturer and began his PhD research. In 1953 he completed his doctoral thesis. In the same year he married his wife Marjorie and they went on to have three daughters, Caroline, Veronica and Elizabeth. He undertook much of his early research in a chemistry department led by Brynmor Jones when the University was still accredited by University College London and was known as University College Hull. He was to remain at the University for most of his working life, advancing through to the highest positions in the Chemistry Department. In 1949 he was promoted to lecturer and then to senior lecturer in 1960. He was made a Reader in Organic Chemistry in 1964 and then a Professor of Organic Chemistry in 1978 following his qualification as a Chartered Chemist (C Chem) and a Fellow of the Royal Society of Chemistry (FRSC) in 1972. In 1984 he was appointed to the G F Grant Established Chair and Professorship of Chemistry, and was to serve his final two years at the University from 1989 as Head of the Department of Chemistry.

Consultancy Work

After retiring from the University in 1990 he was appointed as a Research Coordinator at Merck Ltd UK in which capacity he worked until August 1993. He continued to work as a Research Consultant for the company from September 1993 until his retirement. He was also asked to consult on various funding and grant application committees throughout his later career. This consultancy and advisory role included working with various bodies such as the Centre for Self Organising Molecular Systems, University of Leeds (from 1993), Hallcrest Ltd Poole, UK, and Chicago, USA (from 1996), and Electronics Sector, DERA, Malvern, UK (from 1998).

Professional Activities

He was highly active in his chosen field and his professional activities were consequently numerous. He worked as UK editor of Molecular Crystals and Liquid Crystals (1979-1991) and the International Journal of Liquid Crystals (from 1992). He was also a member of various societies, councils and forums including the 21st Century Materials Committee of the Science and Engineering Research Council (for 5 years until 1993), the Yorkshire Section of the Association for Science Education (1984-1985), the Chemistry Division of the British Association for the Advancement of Science (1993), the Physical Sciences Sub-Committee of the UGC undertaking University Research Selectivity Rating (1984-1990), the Displays Committee of the Alvey/DTI Directorate (1984-1989), the Physical Sciences Sub-Committee of the Royal Society (1984-1988), the International Liquid Crystal Society, the British Liquid Crystal Society, the UK Southern Science and Technology Forum (from 1993), the Southern Science and Technology Forum (1996-2000), and the East Dorset Section of Southern Science and Technology Forum (1996-2000). In later years he was closely involved in the establishment of the Southampton Liquid Crystal Institute involving research groups from departments of chemistry, mathematics and physics, being the Chairman of the Advisory Board (1990s). In addition to this work, Professor Gray also served as an external examiner for first degrees (CNAAs) Trent Polytechnic for four years, for first degrees The Queen's University Belfast for five years, for Musgrave Awards of the Queen's University Belfast from

1988, and for PhD degrees in over 35 Universities and Polytechnics. He was also an external assessor for the appointment of new professors in five universities, and supervised the research of 50 research students on MSc and PhD degrees 1950-1990.

Publications

After a lifetime of work his research publications and patents numbered over 360. His major works include the book *Molecular Structure and Properties of Liquid Crystals* published in 1962 (the first book on the subject to be published in English), the article detailing his most famous discovery of cyanobiphenyls 'New Family of Nematic Liquid Crystals for Displays' (with K. Harrison and J. Nash) published in 1973, 'A Liquid Crystal Mixture for Use in Smectic Liquid Crystal Display Devices' (with A. Mosley) published in 1976, 'Liquid Crystal Compounds Incorporating the trans-1, 4-Substituted Cyclohexane Ring System (with D. McDonnell)' published in 1979, 'The Synthesis and Transition Temperatures of Some 4,4"-dialkyl-and 4,4"-aldoxyalkyl-1,1': 4',1"-terphenyls with 2, 3 or 2', 3'-difluoro substituents and of their biphenyl analogues' (with M. Hird, D. Lacey and K. Toyne) published in 1989, and 'Synthesis and Properties of Some Novel Ferroelectric Materials-Hosts and Dopants' (with M. Hird, D. Lacey and K. Toyne) published in 1990, and the co-edited three volume *Handbook of Liquid Crystals* published by VCH.

Awards and Honours

His long career, characterised by dedication, hard work and innovation, was recognised by the award of various honours. As well as numerous honorary doctorates and memberships of scientific societies (including being made a member of the Royal Society), he was awarded a CBE in 1991, and was senior scientist when the Queen's Award for Technological Advancement was given on two occasions (once whilst at the University of Hull in 1979 and once whilst at Merck Ltd UK in 1992). He was also asked to be the Clifford Patterson Prize Lecturer by the Royal Society in 1985, was the Leverhulme Gold Medallist of the Royal Society in 1987, and was the Kyoto International Gold Medallist and Prize Laureate in Advances Technology in 1995. Local honours awarded to Professor Gray included an honorary doctorate from the University of Hull, presidency of Kingston Chemicals Ltd in 1999, and the naming of one of Hull Train's 2005 Class 222 'Pioneer' trains 'Professor George Gray'.

At the heart of an international liquid crystal community, he often came into contact with other leading specialists in the field. In addition to the group working at Hull throughout his long career, he included amongst his friends and colleagues such names as Professor S. Chandrasekhar, Professor G. Scherowsky, Professor E. Chiellini, Dr P. Cladis, Professor Harry Coles, Professor Alan Leadbetter, Professor Duncan Bruce, Professor Sven Lagerwall, and Professor Cyril Hilsum.

Personal Interests and Retirement

In his spare time his interests included gardening and philately (Victorian and Edwardian UK). After a long and successful career, supported by a loving wife and children, this well respected man died on 12 May 2013.

Custodial history:

Received from John Goodby at the University of York (formerly a student of Professor George Gray at the University of Hull and also his successor as head of the Liquid Crystal Research Group) in four parts in Jan 2014, May 2014, Sep 2014 and May 2015

Description:

Papers, files and objects relating to the work of the Liquid Crystal Research Group at the University of Hull Chemistry Department. The group's work focused on research into liquid crystals, their synthesis, properties and industrial applications in the period 1950s-1990s. The group was responsible for the pioneering discovery of cyanobiphenyl liquid crystals in 1972 which allowed for the development of LCD technology. The core of the collection is composed of material from Professor George W. Gray as head of the group and his successor Professor John W. Goodby.

The collection contains correspondence, work books, PhD theses, teaching files, research files and reports, notes, correspondence, lecture acetates, article reprints, books, patents, photographs and slides, audio-visual material, and photomicroscopic artwork. In addition to the usual archival material there are also a small amount of objects in the collection including solid state chemical samples from the 1950s labelled by Gray in his early years at the University of Hull, microscopes and equipment used by Gray and Goodby, sample electronic products using LCD technology sent to Gray by industrial partners for demonstration purposes, the Queens Award for Technology shield awarded to the University for the groups research into liquid crystals in 1979, the first laptop used by the group, and a paper weight marking the 20th anniversary of a student conference series established by Professor Gray.

Arrangement:

Collection is arranged into the following 13 series:

U DLCR/1	Teaching and Students, 1960s-1990s
U DLCR/2	Research Projects, 1979-2000
U DLCR/3	Publications, 1951-2011
U DLCR/4	Conferences, Lectures and Presentations, 1970s-2000s
U DLCR/5	Awards, Nominations and Honours, 1979-2015
U DLCR/6	Research Library, 1936-1992
U DLCR/7	Correspondence Files, 1980s-2000s
U DLCR/8	Photographs and Slides, 1970s-2000s
U DLCR/9	Photomicrographic Artwork, 1990s-2000s
U DLCR/10	Objects, 1950s-1990s
U DLCR/11	Film Material, c.1970-2014
U DLCR/12	Oral Histories, 2014-2015
U DLCR/13	Personal and Biographical, 1929-2015

Extent: 12.5 linear metres

Related material:

U PHO – University Photographers' Collection: George William Gray [B143; A4543; C4544; C4554; A4614; C4615; A5936]

U PHR – University of Hull Personnel Files: Professor George William Gray, 1946-1990 [U PHR/1/296]; Professor S.G. Wilkinson [U PHR/1/473]; Professor Richard Michael Scrowston [U PHR/1/496]; Professor Kenneth Toyne, 1958-2002 [U PHR/1/559]; Professor John W. Goodby, 1977-2004 [U PHR/1/608]

U DBJ – Papers of Sir Brynmor Jones, 1926-1990

Finding aids:

Source Guide: Records of the Liquid Crystals and Advanced Materials Research Group, University of Hull

Access conditions:

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Language: English; German; Dutch

U DLCR/1	Teaching and Students Files and papers relating to teaching by and students of members of the Liquid Crystal Research Group at the University of Hull Chemistry Department. Includes PhD student research reports, bound PhD theses supervised in the department, lab notebooks and teaching files. 4 subseries	1960s-1990s
U DLCR/1/1	PhD Student Research Reports Reports relating to research being undertaken by students in the Liquid Crystal Research Group at the University of Hull Chemistry Department under the supervision of George W. Gray, John W. Goodby and others involved with the group 33 items	1973-1999
U DLCR/1/1/1	Report: Laura Garland, Characterisation of Liquid Crystals First Year PhD 1 item	n.d.
U DLCR/1/1/2	Report: A.J. Crawley, Fast Switching Effects in Chiral Liquid Crystals First Year PhD, marked 'Commercial in Confidence' 1 item	n.d.
U DLCR/1/1/3	Report: S.M. Jones, The synthesis and investigation of liquid crystal systems Part II Investigation Report 1 item	Jun 1973
U DLCR/1/1/4	Report: N.A. Langley, The Synthesis of Novel Cubane and Bicyclo(2.2.2)octane Mesogens First Year PhD 1 item	Oct 1980
U DLCR/1/1/5	Report: R.T. Nicholas, New Liquid Crystal Materials Exhibiting Tow-Frequency Addressable Dielectric Behaviour First Year PhD 1 item	Feb 1981
U DLCR/1/1/6	Report: Hilal M. Abdullah, The Synthesis and Properties of Novel Mesogens from Alicyclic Systems First Year PhD 1 item	Dec 1981

U DLCR/1/1/7	Report: A.D. Ifill, Novel Laterally Fluorinated Alkyl- and Alkoxy- Cyanobiphenyls and Esters First Year PhD 1 item	Mar 1984
U DLCR/1/1/8	Report: David R Beattie, Synthesis of 4-cyano-4'-tetradecylbiphenyl and four bicycle-octane esters Part II Investigation Report 1 item	May 1987
U DLCR/1/1/9	Report: Rachel P. Tuffin, Liquid Crystals for Non Linear Optics Third Year Project 1 item	c.1988
U DLCR/1/1/10	Report: N.J. Thompson, Liquid Crystalline Properties of 1,3-Dicarbonyl Compounds and their Copper(II) Complexes First Year PhD 1 item	Oct 1988
U DLCR/1/1/11	Report: C.J. Booth, The Synthesis and Characterization of Novel Thermochromic Liquid Crystals First Year PhD, marked 'Confidential' 1 item	Oct 1988- Aug 1989
U DLCR/1/1/12	Report: Jason Micklefield, Ferroelectric Liquid Crystals Third Year Research Project 1 item	1989
U DLCR/1/1/13	Report: A.J. Slaney, Highly Chiral Liquid Crystals First Year PhD 1 item	Oct 1989
U DLCR/1/1/14	Report: Michelle Turner, The Determination of the Optical Purity of Enantiomeric Liquid Crystals Part II Project First Year PhD 1 item	1990
U DLCR/1/1/15	Report: R.A. Lewthwaite, The Synthesis of Chiral Liquid Crystal Polymers First Year PhD, marked 'Confidential' 1 item	Aug 1990
U DLCR/1/1/16	Report: Greg John Cross, Liquid Crystalline Crowns for Sensors Final Year Research project 1 item	c.1991

U DLCR/1/1/17	Report: R.P. Tuffin, The Synthesis and Characterisation of Liquid Crystals Containing Aza Crowns, Crown Ethers and the Diaza 18-crown-6 Unit First Year PhD 1 item	Oct 1991
U DLCR/1/1/18	Report: Mark Compton, Antiferroelectric Liquid Crystals Final Year Project 1 item	1992
U DLCR/1/1/19	Report: D.C. Greenhough, Ferroelectric Liquid Crystals Final Year Project 1 item	1992
U DLCR/1/1/20	Report: G.J. Tansley, The Synthesis of A Liquid Crystalline Crown First Year PhD 1 item	Jun 1992
U DLCR/1/1/21	Report: B.R. Carrick, The Synthesis and Characterisation of Novel Smectic Liquid Crystals First Year PhD 1 item	Oct 1992- Sep 1993
U DLCR/1/1/22	Report: Rachael Pashley, Liquid Crystal Chemistry Third Year Research Project 1 item	1993
U DLCR/1/1/23	Report: Marcus J. Watson First Year PhD 1 item	1993-1994
U DLCR/1/1/24	Report: Greg J. Cross, The Preparation & Physical Properties of Highly Polarisable Materials First Year PhD 1 item	1994
U DLCR/1/1/25	Report: Miss M. Glew, Liquid Crystal Carbohydrates and Their Potential as Anti-Viral Agents First Year PhD 1 item	Oct 1994

U DLCR/1/1/26	Report: Annie Coue, Synthesis of Medium Sized Heterocycles First Year PhD 1 item	Oct 1996- Aug 1997
U DLCR/1/1/27	Report: Marcus John Watson, A Structural Review of the Twist Grain Boundary Liquid-Crystalline Phases First Year PhD 1 item	Apr 1997
U DLCR/1/1/28	Report: S.M. Harwood, Chiral Nematics and Related Materials Utilising the 1,2 Cyclopentanophenanthrene Core Unit First Year PhD 1 item	c.Aug 1997
U DLCR/1/1/29	Report: Adam Thornton, Silicon Core Group Crystal Dendrimers First Year PhD 1 item	c.Aug 1997
U DLCR/1/1/30	Report: G.Y. Cosquer, Novel Terminal Groups for Ferroelectric Liquid Crystal Host Materials First Year PhD 1 item	Aug 1997
U DLCR/1/1/31	Report: A.S. Petrenko, Antiferroelectric Liquid Crystals First Year PhD 1 item	1998
U DLCR/1/1/32	Report: Simon M. Harwood, Chiral Nematics and Related Materials Second Report First Year PhD 1 item	1 Feb 1999
U DLCR/1/1/33	Report: Ian D. Warburton, Carbon-Carbon Bond Formation in Challenging Environments Scope and Limitations First Year PhD 1 item	Sep 1999

U DLCR/1/2	PhD Theses	1954-2000
	Bound volumes of PhD theses supervised within the chemistry department of the University of Hull, and relating to the work of George W. Gray on cell walls and the work of the Liquid Crystals Research Group 38 volumes	
U DLCR/1/2/1	PhD Thesis: J.B. Hartley, Synthesis and mesomorphism of certain polycyclic compounds Supervised by George W. Gray, no industrial sponsorship (submitted for the award of M.Sc degree not PhD) 1 volume	Jan 1954
U DLCR/1/2/2	PhD Thesis: F. Marson, Synthesis and mesomorphism of certain substituted n-alkoxy aromatic carboxylic acids Supervised by George W. Gray, no industrial sponsorship (submitted for the award of M.Sc degree not PhD) 1 volume	Feb 1955
U DLCR/1/2/3	PhD Thesis: P. Culling, Some studies on the chemistry of p-Terphenyl Supervised by George W. Gray, no industrial sponsorship 1 volume	Aug 1956
U DLCR/1/2/4	PhD Thesis: A. Ibbotson, Steric effects in mesomorphic diphenyl derivative Supervised by George W. Gray, no industrial sponsorship 1 volume	Sep 1957
U DLCR/1/2/5	PhD Thesis: D. Lewis, A study of the nitration of p-Terphenyl Supervised by George W. Gray, no industrial sponsorship 1 volume	1959
U DLCR/1/2/6	PhD Thesis: Edgar Howard Osborne, The mode of bacterial action of phenols and salicylaldehydes Supervised by George W. Gray, industrial sponsorship 1 volume	1959
U DLCR/1/2/7	PhD Thesis: B.M. Worrall, The influence of steric effects on mesomorphism Supervised by George W. Gray, no industrial sponsorship 1 volume	Oct 1959

U DLCR/1/2/8	PhD Thesis: Dennis Ernest Burton, The germicidal activities of saliclaldehydes and related systems Supervised by George W. Gray, industrial sponsorship 1 volume	Aug 1961
U DLCR/1/2/9	PhD Thesis: Stephen Garnett Wilkinson, The action of ethylenediaminetetra-acetic acid on <i>Pseudomonas aeruginosa</i> Supervised by George W. Gray, industrial sponsorship. Note that Wilkinson went on to become a professor at the University of Hull. 1 volume	Jul 1962
U DLCR/1/2/10	PhD Thesis: R.C. Wilson, The transmission of electronic effects in certain biphenyl systems Supervised by George W. Gray, no industrial sponsorship 1 volume	Aug 1963
U DLCR/1/2/11	PhD Thesis: John Weston Payne, The action of ethylenediaminetetra-acetic acid on the cell wall of <i>Pseudomonas aeruginosa</i> Supervised by George W. Gray, industrial sponsorship 1 volume	Sep 1965
U DLCR/1/2/12	PhD Thesis: Subramaniam Sotheeswaran, The synthesis and use of 1,4-DisubstitutedBicyclo(2,2,2)octanes in the study of polar effects Supervised by George W. Gray, no industrial sponsorship 1 volume	Jun 1967
U DLCR/1/2/13	PhD Thesis: Anthony Hugh Fensom, The lipopolysaccharide of <i>Pseudomonas aeruginosa</i> Supervised by George W. Gray, industrial sponsorship 1 volume	Sep 1967
U DLCR/1/2/14	PhD Thesis: Brian Alan Key, The lipopolysaccharide of <i>Pseudomonas alcaligenes</i> Supervised by George W. Gray, industrial sponsorship 1 volume	Aug 1968
U DLCR/1/2/15	PhD Thesis: Ian Robert Chester, The lipopolysaccharide of <i>Pseudomonas aeruginosa</i> Supervised by George W. Gray, industrial sponsorship 1 volume	Aug 1969

U DLCR/1/2/16	PhD Thesis: Kenneth John Harrison, The effects of structural changes on the liquid crystalline properties of certain esters 1 volume	Jan 1972
U DLCR/1/2/17	PhD Thesis: David Thornton Drewry, Structural studies of the lipopolysaccharide of <i>Pseudomonas aeruginosa</i> Supervised by George W. Gray, industrial sponsorship 1 volume	May 1972
U DLCR/1/2/18	PhD Thesis: David Coates, The influence of molecular structure on liquid crystalline properties 1 volume	Jun 1974
U DLCR/1/2/19	PhD Thesis: J.W. Goodby, Smectic Liquid Crystals Supervised by George W. Gray 1 volume	1977
U DLCR/1/2/20	PhD Thesis: Damien Gerard McDonnell, Liquid crystals for scientific and technological application 1 volume	Nov 1979
U DLCR/1/2/21	PhD Thesis: Nigel Alan Langley, The synthesis of novel cubane, hydrogenolysed cubane, and bicycle(2.2.2)octane mesogens 1 volume	Mar 1983
U DLCR/1/2/22	PhD Thesis: Michael Hannant, Cholesteric liquid crystals and the detection of pollutants 1 volume	Mar 1983
U DLCR/1/2/23	PhD Thesis: Stephen Malcolm Kelly, Liquid crystal materials containing the 1,4-distributed bicycle(2,2,2)octane ring 1 volume	Apr 1983
U DLCR/1/2/24	PhD Thesis: Neil Carr, The synthesis of novel liquid crystal materials designed for electro-optic displays 1 volume	Jun 1984
U DLCR/1/2/25	PhD Thesis: Peter Alan Gemmell, Liquid crystalline side chain polymers 1 volume	1985
U DLCR/1/2/26	PhD Thesis: Beatrice Mary Nicholas, The synthesis and properties of some new mesogenic materials 1 volume	Sep 1985

U DLCR/1/2/27	PhD Thesis: John William Goodby, The physical and chemical properties of ordered fluids For award of D.Sc 1 volume	Jan 1988
U DLCR/1/2/28	PhD Thesis: Adam Jackson, Synthesis and properties of materials for use in ferroelectric opto-electronic display devices 1 volume	1988
U DLCR/1/2/29	PhD Thesis: D.J. Young, Synthesis and Evaluation of Some Novel Ferroelectric Liquid Crystal Materials 1 volume	1990
U DLCR/1/2/30	PhD Thesis: M. Hird, The Synthesis and Properties of Liquid Crystals for Twisted Nematic and Ferroelectric Displays 1 volume	1990
U DLCR/1/2/31	PhD Thesis: M.S.K. Lee, Side Chain Liquid Crystal Polysiloxanes 1 volume	1991
U DLCR/1/2/32	PhD Thesis: M.E. Cooper, Synthesis and Evaluation of Liquid Crystal Materials of High Birefringence for use in Devices 1 volume	1991
U DLCR/1/2/33	PhD Thesis: R.A. Lewthwaite, The Synthesis and Evaluation of Cholesteric Materials 1 volume	1992
U DLCR/1/2/34	PhD Thesis: Andrew John Slaney, Frustration and chirality in anisotropic fluids Supervised by Professor John Goodby 1 volume	Sep 1992
U DLCR/1/2/35	PhD Thesis: D.R. Beattie, The Synthesis and Liquid Crystalline Properties of some Discotic Liquid Crystals 1 volume	1993
U DLCR/1/2/36	PhD Thesis: S. Pringle, Antiferroelectric and Ferroelectric Smectic C Side Chain Liquid Crystal Polymers 1 volume	1996

U DLCR/1/2/37	PhD Thesis: Marcus John Watson, Asymmetric and molecular interactions in liquid-crystalline fluids Supervised by Dr P. Styring 1 volume	May 1997
U DLCR/1/2/38	PhD Thesis: Guirec Yann Cosquer, Liquid crystals with novel terminal chains as ferroelectric liquid crystal hosts Supervised by Professor K.J. Toyne 1 volume	Feb 2000
U DLCR/1/3	Lab Books Contains notebooks used by various students and researchers working in the area of liquid crystals with George W. Gray whilst at the Chemistry Department of the University of Hull. Includes books belonging to Chris Hogg, John W. Goodby, Ian Harrison, David Coates and Laurence Chan. 5 items	1970s-1980s
U DLCR/1/3/1	Bundle: Lab Books of Chris Hogg Technician/postgraduate student of George Gray. Hardbound volumes containing manuscript notes recording experiments and observations. (i) Volume 1, 1 May 1979-8 Dec 1981 (ii) Volume 2, 10 Jan 1983 (iii) Volume 3, 12 May 1985-28 Apr 1986 1 bundle (3 volumes)	1970s-1980s
U DLCR/1/3/2	Bundle: Lab Books of John W. Goodby Postgraduate student of George Gray. Hardbound volumes containing manuscript notes recording experiments and observations. (i) Volume 1, n.d. (ii) Volume 2, 2 Oct 1974-3 Mar 1975 (iii) Volume 3, 14 Nov 1973-4 Dec 1973 (iv) Volume 4, 10 Oct 1977-23 Aug 1978 (v) Volume 5, Oct 1974-Apr 1975 1 bundle (5 volumes)	1970s
U DLCR/1/3/3	Bundle: Lab Books of Ian Harrison Postgraduate student of George Gray. Hardbound volumes containing manuscript notes recording experiments and observations. (i) Volume 1, Book 1, n.d. (ii) Volume 2, Book 2, 1 Oct 1969-? (iii) Volume 3, Book 3, 15 Jun 1970-? (iv) Volume 4, Book 4, n.d. (v) Volume 5, [Book 5?], n.d. 1 bundle (5 volumes)	1970s

U DLCR/1/3/4	<p>Bundle: Lab Books of David Coates PhD student of George Gray. Hardbound volumes containing manuscript notes recording experiments and observations. (i) Volume 1, 24 Apr 1969-28 Jan 1971 (ii) Volume 2, Book 1 Practical Preps, Oct 1971-Jun 1972 (iii) Volume 3, Book 2, Practicals, Jun 1972-Aug 1973 (iv) Volume 4, Microscopic Observations, n.d. 1 bundle (4 volumes)</p>	1970s
U DLCR/1/3/5	<p>Lab Book of Laurence Chan Postgraduate student of George Gray. Hardbound volume containing manuscript notes recording experiments and observations. 1 volume</p>	1980s
U DLCR/1/4	<p>Teaching Files Files relating to teaching activities compiled by various members of the Liquid Crystals Research Group. Includes files compiled by George W. Gray and John W. Goodby. 11 files</p>	1960s-2000s
U DLCR/1/4/1	<p>File: George Gray, Undergraduate Teaching, Year 2, Bifunctional Chemistry File contains Gray's manuscript lecture notes for teaching a Year 2 Bifunctional Chemistry module, and later passed on to John W. Goodby 1 file</p>	c.1960s-1970s
U DLCR/1/4/2	<p>File: George Gray, Undergraduate Teaching, Organic Chemistry Teaching Alcohols etc File contains Gray's manuscript and typescript lecture notes for teaching Organic Chemistry to 1st year students (special and joint) 1 file</p>	c.1960s-1980s
U DLCR/1/4/3	<p>File: George Gray, Undergraduate Teaching, Joint II, Reaction Mechanisms File contains Gray's manuscript and typescript lecture notes for teaching Reaction Mechanisms 1 file</p>	c.1960s
U DLCR/1/4/4	<p>File: George Gray, Undergraduate Teaching, 1st Year, Organic Chemistry File contains Gray's manuscript and typescript lecture notes and teaching materials for teaching Organic Chemistry to Year 1 1 file</p>	c.1960s-1980s

U DLCR/1/4/5	File: Liquid Crystals 'Pick-Up' Course - George Gray File contains 3 memoranda relating to a potential 'Pick-Up Course' on liquid crystals at the University of Hull. The course was intended for post-training professional chemists and was to be run by Gray (named as course co-ordinator). 1 file	9 Oct 1989- 23 Oct 1989
U DLCR/1/4/6	File: John W. Goodby, PG 3.27 (92) 1-10 Notes used in teaching on course PG 3.27 (92) lectures 1-10 1 file	1992
U DLCR/1/4/7	File: John W. Goodby, Undergraduate lectures File contains the following bound lecture notes compiled by Goodby: 1. 'Is the Future for Liquid Crystal Devices in Smectic Liquid Crystals' 2. 'Todays Application of Nematic Liquid Crystals' 1 file (2 items)	c.1990s-2000s
U DLCR/1/4/8	File: John W. Goodby, Undergraduates Year 2 - Carbanion and Bifunctional Chemistry Overheads and lecture notes 1 file	c.1990s
U DLCR/1/4/9	File: John W. Goodby, Polypeptides Proteins 3 Overheads and lecture notes 1 file	c.1990s
U DLCR/1/4/10	File: John W. Goodby, Microscopy British Liquid Crystals Society Winter Workshop Overheads relating to workshop given by Goodby. Note that these workshops started with a pilot at Southampton in 1989 under the guidance of George W. Gray before moving to Hull where they have been for over 20 years. 1 file	c.1990s
U DLCR/1/4/11	File: John W. Goodby, British Liquid Crystals Society Winter Workshop Overheads and notes relating to postgraduate workshop given by Goodby. Note that these workshops started with a pilot at Southampton in 1989 under the guidance of George W. Gray before moving to Hull where they have been for over 20 years. 1 file	1995

U DLCR/2

Research Projects

1979-2000

Reports and files relating to Ministry of Defence (MoD) funded Research Projects undertaken by the Liquid Crystal Research Group at the University of Hull Chemistry Department in partnership with various scientific research establishments. Research was undertaken between the 1970s and the 2000s. To give some background, MoD scientific research establishments went through a progressive series of reconstitutions during the late 20th century. Of relevance to this programme of research are the following: RSRE; DRA; DERA; QUINETIQ. Royal Signals and Radar Establishment (RSRE) was a research establishment within MoD formed in 1976 from various earlier research establishments. Royal Signals and Radar Establishment (RSRE) amalgamated with various research establishments in 1991 to form Defence Research Agency (DRA). Defence Research Agency (DRA) became part of the newly formed Defence Evaluation and Research Agency (DERA) in 1995. In 2001 DERA was split to form two organisations, one of which became QuinetiQ and the other of which became the Defence Science and Technology Laboratory (DSTL).

9 subseries

U DLCR/2/1

MOD Consortium Reports (Liquid Crystalline Systems)

**20 Jan 1971-
16 May 1979**

University of Hull reports presented at meetings of the MOD Consortium on liquid crystals related research. Members of the consortium included the Liquid Crystal Research Group at the University of Hull Chemistry Department, Exeter University, University of Bristol, University of Sheffield, RSRE/DRA, STL and BDH Chemicals Ltd/Merck UK Ltd. Please note that report No.2 was not deposited and so is marked as 'missing' in the catalogue.

29 items

U DLCR/2/1/1	MOD Consortium Report No.1 (Liquid Crystalline Systems) University of Hull report presented at Second Consortium Meeting, held at Royal Radar Establishment, Malvern, Feb 1971 1 item	20 Jan 1971
U DLCR/2/1/2	MOD Consortium Report No.2 (Liquid Crystalline Systems) University of Hull report presented at Third Consortium Meeting, 1971 Item missing and therefore cannot be made accessible 1 item	1971
U DLCR/2/1/3	MOD Consortium Report No.3 (Liquid Crystalline Systems) University of Hull report presented at Fourth Consortium Meeting, held at Department of Chemistry, University of Hull, Sep 1971 1 item	8 Sep 1971
U DLCR/2/1/4	MOD Consortium Report No.4 (Liquid Crystalline Systems) University of Hull report presented at Fifth Consortium Meeting, held at Marconi Company Limited, Great Baddow, Chelmsford, Nov 1971 1 item	7 Dec 1971
U DLCR/2/1/5	MOD Consortium Report No.5 (Liquid Crystalline Systems) University of Hull report presented at Sixth Consortium Meeting, held at Royal Aircraft Establishment, Farnborough, Apr 1972 1 item	28 Apr 1972
U DLCR/2/1/6	MOD Consortium Report No.6 (Liquid Crystalline Systems) University of Hull report presented at Seventh Consortium Meeting, held at Royal Radaar Establishment, Malvern, Jul 1972 1 item	19 Jul 1972
U DLCR/2/1/7	MOD Consortium Report No.7 (Liquid Crystalline Systems) University of Hull report presented at Eighth Consortium Meeting, held at S.E.R.L., Baldock, Nov 1972 1 item	1 Nov 1972

U DLCR/2/1/8	MOD Consortium Report No.8 (Liquid Crystalline Systems) University of Hull report presented at Ninth Consortium Meeting, held at S.T.L., Harlow, Mar 1973 1 item	1 Mar 1973
U DLCR/2/1/9	MOD Consortium Report No.9 (Liquid Crystalline Systems) University of Hull report presented at Tenth Consortium Meeting, held at University of Hull, Jul 1973 1 item	22 Jun 1973
U DLCR/2/1/10	MOD Consortium Report No.10 (Liquid Crystalline Systems) University of Hull report presented at Eleventh Consortium Meeting, held at R.A.E. Farnborough, Oct 1973 1 item	10 Oct 1973
U DLCR/2/1/11	MOD Consortium Report No.11 (Liquid Crystalline Systems) University of Hull report presented at Twelfth Consortium Meeting, held at R.R.E. Malvern, Jan 1974 but postponed to Feb 1974 1 item	23 Jan 1974
U DLCR/2/1/12	MOD Consortium Report No.12 (Liquid Crystalline Systems) University of Hull report presented at Thirteenth Consortium Meeting, held at B.D.H. Ltd, Poole, 14 May 1974 1 item	3 May 1974
U DLCR/2/1/13	MOD Consortium Report No.13 (Liquid Crystalline Systems) University of Hull report presented at Fourteenth Consortium Meeting, held at S.E.R.L., Baldock, 26 Sep 1974 1 item	24 Sep 1974
U DLCR/2/1/14	MOD Consortium Report No.14 (Liquid Crystalline Systems) University of Hull report presented at Fifteenth Consortium Meeting, held at Pilkington, Ormskirk, 16 Jan 1975 1 item	16 Jan 1975

U DLCR/2/1/15	<p>MOD Consortium Report No.15 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Sixteenth Consortium Meeting, held at S.T.L., Harlow, 15 Apr 1975</p> <p>1 item</p>	15 Apr 1975
U DLCR/2/1/16	<p>MOD Consortium Report No.16 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Seventeenth Consortium Meeting, held at R.A.E. Farnborough, 10 Jul 1975</p> <p>1 item</p>	10 Jul 1975
U DLCR/2/1/17	<p>MOD Consortium Report No.17 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Eighteenth Consortium Meeting, held at University of Hull, 21 Oct 1975</p> <p>1 item</p>	21 Oct 1975
U DLCR/2/1/18	<p>MOD Consortium Report No.18 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Nineteenth Consortium Meeting, held at R.R.E. Malvern, 10 Feb 1976</p> <p>1 item</p>	10 Feb 1976
U DLCR/2/1/19	<p>MOD Consortium Report No.19 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Twentieth Consortium Meeting, [held?], 1976</p> <p>1 item</p>	1976
U DLCR/2/1/20	<p>MOD Consortium Report No.20 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Twenty First Consortium Meeting, held at B.D.H. Chemicals Limited, Poole, 13 Sep 1976</p> <p>1 item</p>	13 Sep 1976
U DLCR/2/1/21	<p>MOD Consortium Report No.21 (Liquid Crystalline Systems)</p> <p>University of Hull report presented at Twenty Second Consortium Meeting, held at S.T.L. Limited, Harlow, 11 Jan 1977</p> <p>1 item</p>	11 Jan 1977

U DLGR/2/1/22	MOD Consortium Report No.22 (Liquid Crystalline Systems) University of Hull report presented at Twenty Third Consortium Meeting, held at University of Hull, 20 Apr 1977 1 item	20 Apr 1977
U DLGR/2/1/23	MOD Consortium Report No.23 (Liquid Crystalline Systems) University of Hull report presented at Twenty Fourth Consortium Meeting, held at R.S.R.E. Malvern, 16 Aug 1977 1 item	16 Aug 1977
U DLGR/2/1/24	MOD Consortium Report No.24 (Liquid Crystalline Systems) University of Hull report presented at Twenty Fifth Consortium Meeting, held at Pilkington Brothers Limited, Lathom, 16 Nov 1977 1 item	16 Nov 1977
U DLGR/2/1/25	MOD Consortium Report No.25 (Liquid Crystalline Systems) University of Hull report presented at Twenty Sixth Consortium Meeting, held at C.V.D. Headquarters, London, 7 Mar 1978 1 item	7 Mar 1978
U DLGR/2/1/26	MOD Consortium Report No.26 (Liquid Crystalline Systems) University of Hull report presented at Twenty Seventh Consortium Meeting, held at B.D.H. Chemicals Limited, Poole, 11 Jul 1978 1 item	11 Jul 1978
U DLGR/2/1/27	MOD Consortium Report No.27 (Liquid Crystalline Systems) University of Hull report presented at Twenty Eighth Consortium Meeting, held at S.T.L. Harlow, 8 Nov 1978 1 item	8 Nov 1978
U DLGR/2/1/28	MOD Consortium Report No.28 (Liquid Crystalline Systems) University of Hull report presented at Twenty Ninth Consortium Meeting, held at University of Hull, 14-15 Feb 1979 1 item	14-15 Feb 1979

U DLCR/2/1/29	MOD Consortium Report No.29 (Liquid Crystalline Systems) University of Hull report presented at Thirtieth Consortium Meeting, held at R.S.R.E. Malvern, 16 May 1979 Access will be granted to any accredited reader 1 item	16 May 1979
U DLCR/2/2	MOD Consortium Reports Files (Liquid Crystalline Systems) Files containing reports presented at meetings of the MOD Consortium on liquid crystals related research. Members of the consortium included the Liquid Crystal Research Group at the University of Hull Chemistry Department, Exeter University, University of Bristol, University of Sheffield, RSRE/DRA, STL and BDH Chemicals Ltd/Merck UK Ltd. Note that this series continues the sequence of reports from U DLCR/2/1. 43 items	1979-1994
U DLCR/2/2/1	File: MOD Consortium Report No.30 (Liquid Crystalline Systems) 31st Consortium meeting held at University of Exeter. Reports and minutes of the meeting. Includes reports from University of Hull, Exeter University, RSRE, STL, B.D.H. Chemicals Ltd, University of Sheffield 1 file (8 pieces)	13-14 Sep 1979
U DLCR/2/2/2	File: MOD Consortium Report No.31 (Liquid Crystalline Systems) 32nd Consortium meeting held at University of Sheffield. Reports and minutes of the meeting and notice of meeting to be held. Includes reports from University of Hull, STL, B.D.H. Chemicals Ltd, RSRE 1 file (6 pieces)	17-18 Dec 1979
U DLCR/2/2/3	File: MOD Consortium Report No.32 (Liquid Crystalline Systems) 33rd Consortium meeting held at B.D.H. Chemicals Limited, Poole. Report and also correspondence relating to holding of meeting, minutes of meeting. Includes reports from University of Hull, University of Exeter, B.D.H. Chemicals Ltd, University of Sheffield, STL, RSRE 1 file (9 pieces)	24-25 Apr 1980

U DLCR/2/2/4	File: MOD Consortium Report No.33 (Liquid Crystalline Systems) 34th Consortium meeting held at STL, Harlow. Report and also correspondence relating to research, minutes of meeting. Includes reports from University of Hull, University of Exeter, RSRE, B.D.H. Chemicals Ltd, University of Sheffield, STL 1 file (11 pieces)	24-25 Sep 1980
U DLCR/2/2/5	File: MOD Consortium Report No.34 (Liquid Crystalline Systems) 35th Consortium meeting held at RSRE Malvern. Reports and bibliography, correspondence relating to research, minutes of meeting, OHP slides. Includes reports from University of Hull, University of Exeter, RSRE, STL, University of Sheffield 1 file (10 pieces)	21-22 Jan 1981
U DLCR/2/2/6	File: MOD Consortium Report No.35 (Liquid Crystalline Systems) 36th Consortium meeting held at University of Hull. Reports and correspondence relating to arrangements for the meeting, material relating to catering arrangements, meeting timetable, minutes of meeting, notes. Includes reports from University of Hull, University of Sheffield, University of Exeter, RSRE, B.D.H. Chemicals Ltd, STL. 1 file (11 pieces)	23-24 Apr 1981
U DLCR/2/2/7	File: MOD Consortium Report No.36 (Liquid Crystalline Systems) 37th Consortium meeting held at University of Exeter. Reports and minutes of the meeting, notes. Includes reports from University of Hull, University of Exeter, RSRE, B.D.H. Chemicals Ltd, STL, University of Sheffield 1 file (8 pieces)	Sep 1981
U DLCR/2/2/8	File: MOD Consortium Report No.37 (Liquid Crystalline Systems) 38th Consortium meeting held at Canterbury Hall, University of London. Reports and minutes of meeting, notes. Includes reports from University of Hull, University of Exeter, RSRE, B.D.H. Chemicals Ltd, STL, University of Sheffield 1 file (8 pieces)	7-8 Jan 1982

U DLCR/2/2/9	File: MOD Consortium Report No.38 (Liquid Crystalline Systems) 39th Consortium meeting held at University of Sheffield. Reports and minutes of meeting, notes. Includes reports from University of Hull, University of Exeter, RSRE, B.D.H. Chemicals Ltd, STL, University of Sheffield 1 file (8 pieces)	22-23 Apr 1982
U DLCR/2/2/10	File: MOD Consortium Report No.39 (Liquid Crystalline Systems) 40th Consortium meeting held at University of Southampton. Reports and minutes of meeting, notes. Includes reports from University of Hull, University of Exeter, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	15 Sep 1982
U DLCR/2/2/11	File: MOD Consortium Report No.40 (Liquid Crystalline Systems) 41st Consortium meeting held at London. Reports and minutes of meeting, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd, University of Exeter 1 file (6 pieces)	6 Jan 1983
U DLCR/2/2/12	File: MOD Consortium Report No.41 (Liquid Crystalline Systems) 42nd Consortium meeting held at B.D.H. Chemicals Ltd. Reports and minutes of meeting, list of topics for discussion. Includes reports from University of Hull, RSRE 1 file (4 pieces)	11-12 Apr 1983
U DLCR/2/2/13	File: MOD Consortium Report No.42 (Liquid Crystalline Systems) 43rd Consortium meeting held at University of Hull. Reports and minutes of meeting. Includes reports from University of Hull, RSRE 1 file (3 pieces)	18 Jul 1983
U DLCR/2/2/14	File: MOD Consortium Report No.43 (Liquid Crystalline Systems) 44th Consortium meeting held at RSRE. Reports and minutes of meeting, correspondence, agenda, notes, reading materials. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (9 pieces)	1983

U DLCR/2/2/15	File: MOD Consortium Report No.44 (Liquid Crystalline Systems) 45th Consortium meeting held at DCVD London. Reports and minutes of meeting, draft agenda, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	25 Jan 1984
U DLCR/2/2/16	File: MOD Consortium Report No.45 (Liquid Crystalline Systems) 46th Consortium meeting held at MOD Empress State Building London. Reports and minutes of meeting, draft agenda, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	2 May 1984
U DLCR/2/2/17	File: MOD Consortium Report No.46 (Liquid Crystalline Systems) 47th Consortium meeting held at B.D.H. Chemicals Limited, Poole. Reports and minutes of meeting. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (5 pieces)	1-2 Oct 1984
U DLCR/2/2/18	File: MOD Consortium Report No.47 (Liquid Crystalline Systems) 48th Consortium meeting held at Royal Holloway and Bedford Colleges, Egham. Reports and minutes of meeting, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	3 Jan 1985
U DLCR/2/2/19	File: MOD Consortium Report No.48 (Liquid Crystalline Systems) 49th Consortium meeting held at RSRE Malvern. Reports and meeting handouts, correspondence. Includes reports from University of Hull, B.D.H. Chemicals Ltd 1 file (5 pieces)	17-18 Apr 1985
U DLCR/2/2/20	File: MOD Consortium Report No.49 (Liquid Crystalline Systems) 50th Consortium meeting held at The Lawns Centre, Cottingham. Reports and correspondence and other material relating to arrangements for the meeting, minutes of the meeting. Includes reports from University of Hull, B.D.H. Chemicals Ltd 1 file (5 pieces)	15-16 Jul 1985

U DLCR/2/2/21	File: MOD Consortium Report No.50 (Liquid Crystalline Systems) 51st Consortium meeting held at DCVD London. Reports and minutes of meeting, provisional agenda, patents report. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	3 Oct 1985
U DLCR/2/2/22	File: MOD Consortium Report No.51 (Liquid Crystalline Systems) 52nd Consortium meeting held at DCVD London. Reports and minutes of meeting. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (4 pieces)	30 Jan 1986
U DLCR/2/2/23	File: MOD Consortium Report No.52 (Liquid Crystalline Systems) 53rd Consortium meeting held at Empress State Building, London. Reports and minutes of meeting, proposed agenda, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (6 pieces)	15 Sep 1986
U DLCR/2/2/24	File: MOD Consortium Report No.53 (Liquid Crystalline Systems) 54th Consortium meeting held at University of Hull. Reports and minutes of meeting, meeting handouts. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (5 pieces)	7 Jan 1987
U DLCR/2/2/25	File: MOD Consortium Report No.54 (Liquid Crystalline Systems) 55th Consortium meeting held at DCVD, London. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd 1 file (3 pieces)	2 Oct 1987
U DLCR/2/2/26	File: MOD Consortium Report No.55 (Liquid Crystalline Systems) 56th Consortium meeting held at DCVD, London. Includes reports from B.D.H. Chemicals Ltd, note that the Hull report is missing 1 file (1 piece)	14 Jan 1988

U DLCR/2/2/27	File: MOD Consortium Report No.56 (Liquid Crystalline Systems) 57th Consortium meeting held at Empress State Building, London. Reports and minutes of the meeting, memoranda and correspondence, notes and handouts. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd [note: labelled same as next file] 1 file (7 pieces)	8 Jun 1989
U DLCR/2/2/28	File: MOD Consortium Report No.56 (Liquid Crystalline Systems) 57th Consortium meeting held at University of Hull. Reports and minutes of the meeting, agenda, correspondence, handouts and notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd [note: labelled same as previous file] 1 file (9 pieces)	15-16 Aug 1989
U DLCR/2/2/29	File: MOD Consortium Report No.57 (Liquid Crystalline Systems) 58th Consortium meeting held at Empress State Building, London. Reports and minutes of the meeting, agenda, correspondence, notes. Includes reports from University of Hull, RSRE, B.D.H. Chemicals Ltd, R.M. Richardson S. Barnard and A. Cherodian 1 file (8 pieces)	8 Dec 1989
U DLCR/2/2/30	File: MOD Consortium Report No.58 (Liquid Crystalline Systems) 59th Consortium meeting held at Bristol University. Reports and minutes of the meeting, notes and handouts. Includes reports from RSRE, B.D.H. Chemicals Ltd, University of Sheffield, R.M. Richardson and S. Barnard. Note that the Hull report is missing. 1 file (10 pieces)	11-12 Apr 1990
U DLCR/2/2/31	File: MOD Consortium Report No.59 (Liquid Crystalline Systems) 60th Consortium meeting held at BDH Chemicals Ltd, Poole. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from RSRE, B.D.H. Chemicals Ltd, University of Bristol, University of Sheffield. Note that the Hull report is missing. 1 file (8 pieces)	13-14 Sep 1990

U DLCR/2/2/32	File: MOD Consortium Report No.60 (Liquid Crystalline Systems) 61st Consortium meeting held at Empress State Building, London. Reports and minutes of the meeting, correspondence, handouts and notes. Includes reports from University of Hull, B.D.H. Chemicals Ltd, University of Bristol, University of Sheffield, S.A. Barnard A.H. Price E.P. Raynes and R.M. Richardson 1 file (12 pieces)	9 Jan 1991
U DLCR/2/2/33	File: MOD Consortium Report No.61 (Liquid Crystalline Systems) 62nd Consortium meeting held at RSRE Malvern. Reports and minutes of the meeting, agenda, correspondence, handouts and notes. Includes reports from University of Hull, RSRE, University of Sheffield, University of Bristol, Merck Ltd 1 file (10 pieces)	18-19 Apr 1991
U DLCR/2/2/34	File: MOD Consortium Report No.62 (Liquid Crystalline Systems) 63rd Consortium meeting held at Sheffield University. Reports and minutes of the meeting, meeting agenda, correspondence, handouts and notes. Includes reports from University of Hull, DRA Electronics Division, Merck Ltd, University of Bristol, University of Sheffield 1 file (14 pieces)	24-25 Sep 1991
U DLCR/2/2/35	File: MOD Consortium Report No.63 (Liquid Crystalline Systems) 64th Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from University of Hull, RSRE, Merck Ltd, University of Sheffield 1 file (7 pieces)	5 Jan 1992
U DLCR/2/2/36	File: MOD Consortium Report No.64 (Liquid Crystalline Systems) 65th Consortium meeting held at University of Hull. Reports and agenda, handouts and notes. Includes reports from University of Hull, DRA, Merck Ltd, University of Sheffield, Bristol University 1 file (11 pieces)	13-14 Apr 1992

U DLCR/2/2/37	File: MOD Consortium Report No.65 (Liquid Crystalline Systems) 66th Consortium meeting held at University of Bristol. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from University of Hull, DRA, Merck Ltd, University of Sheffield, Bristol University 1 file (8 pieces)	14-15 Sep 1992
U DLCR/2/2/38	File: MOD Consortium Report No.66 (Liquid Crystalline Systems) 67th Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from University of Hull, DRA Electronics Division, Merck Ltd, University of Sheffield, S.D. Haslam L. Taylor and R.M. Richardson 1 file (10 pieces)	5 Jan 1993
U DLCR/2/2/39	File: MOD Consortium Report No.67 (Liquid Crystalline Systems) 68th Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from University of Hull, DRA, Merck Ltd, University of Sheffield, University of Bristol 1 file (10 pieces)	25 May 1993
U DLCR/2/2/40	File: MOD Consortium Report No.68 (Liquid Crystalline Systems) 69th Consortium meeting held at DRA Malvern. Includes reports from University of Hull, DRA, Merck Ltd, University of Sheffield, University of Bristol 1 file (6 pieces)	9 Sep 1993
U DLCR/2/2/41	File: MOD Consortium Report No.69 (Liquid Crystalline Systems) 70th Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, list of action points arising, handouts and notes, patents report. Includes reports from University of Hull (draft and final), DRA, Merck Ltd, University of Sheffield, University of Bristol 1 file (10 pieces)	7 Jan 1994

U DLCR/2/2/42	File: MOD Consortium Report No.70 (Liquid Crystalline Systems) 71st Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, agenda, handouts and notes, patent report. Includes reports from University of Hull, DRA, University of Sheffield 1 file (7 pieces)	3 May 1994
U DLCR/2/2/43	File: MOD Consortium Report No.71 (Liquid Crystalline Systems) 72nd Consortium meeting held at DRA Malvern. Reports and minutes of the meeting, agenda, handouts and notes. Includes reports from University of Hull, DRA, Merck Ltd, University of Sheffield, University of Bristol 1 file (8 pieces)	19 Sep 1994
U DLCR/2/3	MoD Research Programme Reports: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Reports Nos.1-14. Please note that report No.4 was not deposited and so is marked as 'missing' in the catalogue 16 items	1994-2000
U DLCR/2/3/1	File: Continuation Proposal re Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Contains draft budgets, letter from MoD, 19th annual report (1988-1989) relating to the research programme, proposal document and research notes. The research programme was undertaken under Navy Department Contract CP/1809/70 and was part of the CVD Research Project RU18-14 (Display Devices). Note that George W. Gray is cited as lead contractor on the research. 1 file (8 pieces)	1989-1990
U DLCR/2/3/2	Defence Research Agency, RSRE First Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Sep 1994- Jan 1995
U DLCR/2/3/3	Defence Research Agency, RSRE Second Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Jan 1995- Mar 1995

U DLCR/2/3/4	Defence Research Agency, RSRE Third Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Apr 1995- Jun 1995
U DLCR/2/3/5	Defence Research Agency, RSRE Fourth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Item missing and therefore cannot be made accessible 1 item	Jun 1995- Oct 1995
U DLCR/2/3/6	Defence Research Agency, RSRE Fifth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Oct 1995- Jan 1996
U DLCR/2/3/7	Defence Research Agency, RSRE Sixth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Jan 1996- Mar 1996
U DLCR/2/3/8	Defence Research Agency, RSRE Seventh Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Apr 1996- Jun 1996
U DLCR/2/3/9	Defence Research Agency, RSRE Eighth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Jul 1996- Oct 1996
U DLCR/2/3/10	Defence Research Agency, RSRE Ninth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Nov 1996- Jan 1997
U DLCR/2/3/11	Defence Research Agency, RSRE Tenth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature 1 item	Oct 1997- Jun 1998
U DLCR/2/3/12	Defence Research Agency, RSRE Eleventh Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Note: Marked as 12th report but follows chronologically from the tenth report 1 item	Jul 1998- Oct 1998

U DLCR/2/3/13	Defence Research Agency, RSRE Twelfth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Note: Marked as 13th report but follows chronologically from the eleventh report 1 item	Oct 1998- Jan 1999
U DLCR/2/3/14	Defence Research Agency, RSRE Thirteenth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Note: Marked as 14th report but follows chronologically from the twelfth report 1 item	Feb 1999- May 1999
U DLCR/2/3/15	Defence Research Agency, RSRE Fourteenth Report: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Note: Marked as 15th report but follows chronologically from the thirteenth report 1 item	Jun 1999- Sep 1999
U DLCR/2/3/16	File: Quinetiq Reports: Research on Substances Exhibiting Liquid Crystalline Behaviour at Room Temperature Administrative papers of John W. Goodby as Contractor for the research project. Papers include memoranda, emails, faximilies, financial statements and meeting agenda. 1 file	Jun 1996- Jun 2000
U DLCR/2/4	EPSRC (SERC) Research Programme Grant Final Reports on Liquid Crystals Final reports re various pieces of research undertaken under the EPSRC (SERC) Research Programme Grants scheme. Reports prepared by members of the Liquid Crystal Research Group at the University of Hull Chemistry Department. 10 items	1992-1997
U DLCR/2/4/1	Final Report: SERC Research Programme (Nov 1991-Oct 1994). Asymmetric Interactions and Molecular Frustration in Electro-chiral Liquid-crystalline Fluids C.J. Booth, J.W. Goodby, K.J. Toyne (University of Hull) with collaborators at the University of Sheffield D.A. Dunmur and J.S. Kang. Grant Reference GR/H07030 1 item	Dec 1994

U DLCR/2/4/2	Final Report: EPSRC Research Grant. Calamitic and Chiral Macrocyclic Liquid Crystals J.W. Goodby, K.J. Toyne, P. Styring, G.M. Greenway, S.J. Haswell (University of Hull). Grant Number GR/J33975. 1 item (2 copies)	1996
U DLCR/2/4/3	Final Report: EPSRC Research Grant. Novel Pyroelectric and Piezoelectric Liquid Crystal Systems D.K. Das-Gupta (University College of North Wales) and G.H. Mehl, J.W. Goodby, D. Lacey (University of Hull). Grant Reference GR/H59275 1 item	1992
U DLCR/2/4/4	Final Report: EPSRC (SERC) Research Grant. Novel Pyroelectric and Piezoelectric Liquid Crystalline Systems G.H. Mehl, J.W. Goodby, D. Lacey (University of Hull) and D.K. Das-Gupta (University College of North Wales). Grant Reference GR/H62343 1 item	1996
U DLCR/2/4/5	Final Report: SERC Research Programme May 1993-Apr 1995. Biaxial Liquid Crystals for Fast Electrooptic Applications K.J. Toyne, M. Hird, J.W. Goodby (University of Hull). Grant Reference GR/H65603 1 item	Jul 1995
U DLCR/2/4/6	Final Report: SERC Research Grant Mar 1993-Mar 1995. Barochromism in Advanced Materials Ekkehard Sinn, John W. Goodby, Peter Styring (University of Hull) and Dr Isabel M. Saez. Grant Reference GR/H04725 1 item	1995
U DLCR/2/4/7	Final Report: EPSRC (SERC) Research Grant Oct 1992-Sep 1995. Liquid-Crystalline Cyclic Polymers. J.W. Goodby, D. Lacey, K.J. Toyne (University of Hull) and J.A. Semlyen (University of York) and D.G. McDonnell (Ministry of Defence RSRE, Malvern) 1 item	Dec 1995

U DLCR/2/4/8	Final Report: SERC Research Grant Nov 1992-Oct 1995. New Templates Bearing Rigidly Held Chiral Centres for Enhanced Ferroelectric Properties in Liquid Crystals M. Hird, J.W. Goodby, K.J. Toyne (University of Hull). Grant Reference GR/H62114 1 item	Dec 1995
U DLCR/2/4/9	Final Report: EPSRC Research Grant Oct 1993-Feb 1997. Liquid-Crystalline Carbohydrates. G. Mackenzie, J.W. Goodby, K.J. Toyne, M. Hird (University of Hull). Grant Reference GR/J3028.8. 1 item	1997
U DLCR/2/4/10	European Commission Grant Application Proposal: Carbohydrates - Renewable Raw Material Sources for Value-Added Chemicals Universities of Hull, Rennes, Lyon, Geneve, Salford, Picardie, Manchester. Submitted by G. Mackenzie. (Rejected) 1 item	Feb 1996
U DLCR/2/5	MOD DERA (Quinetiq) Workshops: Discotics Files of material relating to the MOD DERA (Quinetiq) Workshops on Discotics involving John W. Goodby and George W. Gray 9 items	1991-1994
U DLCR/2/5/1	File: MOD DERA Discotics Workshop 1, Leeds Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of David Beattie, Simon Haslam, N. Boden, Mike Cook 1 file (5 pieces)	14-15 Jul 1991
U DLCR/2/5/2	File: MOD DERA Discotics Workshop 2, Hull University Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of Neil B. McKeown, M. Cook, J. Clements, T. Phillip, Rob Richardson 1 file (5 pieces)	6 Nov 1991
U DLCR/2/5/3	File: MOD DERA Discotics Workshop 3, Bristol Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of D. Beattie, P. Hindmarsh 1 file (9 pieces)	18 Mar 1992

U DLCR/2/5/4	File: MOD DERA Discotics Workshop 4, Sheffield Hallam Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of Simon Haslam, David Beattie, Neil McKeown, Andrew Garland, M.J. Cook, Neal DeLuca 1 file (9 pieces)	23 Sep 1992
U DLCR/2/5/5	File: MOD DERA Discotics Workshop 5, UEA Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of M.J. Cook, Mike Griffiths, Declan Forde, Marc DeLuca, M.P. Neal, C.M. Care, A. Cammidge, Geoff Bryant 1 file (10 pieces)	26 Mar 1993
U DLCR/2/5/6	File: MOD DERA Discotics Workshop 6, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop 1 file (2 pieces)	15 Oct 1993
U DLCR/2/5/7	File: MOD DERA Discotics Workshop 7, University of Hull Contains copy OHP notes and diagrams used by speaker during the workshop, includes papers of P. Hindmarsh 1 file (2 pieces)	30-31 Mar 1994
U DLCR/2/5/8	File: MOD DERA Discotics Workshops - ICI Contains papers relating to ICI's involvement in the research programme. Includes summary tables of chemical samples supplied by ICI, Final Report on work carried out under contract RSE 1a/0010 - Novel Chiral Intermediates for Liquid Crystals. 1 file (4 pieces)	c.1991-1994
U DLCR/2/5/9	File: MOD DERA Discotics Workshops - Overheads Used by Hull University during presentations at workshops 1 file	c.1991-1994
U DLCR/2/6	MOD DERA (Quinetiq) Workshops: Polymers Files of material relating to the MOD DERA (Quinetiq) Workshops on Polymers involving John W. Goodby and George W. Gray. Please note that the file relating to Workshop 9 was not deposited and has been marked as 'missing' in the catalogue.	1990-1994

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
17 items

U DLCR/2/6/1	File: MOD DERA Polymers Workshop 1, Empress State Building Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	6 Apr 1990
U DLCR/2/6/2	File: MOD DERA Polymers Workshop 2, Empress State Building Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	20 Apr 1990
U DLCR/2/6/3	File: MOD DERA Polymers Workshop 3, Empress State Building Contains minutes of meeting 1 file	13 Aug 1990
U DLCR/2/6/4	File: MOD DERA Polymers Workshop 4, Empress State Building Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	18 Oct 1990
U DLCR/2/6/5	File: MOD DERA Polymers Workshop 5, Empress State Building Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	5 Feb 1991
U DLCR/2/6/6	File: MOD DERA Polymers Workshop 6, Empress State Building Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	25 Jul 1991
U DLCR/2/6/7	File: MOD DERA Polymers Workshop 7, RSRE Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	27 Nov 1991
U DLCR/2/6/8	File: MOD DERA Polymers Workshop 8, RSRE Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	4 Feb 1992

U DLCR/2/6/8a	File: MOD DERA Polymers Workshop 9 Item missing and therefore cannot be made accessible 1 file	1992
U DLCR/2/6/9	File: MOD DERA Polymers Workshop 10, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	18 Nov 1992
U DLCR/2/6/10	File: MOD DERA Polymers Workshop 11, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	24 Feb 1993
U DLCR/2/6/11	File: MOD DERA Polymers Workshop 12, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	16 Jun 1993
U DLCR/2/6/12	File: MOD DERA Polymers Workshop 13, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	2 Sep 1993
U DLCR/2/6/13	File: MOD DERA Polymers Workshop 14, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, agenda of meeting 1 file	2 Dec 1993
U DLCR/2/6/14	File: MOD DERA Polymers Workshop 15, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting 1 file	2 Mar 1994
U DLCR/2/6/15	File: MOD DERA Polymers Workshop 16, DRA Malvern Contains copy OHP notes and diagrams used by speaker during the workshop, also minutes of meeting	7 Jun 1994

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 file

U DLCR/2/6/16 File: MOD DERA Polymers Workshop 17, DRA Malvern
Contains copy OHP notes and diagrams used by speaker during the workshop
1 file 20 Oct 1994

U DLCR/2/7 Link DTI Project on Pyroelectric and Piezoelectric Molecular Materials 1989-1992
Files of material relating to a project that was undertaken for the Department of Transport and Industry and involved the University of Durham, Queen Mary College, Thorn Emi Electronics, the University of Oxford, Sheffield University, UMIST, Philips Components and the University of Hull Chemistry Department including George W. Gray, D. Lacey and John W. Goodby.
11 items

U DLCR/2/7/1 File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Status Notes 30 Nov 1989-31 Jan 1992
File contains status notes produced by various collaborators on the above project reporting on progress of the project periodically. File compiled by John W. Goodby.
1 file

U DLCR/2/7/2 File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Minutes of Strategic Working Party 4 Meetings 5 Sep 1989-9 Jan 1992
File contains minutes of meetings and some agendas for the above project's Strategic Working Party 4 held 5 Sep 1989-9 Jan 1992. File compiled by John W. Goodby.
1 file

U DLCR/2/7/3 File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Minutes of Project Management Committee Meetings 21 Sep 1989-7 Feb 1992
File contains minutes of meetings and some agendas for the above project's Project Management Committee held 21 Sep 1989-7 Feb 1992. File compiled by John W. Goodby.
1 file

U DLCR/2/7/4	<p>File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Minutes of Technical Working Party and Strategic Working Party Meetings</p> <p>File contains minutes of meetings of the above project's Technical Working Party, 8 May 1989-16 Oct 1989, Strategic Working Party 2, 8 Aug 1989-8 Feb 1990, Strategic Working Party 3, 8 Sep 1989-4 Feb 1991. File compiled by John W. Goodby.</p> <p>1 file</p>	8 May 1989- 4 Feb 1991
U DLCR/2/7/5	<p>File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Correspondence</p> <p>File contains correspondence between John Goodby and various persons involved in the above project. File compiled by John W. Goodby.</p> <p>1 file</p>	21 Apr 1989- 28 Oct 1992
U DLCR/2/7/6	<p>File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - 4th Project Management Committee Meeting</p> <p>File contains overhead slides presented by the University of Hull Chemistry Department at the 4th Project Management Committee meeting held 23 Jan 1991. File compiled by John W. Goodby.</p> <p>1 file</p>	1991
U DLCR/2/7/7	<p>File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Sheffield Conference</p> <p>File contains contact list, schedule, correspondence, attendance forms for Hull University Chemistry Department staff, and maps of Sheffield University campus re an annual project meeting held at the Forte Crest Hotel in Sheffield on 3 Apr 1992. File compiled by John W. Goodby.</p> <p>1 file</p>	1992
U DLCR/2/7/8	<p>File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Milestones Conference, Southampton</p> <p>File contains correspondence, programme, print-outs of overhead slides presented re an annual project meeting held Philips Components Ltd, Southampton, 10-11 May 1990. File compiled by John W. Goodby.</p> <p>1 file</p>	Mar 1990- May 1990

U DLCR/2/7/9	File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Final Reports File contains final reports produced by collaborators on the above project. File compiled by John W. Goodby. 1 file	1992
U DLCR/2/7/10	File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Interim/Progress Reports File contains interim reports produced by collaborators on the above project. File compiled by John W. Goodby. 1 bundle (2 files)	Feb 1990- Jan 1992
U DLCR/2/7/11	File: Link Project on Pyroelectric and Piezoelectric Molecular Materials - Miscellaneous Papers File contains miscellaneous papers relating to the above project including a Q&A sheet for applicants to the Link Structural Composites Programme, University of Hull Bulletin Issue 139 dated 5 Jul 1991, Merck Ltd report dated 7 Jan 1992, copy of a European Patent Application relevant to the project dated 1 Jun 1988, research grant account statement dated 31 Dec 1991, University of Hull Chemistry Department research paper, communications information handbook dated Sep 1990, print-out of slides presenting Oxford University's progress 12 Feb 1990, report by Thorn Emi Plc dated Nov 1990 on the 'Optimization of Novel Pyroelectric Pixel Structures', print-outs of overhead slides for untitled presentation by University of Hull Chemistry Department. File compiled by John W. Goodby. 1 file	c.1989-1992
U DLCR/2/8	Link DTI Project 2 on Fast Optical and Electro-Optical Effects in Chiral Liquid Crystals Files of material relating to a project undertaken for the Department of Transport and Industry and involved the University of Hull Chemistry Department, ICI Wilton, Exeter University, STC Technology, RSRE, BDH and BAe. People involved in the project for the University of Hull included George Gray, John Goodby and Dave Lacey. 2 items	1990-1993

U DLCR/2/8/1	<p>File: Link Project 2 on Fast Optical and Electro-Optical Effects in Chiral Liquid Crystals - Various Papers</p> <p>File contains minutes of meetings, research grant acceptance note, notes, reports dated 20 May 1991, overhead slides on Molecular Chirality, overhead slides on known materials at Hull University, etc, relating to the above project. File compiled by John W. Goodby.</p> <p>1 file</p>	1990-1991
U DLCR/2/8/2	<p>File: Link Project 2 on Fast Optical and Electro-Optical Effects in Chiral Liquid Crystals - Correspondence</p> <p>File contains correspondence between John W. Goodby and various persons involved with the project. File compiled by John W. Goodby.</p> <p>1 file</p>	31 Jul 1990- 9 Feb 1993
U DLCR/2/9	<p>DTI Project: Joers/Alvey Ferroelectrics and Joers Polymers</p> <p>7 items</p>	1983-1991
U DLCR/2/9/1	<p>File: Joers (Joint Opto-Electronics Research Scheme) Project - Liquid Crystal Polymers and Optical Memories</p> <p>File contains research proposal, progress reports, copy minutes of meetings, notes, correspondence, etc relating to involvement with the project by George Gray, K.J. Toyne, G. Nestor, D. Lacey, W.D. Hawthorne of the Chemistry Department of the University of Hull. The project was undertaken as a research programme for the Department of Industry by the Chemistry Department of the University of Hull and the GEC Hirst Research Centre, Laser-Scan Laboratories Ltd. File compiled by K.J. Toyne.</p> <p>1 bundle (2 files)</p>	21 Oct 1983- 13 Aug 1987
U DLCR/2/9/2	<p>File: Joers (Joint Opto-Electronics Research Scheme) Project - Non-Linear Optics, Langmuir-Blodgett & Related Polymer Films for Optoelectronics</p> <p>File contains progress reports, copy minutes of meetings, notes, correspondence, etc relating to involvement with the project by George Gray, K.J. Toyne, D. Lacey, R. Scrowston of the Chemistry Department of the University of Hull. The project was undertaken for the Department of Trade and Industry in partnership between the University of Hull, Lancaster University and the University of Durham. File compiled by K.J. Toyne.</p>	16 Apr 1986- 7 May 1987

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 bundle (2 files)

- U DLGR/2/9/3 File: Alvey 1: Ferroelectrics - Large Panel Storage Display Based on Ferroelectric Liquid Crystals 8 Oct 1985-24 Jul 1986
File contains research grant papers, correspondence, progress reports, copy minutes of meetings, notes, etc relating to the involvement of G.W. Gray, K.J. Toyne, D. Lacey, M. Scrowton of the Chemistry Department of the University of Hull with the above Alvey research programme. The research programme was undertaken in collaboration with Standard Telecommunications Laboratories Ltd and RSRE. File compiled by K.J. Toyne.
1 bundle (3 files)
- U DLGR/2/9/4 File: Alvey 2: Ferroelectrics - Large Panel Storage Display Based on Ferroelectric Liquid Crystals 27 Jul 1986-29 Oct 1987
File contains research grant papers, correspondence, progress reports, copy minutes of meetings, notes, etc relating to the involvement of G.W. Gray, K.J. Toyne, D. Lacey, M. Scrowton of the Chemistry Department of the University of Hull with the above Alvey research programme. The research programme was undertaken in collaboration with Standard Telecommunications Laboratories Ltd and RSRE. File compiled by K.J. Toyne.
1 bundle (4 files)
- U DLGR/2/9/5 File: Alvey 3: Ferroelectrics - Large Panel Storage Display Based on Ferroelectric Liquid Crystals 2 Nov 1987-14 Dec 1989
File contains research grant papers, correspondence, progress reports, copy minutes of meetings, notes, etc relating to the involvement of G.W. Gray, K.J. Toyne, D. Lacey, M. Scrowton of the Chemistry Department of the University of Hull with the above Alvey research programme. The research programme was undertaken in collaboration with Standard Telecommunications Laboratories Ltd and RSRE. File compiled by K.J. Toyne.
1 bundle (3 files)

- U DLCR/2/9/6 File: Alvey 4: Joers (Joint Opto-Electronics Research Scheme) Project - Non-Linear Optics, Langmuir-Blodgett and Related Organic Films for Optoelectronics 30 Jan 1984-25 May 1988
- File contains progress reports, copy minutes of meetings, notes, correspondence, etc relating to involvement with the project by George Gray, K.J. Toyne, D. Lacey and R.M. Scrowston of the Chemistry Department of the University of Hull. The project was undertaken for the Department of Trade and Industry in partnership between the University of Hull, Lancaster University and the University of Durham. File compiled by K.J. Toyne.
1 bundle (2 files)
- U DLCR/2/9/7 File: Alvey 5: Ferroelectrics - Large Panel Storage Display Based on Ferroelectric Liquid Crystals Feb 1991
- File contains a printed copy of The Alvey Index produced by the Information Technology Division of the Department of Trade and Industry. Index contains summaries and contact lists relating Alvey projects including the above project involving G.W. Gray, K.J. Toyne, D. Lacey, M. Scrowton of the Chemistry Department of the University of Hull. The research programme was undertaken in collaboration with Standard Telecommunications Laboratories Ltd and RSRE. File compiled by K.J. Toyne.
1 file

U DLCR/3	Publications Material relating to publications written or edited by members of the Liquid Crystal Research Group at the University of Hull Chemistry Department. Includes reprints files, books, patents files, working files of correspondence and drafts, and files of research papers arranged by author. 5 subseries	1951-2011
U DLCR/3/1	Reprints Files Contains files of reprints of research papers written or co-authored by George W. Gray and John W. Goodby on the subject of liquid crystals. Includes a file of reprints relating to the work of George W. Gray on bacterial cell walls. 26 files	1951-2010
U DLCR/3/1/1	File: Reprints - George W. Gray (Liquid Crystals) File contains reprints of the following research papers written and co-authored by George Gray: 1. 'An Improved Synthesis of 4-Bromo-4'-hydroxydiphenyl' by G,W, Gray, J.B. Hartley and Brynmor Jones (May 1952); 2. 'The Friedel-Crafts Reaction on 2-Methoxyfluorene and the Preparation of 7-Methoxyfluorenone-2-carboxylic Acid' by G.W. Gray, J.B. Hartley and A. Ibbotson (Aug 1955); 3. 'Steric Effects in Conjugated Systems' by G.W. Gray (Aug 1958); 4. 'The Nitration of p-Terphenyl in Glacial Acetic Acid' by Paul Culling, G.W. Gray and D. Lewis (Apr 1960); 5. 'Infra-red absorptions of sulphones' by P.M.G. Bavin, G.W. Gray and A. Stephenson (Jul 1960); 6. 'Some New Di- and Tri-nitro-p-terphenyls' by G.W. Gray and D. Lewis (Mar 1961); 7. 'Isomer Ratios for the Mononitration of p-Terphenyl in Acetic Acid and Acetic Anhydride' by G.W. Gray and D. Lewis (Dec 1961); 8. 'Julius Schmidt's Addukt aus N ₂ O ₅ und Phenanthren' by G.W. Gray and P.M.G. Bavin (1963) [in German]; 9. 'The Reductive Cyclisation of 2-Nitro-p-terphenyl. 2-Phenylcarbazole' by G.W. Gray and D. Lewis (Sep 1964); 10. 'Crystallographic Data for the 2'-Halogenobiphenyl-4-carboxylic Acids and 4-Acetyl-2'-halogenobiphenyls' by G.W. Gray, H.H.	1952-1966

11. 'The Effects of 3'- and 4'-Substituents on the Ionisation Constants of Biphenyl-4-carboxylic Acid and 4-Aminobiphenyl' by D.J. Byron, G.W. Gray and R.C. Wilson (1966);

12. 'The Effects of 2'-Substituents on the Ionisation Constants of Biphenyl-4-carboxylic Acid, 4-Aminobiphenyl, and 4-Biphenylacetic Acid' by D.J. Byron, G.W. Gray and R.C. Wilson (1966);

13. 'The Synthesis of some Substituted Biphenyl-4-carboxylic Acids, 4-Biphenylacetic Acids, and 4-Aminobiphenyls' by D.J. Byron, G.W. Gray and R.C. Wilson (1966).

1 file (13 pieces)

U DLCR/3/1/2

File: Reprints - George W. Gray (Liquid Crystals)

1951-1964

File contains reprints of the following research papers written and co-authored by George Gray:

1. 'Mesomorphism of some Alkoxy-naphthoic Acids' by G.W. Gray and Brynmor Jones (Jan 1951);

2. 'Influence of Substituents on the Mesomorphism of p-n-Alkoxybenzoic and 6-n-Alkoxy-2-Naphthoic Acids' by G.W. Gray and Brynmor Jones (Sep 1952);

3. 'A Heating Instrument for the Accurate Determination of Mesomorphic and Polymorphic Transition Temperatures' by G.W. Gray (Dec 1953);

4. 'The Mesomorphic Transition Points of the p-n-Alkoxybenzoic Acids. A Correction' by G.W. Gray and Brynmor Jones (Dec 1953);

5. 'The Preparation of 4- and 5-n-Alkoxy-1-naphthoic and 6- and 7-n-Alkoxy-2-naphthoic Acids' by G.W. Gray and Brynmor Jones (Feb 1954);

6. 'Mesomorphism and Chemical Constitution. Part I. The n-Alkoxy-naphthoic Acids' by G.W. Gray and Brynmor Jones (Feb 1954);

7. 'Mesomorphism and Chemical Constitution. Part II. The trans-p-n-Alkoxy-cinnamic Acids' by G.W. Gray and Brynmor Jones (May 1954);

8. 'Mesomorphism and Chemical Constitution. Part III. The Effect of Halogen Substitution on the Mesomorphism of the 4-Alkoxy-benzoic Acids' by G.W. Gray and Brynmor Jones (Jul 1954);

9. 'Mesomorphism and Chemical Constitution. Part IV. The Effect of Substitution on the Mesomorphism of the 6-n-Alkoxy-2-naphthoic Acids' by G.W. Gray and Brynmor Jones (Jan 1955);

10. 'Mesomorphism and Chemical Constitution. Part V. The Mesomorphic Properties of the 4'-n-Alkoxydiphenyl-4-carboxylic Acids and their Simple Alkyl Esters' by G.W. Gray, J.B. Hartley and

11. 'A Projection Instrument to Aid in the Determination of Mesomorphic and Polymorphic Transition Temperatures' by G.W. Gray and A. Ibbotson (Dec 1955);
12. 'Mesomorphism and Chemical Constitution. Part VI. Certain Mono- and Di-anils of the Benzene, Diphenyl, Fluorene, and Fluorenone Series' by G.W. Gray, J.B. Hartley, A. Ibbotson and Brynmor Jones (Dec 1955);
13. 'Mesomorphism and Chemical Constitution. Part VII. The Effect of Halogen Substitution on the Mesomorphism of the trans-p-n-Alkoxy-cinnamic Acids' by G.W. Gray, J.B. Hartley, A. Ibbotson and Brynmor Jones (Jun 1956);
14. 'The Mesomorphic Behaviour of the Fatty Esters of Cholesterol' by G.W. Gray (Oct 1956);
15. 'Mesomorphism and Chemical Constitution. Part VIII. The Effect of 3'-Substituents on the Mesomorphism of the 4'-n-Alkoxydiphenyl-4-carboxylic Acids and their Alkyl Esters' by G.W. Gray, Brynmor Jones and F. Marson (Jan 1957);
16. 'Mesomorphism and Chemical Constitution. Part IX. The Preparation and Mesomorphic Behaviour of the 7-n-Alkoxy-fluorene- and fluorenone-2-carboxylic Acids and their n-Propyl Esters' by G.W. Gray and A. Ibbotson (Jul 1957);
17. 'Mesomorphism and Chemical Constitution. Part X. The 2-p-n-Alkoxybenzylideneaminophenanthrenes and Evidence for the Planarity of the Diphenyl Ring System in the Mesomorphic State' by G.W. Gray (Feb 1958);
18. 'Steric Effects on the Mesomorphism of Mono and Di-Benzylideneaminodiphenyls' by G.W. Gray (Jul 1958);
19. 'Steric Effects in Conjugated Systems' by G.W. Gray (Aug 1958);
20. 'Steric Effects in Conjugated Systems' by G.W. Gray (Oct 1958);
21. 'The Mesomorphic Transition Temperatures of 3'-Substituted 4'-n-Octyloxydiphenyl-4-carboxylic Acids' by G.W. Gray and B.M. Worrall (Apr 1959);
22. 'Comments on a Reported Case of Liquid Crystallinity in Mixtures of Two Schiff's Bases' by D.J. Byron and G.W. Gray (Jun 1959);
23. 'Mesomorphism and Polymorphism in Simple Derivatives of p-Terphenyl' by P. Culling, G.W. Gray and D. Lewis' (Jun 1960);

24. 'Mesomorphism and Chemical Constitution. Part XI. The Preparation and Mesomorphic Properties of Substituted 4-p-n-Alkoxybenzylideneaminobiphenyls' by D.J. Byron, G.W. Gray, A. Abbotson and B.M. Worrall (Apr 1963);
25. 'Mesomorphism and Chemical Constitution. Part XII. The Preparation and Mesomorphic Properties of Substituted 4,4'-Di-(p-n-Alkoxybenzylideneamino)' by D.J. Byron, G.W. Gray, A. Abbotson and B.M. Worrall (Sep 1964).
- 1 file (25 pieces)

U DLCR/3/1/3

File: Reprints - George W. Gray (Liquid Crystals)
File contains reprints of the following research papers written and co-authored by George Gray:

1. 'Mesomorphism and Chemical Constitution. Part XIII. Di-, Tri-, and Tetra-substituted 4,4'-Di-(p-n-alkoxybenzylideneamino)bi-phenyls' by D.J. Byron, G.W. Gray and B.M. Worrall (Jun 1965);
2. 'Liquid Crystals' in the Encyclopaedia of Chemistry 2nd ed., by G.W. Gray (1966);
3. 'Discussion of Nomenclature of Liquid Crystals' by G.W. Gray (Aug 1965);
4. 'The Influence of Molecular Structure on Liquid Crystalline Properties' by G.W. Gray (Oct 1966);
5. 'Advances in Synthesis and the Role of Molecular Geometry in Liquid Crystallinity' by George W. Gray (1969);
- 6a. 'Liquid Crystals and Molecular Structure' by G.W. Gray (1971);
- 6b. 'The Liquid Crystalline Properties of Alkyl, Aryl and Arylalkyl 4-p-Substituted-benzylideneaminocinnamates and a-methylcinnamates' by G.W. Gray and K.J. Harrison (1971);
7. 'Some Effects of Molecular Structural Change on Liquid Crystalline Properties' by G.W. Gray and K.J. Harrison (Sep 1971);
8. 'Differential Thermal Analysis in Studies of Liquid Crystal Transitions' by G.W. Gray (c.1971);
9. 'The Synthesis of a Cholesterogen with Hydrogen-Deuterium Asymmetry' by D. Coates and G.W. Gray (1973);
10. 'Studies of Mesophase Transformations for Certain Schiff's Base Esters' by D. Coates, K.J. Harrison and G.W. Gray (1973);
11. 'New Family of Nematic Liquid Crystals for Displays' by G.W. Gray, K.J. Harrison and J.A. Nash (Feb 1973);
12. 'Synthetic Chemistry Related to Liquid Crystals' by G.W. Gray (1973);

1965-1974

13. 'Optical Studies of the Amorphouse Liquid-Cholesteric Liquid Crystal Transition: The Blue Phase' by D. Coates and G.W. Gray (Sep 1973);
 14. 'The Classification of the Liquid Crystalline Modifications in Homologous Series' by A. Biering, D. Demus, G.W. Gray and H. Sackman (Dec 1973);
 15. 'Stable, Low Melting Nematogens of Positive Dielectric Anisotropy for Display Devices' by G.W. Gray, K.J. Harrison, J.A. Nash, J. Constant, D.S. Hulme, J. Kirton and E.P. Raynes (1974);
 16. 'Studies of Some Heterocyclic Mesogens' by J.A. Nash and G.W. Gray (1974);
 17. 'A New Concept of the Nature of the 'Viscous Isotropic' or 'Cubic' Mesophases of Amphiphilic Systems; The Liquid Crystalline Character of Plastic Crystals; Constitutional Analogies Between Amphiphilic and Non-Amphiphilic Mesophases' by G.W. Gray and P.A. Winsor (1974);
 18. 'New Cholesteric Liquid Crystals for Displays' by G.W. Gray, K.J. Harrison and J.A. Nash (Nov 1973);
 19. 'Classification of the Smectic Liquid Crystal Phase Exhibited by the Cholesteryl n-Alkanoates' by D. Coates and G.W. Gray (1974);
 20. 'Wide Range Nematic Mixtures Incorporating 4"-n-Alkyl-4-Cyano-p-Terphenyls' by George W. Gray, Kenneth J. Harrison and John A. Nash (1974);
 21. 'Crystal Growth Volume 1 - Chapter 16 Liquid Crystals' by G.W. Gray (1974).
- 1 file (22 pieces)

U DLCR/3/1/4

File: Reprints - George W. Gray (Liquid Crystals)
File contains reprints of the following research papers written and co-authored by George Gray:

1. 'New Type of Smectic Mesophase?' by G.W. Gray and J.E. Lydon (Nov 1974);
2. 'Novel Smectic Polymorphic Behaviour in Homologous Series of Mesogens' by D. Coates and G.W. Gray (Mar 1975);
3. 'A Correlation of Optical Features of Amorphous Liquid-Cholesteric Liquid Crystal Transitions (Apr 1975);
4. 'Molecular Structure and the Polymorphism of Smectic Liquid Crystals' by J.W. Goodby and G.W. Gray (Jun 1976);
5. 'The Liquid Crystal Properties of Some New Mesogens' by G.W. Gray (c.1975);
6. 'Properties of Liquid Crystals Formed by Some 4',4"-Disubstituted Phenyl Biphenyl-4-

1974-1977

7. 'New Low-Melting Cholesterogens for Electro-Optical Displays and Surface Thermography' by G.W. Gray and D.G. McDonnell (Oct 1975);
8. 'Effect of Light on the Liquid Crystal Transition Temperatures of 4-(4-n-Pentylphenyl)vinyl Cyanide' by David Coates and George W. Gray (1975);
9. 'Recent Developments Concerning Biphenyl Mesogens and Structurally Related Compounds' by G.W. Gray, K.J. Harrison and J.A. Nash (1975);
10. 'A Liquid Crystal Mixture for Use in Smectic Liquid Crystal Display Devices' by George W. Gray and Alan Mosley (1976);
11. 'A Chiral Smectic B Phase' by D. Coates and G.W. Gray (1976);
12. 'The Structures and Microscopic Textures of Smectic Liquid Crystals' by D. Coates and G.W. Grays (1976);
13. 'Trends in the Nematic-Isotropic Liquid Transition Temperatures for the Homologous Series of 4-n-Alkoxy- and 4-n-Alkyl-4'-cyanobiphenyls' by George W. Gray and Alan Mosley (1976);
14. 'Synthesis and Liquid Crystal Properties of Chiral Alkyl-Cyano-Biphenyls (and -p-Terphenyls) and of Some Related Chiral Compounds Derived from Biphenyl' by G.W. Gray and D.G. McDonnell (1976);
15. 'Pleochroic Dyes with High-Order Parameters for Liquid-Crystal Displays' by J. Constant, J. Kirton, E.P. Raynes, I.A. Shanks, D. Coates, G.W. Gray, D.G. McDonnell (Aug 1976);
16. 'The Effect of the Terminal Trifluoromethyl Group on Nematic Liquid Crystal Thermal Stability' by David Coates and George W. Gray (1976);
17. 'Properties of the Liquid Crystals formed by Some 4'-Substituted 4-(B-p-Substituted Arylethyl)biphenyls' by David Coates and George W. Gray (1976);
18. 'Molecular Geometry and the Properties of Nonamphiphilic Liquid Crystals' by G.W. Gray (1976);
19. 'Generic Relationships between Non-Amphiphilic Mesophases of the 'Fused' Type' by G.W. Gray and P.A. Winsor (c.1976);
20. 'The Raman Spectra of 4-Cyano-4'-pentylbiphenyl and 4-Cyano-4'-pentyl-d11-biphenyl' by George W. Gray and Alan Mosley (1976);

21. 'Some Effects of Small Changes in Molecular Framework on the Incidence of Smectic C and Other Smectic Liquid Crystal Phases in Esters' by G.W. Gray and J.W. Goodby (1976);
 22. 'Mesomorphic Transition Temperatures for the Homologous Series of 4-n-Alkyl-4'-Cyanotolanes and Other Related Compounds' by G.W. Gray and A. Mosley (1976);
 23. 'The Liquid Crystal Properties of Some Cyano-Substituted Aryl Esters' by D. Coates and G.W. Gray (1976);
 24. 'Liquid Crystals - What Makes a Mesophase?' by G.W. Gray and A.J. Leadbetter (1977);
 25. 'The Relationship Between Helical Twist Sense, Absolute Configuration and Molecular Structure for Non-Sterol Cholesteric Liquid Crystals' by G.W. Gray and D.G. McDonnell (1977);
 26. 'Dipole Moments and the Smectic C Phase' by J.W. Goodby, G.W. Gray and D.G. McDonnell (1977);
 27. 'The Transition Temperatures of Some Deuteriated Liquid Crystals' by G.W. Gray and A. Mosley (1977).
- 1 file (27 pieces)

U DLCR/3/1/5

File: Reprints - George W. Gray (Liquid Crystals)
File contains reprints of the following research papers written and co-authored by George Gray:

1. 'Some Cholesteric Derivatives of S-(+)-4-(2'-Methylbutyl) Phenol' by G.W. Gray and D.G. McDonnell (1978);
2. 'Synthesis and Liquid Crystal Properties of Some 4-n-Alkylphenyl 2'-Chloro-4'-(6-n-Alkyl-2-Naphthoyloxy) Benzoates' by D. Coates and G.W. Gray (1978);
3. 'Some New Smectic F. Materials' J.W. Goodby and G.W. Gray (1978);
4. 'The Liquid Crystal Properties of Some Aromatic Esters Derived From Naphthalene' by D. Coates and G.W. Gray (1978);
5. 'Smectic F Phases in the Terephthalylidene-Bis-4-n-Alkylanilines (1978);
6. 'Pleochroic Dyes with High Order Parameters' by J. Constant, E.P. Raynes, I.A. Shanks, D. Coates, G.W. Gray and D.G. McDonnell (1978);
7. 'Advances in liquid crystal materials for applications' by G.W. Gray (Mar 1978);
8. 'Determination of the Ordering Matrix for 4-cyano-4'pentyl-d11-2',3',5',6'-d4-biphenyl from Proton Dipolar Couplings' by J.W. Emsley, G.R.

1977-1979

9. 'New Data on Smectic Materials' by G.W. Gray and J.W. Goodby (1978);
 10. 'A SA-SCH Transition - The Problems of Phase Assignment' by J.D. Bunning, J.W. Goodby, G.W. Gray and J.E. Lydon (1978);
 11. 'A Natural Progression from Smectic C to Tilted Smectic B Properties in the n-Alkyl 4'-n-Alkoxybiphenyl-4-carboxylates' by J.W. Goodby and G.W. Gray (1978);
 12. 'The Synthesis of Deuteriated 4-n-Alkyl-4'-Cyanobiphenyls' by G.W. Gray and A. Mosley (1978);
 13. 'The 'Uniaxial' Smectic E Phase' by J.W. Goodby and G.W. Gray (1979);
 14. 'Classification of Smectic Polymorphic Phases' by J.W. Goodby and G.W. Gray (1979);
 15. 'Smectic F Trends in the 4-(2'-Methylbutyl)phenyl Esters of 4'-n-Alkoxybiphenyl-4-carboxylic Acids and 4'-n-Alkylbiphenyl-4-carboxylic Acid' by J.W. Goodby and G.W. Gray (Apr 1979).
- 1 file (15 pieces)

U DLCR/3/1/6

File: Reprints - George W. Gray (Liquid Crystals)
File contains reprints of the following research papers written and co-authored by George Gray:

1. 'Tilted Smectic B Phase or Smectic H Phase?' by J.W. Goodby and G.W. Gray (Apr 1979);
2. 'The Previously Unclassified Smectic Phases of Bis-(4'-n-Heptyloxybenzylidene)-1, 4-Phenylenediamine (Heptobpd)' by E.M. Barrall II, J.W. Goodby and G.W. Gray (1979);
3. 'Liquid Crystal Compounds Incorporating the Trans-1, 4-Substituted Cyclohexane Ring System' by G.W. Gray (1979);
4. 'The Crystalline State and the Mesophases of Cholesteryl Oleyl Carbonate' by G.W. Gray and M. Hannant (1979);
5. 'Smectic F Phases Exhibited by the N-(4-n-Alkoxybenzylidene)-4'-n-Alkylanilines' by J.W. Goodby and G.W. Gray (1979);
6. 'Bicyclo[2.2.2]octane Esters Exhibiting Wide-Range Nematic Phases' by George W. Gray and Stephen M. Kelly (1979);
7. 'Structure of the Smectic-B Phase and the Nature of the Smectic-B to -H Transition in the N-(4-n-Alkoxybenzylidene)-4'-Alkylanilines' by A.J. Leadbetter, M.A. Mazid, B.A. Kelly, J.W. Goodby and G.W. Gray (Aug 1979);
8. 'Liquid Crystals and Molecular Structure: Nematics and Cholesterics' by G.W. Gray

1979-1980

9. 'Liquid Crystals and Molecular Structure: Smectics' by G.W. Gray [Chapter 12 for an unknown publication] (c.1979);
 10. 'Stable Liquid Crystal Materials for Display Devices' by G.W. Gray (1979);
 11. 'Bright Outlook for Liquid Crystals' by G.W. Gray (1980);
 12. 'Dyestuffs and Liquid Crystals' by G.W. Gray (1980);
 13. 'The Effect of the Reversal of the Central Schiff's Base Linkage on Liquid Crystal Properties: The 4-Phenylbenzylidene-4'-n-alkoxyanilines and 4-(4'-n-Alkoxybenzylideneamino)-biphenyls' by D.J. Byron, D.A. Keating, M.T. O'Neill, R.C. Wilson, J.W. Goodby and G.W. Gray (1980);
 14. 'Low Melting Bicyclo[2.2.2]octane Esters with Wide Range Nematic Phases' by George W. Gray and Stephen M. Kelly (1980);
 15. 'The Unclassified Smectic Phase of N-(4-n-pentyloxybenzylidene)-4-n-hexylaniline (50.6)' by J.W. Goodby and G.W. Gray (1980);
 16. 'Recommendation for the Use of the Code Letters G and H for Smectic Phases' by D. Demus, J.W. Goody, G.W. Gray and H. Sackmann (1980);
 17. 'The Smectic Phases of the N-(4-n-Alkyloxybenzylidene)-4'-n-alkylanilines (n0.m's) - Some Problems of Phase Identification and Structure' by J.W. Goodby, G.W. Gray, A.J. Leadbetter, and M.A. Mazid (1980);
 18. 'Recommendation for the Use of the Code Letters G and H for Smectic Phases' by D. Demus, J.W. Goodby, G.W. Gray, and H. Sackmann (1980);
 19. 'The Classification of Mesophase of Di-*i*-butylsilanediol' by J.D. Bunning, J.W. Goodby, G.W. Gray and J.E. Lydon (1980).
- 1 file (19 pieces)

U DLCR/3/1/7

File: Reprints - George W. Gray (Liquid Crystals)
File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'The Synthesis of 1,4-Distributed Bicyclo[2.2.2]octanes Exhibiting Wide-range, Enantiotropic Nematic Phases' by George Gray and Stephen M. Kelly (1981);
2. 'Comments on Some Recent Developments in the Field of Liquid Crystals' by G.W. Gray (1981);

1981

3. 'A Comparison of the Properties of Some Liquid Crystal Materials Containing Benzene, Cyclohexane, and Bicyclo[2.2.2]octane Rings' by N. Carr, G.W. Gray and S.M. Kelly (1981);
4. 'Novel Cubane Mesogens' by G.W. Gray, N.A. Langley and K.J. Toyne (1981);
5. 'Phenyl- and Biphenylbicyclo[2.2.2]octane Derivatives - Two Novel Classes of Nematic Liquid Crystals' by George W. Gray and Stephen M. Kelly (1981) [also a copy in German];
6. 'The Synthesis and Liquid Crystal Properties of Some Laterally Fluorinated trans-Cyclohexane-1-carboxylate and Benzoate Esters' by G.W. Gray, C. Hogg and D. Lacey (1981);
7. 'The Liquid Crystal Properties of 4-n-Alkyl- and 4-n-Alkoxy-phenyl 4-n-Alkylbicyclo(2.2.2)octane-1-carboxylates' by G.W. Gray and S.M. Kelly (1981);
8. 'Laterally Substituted 4-n-Alkylphenyl 4-n-Alkylbicyclo' by G.W. Gray and S.M. Kelly (1981).
1 file (8 pieces)

U DLCR/3/1/8

File: Reprints - George W. Gray (Liquid Crystals)
File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'Structure Determination of the Low-Temperature Phase of Tertiary Butyl Cyanide by the Constrained Profile Refinement of the Powder Diffraction Pattern' by Jonathan C. Frost, Alan Leadbetter, Robert M. Richardson, Richard C. Ward, John W. Goodby, George W. Gray, and Stuart Pawley (1982);
2. 'Dyes and Liquid Crystals' by George W. Gray (1982);
3. 'Classification of the Mesophase of Di-isobutylsilanediol' by John Bunning, John E. Lydon, Colin Eaborn, Patricia M. Jackson, John W. Goodby and George W. Gray (1982);
4. 'The Phase Behaviour of Two Thiol Esters (12S5 and 14S5)' by P.A.C. Gane, A.J. Leadbetter, P.A. Tucker, G.W. Gray and A.R. Tajbakhsh (15 Dec 1982);
5. 'Relationship Between Chemical Structure and Properties for Low Molecular Weight Liquid Crystals' by G.W. Gray (1982);
6. 'The Chemistry of Liquid Crystals' by G.W. Gray (1983);
7. 'Some Novel Cholesteric Esters Incorporating the 1,4-Distributed Bicyclo(2.2.2)octane Ring' by G.W. Gray and S.M. Kelley (1983);

1982-1983

8. 'The 1-(trans-4'-n-Alkylcyclohexyl)-2-(4"-cyanophenyl)ethanes - A New Series of Stable Nematogens of Positive Dielectric Anisotropy' by N. Carr, G.W. Gray and D.G. McDonnell (1983);
 9. 'Novel Liquid Crystalline Derivatives of Cubanes and Hydrogenolyzed Cubanes' by G.W. Gray, N.A. Langley and K.J. Toyne (1983);
 10. 'Synthesis and Properties of Some 2-n-Alkyl-6-(4'-cyanophenyl)-naphthalenes-3,4-dihydronaphthalenes, and -1,2,3,4-tetrahydronaphthalenes' by G.W. Gray and D. Lacey (1983);
 11. 'The Phase Behaviour of Bis-(4'-n-Heptyloxybenzylidene)-1,4-Phenylenediamine (HEPTOBPD), Crystal J and K Phases' by P.A.C. Gane, A.J. Leadbetter, P.G. Wrightson, J.W. Goodby, G.W. Gray and A.R. Tajbakhsh (1983);
 12. 'Studies of Some Side Chain Liquid Crystal Polymers' by P.A. Gemmell, G.W. Gray and D. Lacey (1983).
- 1 file (12 pieces)

U DLCR/3/1/9

File: Reprints - George W. Gray (Liquid Crystals)

1984

File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'Mesomorphic Transition Temperatures and Viscosities for Some Cyano-biphenyls and -p-terphenyls with Branched Terminal Alkyl Groups' by G.W. Gray and S.M. Kelly (1984);
 2. 'Dynamics of the Modulated Crystal Smectic B Phase of 50.7 by Neutron Scattering Experiments' by R.M. Richardson, A.J. Leadbetter, J.B. Hayter, W.G. Stirling, G.W. Gray and A. Tajbakhsh (1984);
 3. 'Polymers with Rigid Anisotropic Side Groups:
1. Side Chain Induced Crystallinity in Substituted Biphenyl Acrylates and Methacrylates' by A.K. Alimoglu, A. Ledwith, P.A. Gemmell, G.W. Gray and D. Lacy (1984);
 4. 'The Liquid Crystal Properties of 1-(4-Cyanophenyl)-trans-4-n-dodecylcyclohexane (PCH-12)' by R. Eidenschink, G.W. Gray, C. Hogg, and A.R. Tajbakhsh (1984).
- 1 file (4 pieces)

U DLCR/3/1/10

File: Reprints - George W. Gray (Liquid Crystals)

1985

File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'Effects of Molecular Structure on the Properties of Terminally Cyano-Substituted Side Chain Liquid

- and D. Lacey (1985);
2. 'Synthesis and Evaluation of Some 4,4"-Distributed Lateral Fluoro-1,1':4',1"-terphenyls' by L.K.M. Chan, G.W. Gray and D. Lacey (1985);
 3. 'The Preparation and Liquid Crystal Behaviour of Pyrimidines and Dioxans Incorporating a Dimethylene Linkage Group' by B.M. Andrews and G.W. Gray (1985);
 4. 'The Properties of Liquid Crystal Materials Incorporating the -CH₂O-Inter-ring Linkage' by N. Carr and G.W. Gray (1985);
 5. 'The Effect of Lateral Fluoro-Substitution on the Liquid Crystalline Properties of Some 4-n-Alkyl-, 4-n-Alkoxy- and Related 4-Substituted-4'cyanobiphenyls' by J.E. Fearon, G.W. Gray, A.D. Ifill and K.J. Toyne (1985);
 6. 'The Preparation of 1,4-Di-n-alkyl- and 1-n-Alkyl-4-n-alkoxybicyclo-(2.2.2)octanes, and 1-n-Alkyl-4-n-alkoxybicyclo(2.2.2)octan-2-ones and an Investigation of Their Viscosities and TN-I Values' by H.M. Abdullah, G.W. Gray and K.J. Toyne (1985);
 7. 'The Phase Behaviour of 4-n-Hexylphenyl 4-n-Tetra-Decyloxybenzthiolate (14S5) and 4-n-Pentylphenyl 4-n-Decyloxybenzthiolate (10S5)' by A.J. Leadbetter, P.A. Tucker, G.W. Gray and A.R. Tajbakhsh (1985);
 8. 'Some Novel Fluorophenyl Esters Containing the 1,4-Distributed Bicyclo(2.2.2)octane Ring' by N. Carr, G.W. Gray and S.M. Kelly (1985);
 9. 'Polymers with Rigid Anisotropic Side Groups: 2. Synthesis and Properties of Some Side Chain Acrylate and Methacrylate Liquid Crystal Polymers Containing the 4'-Alkylbiphenyl-4-yl Moiety' by P.A. Gemmell, G.W. Gray, D. Lacey, A.K. Alimoglu and A. Ledwith (Apr 1985);
 10. 'The Synthesis and Physical Properties of Some 1-n-Alkyl-4-(4-Substituted Phenyl)Bicyclo(2.2.2)Octanes' by N. Carr, G.W. Gray and S.M. Kelly (1985);
 11. 'Some New Mesogenic Esters Incorporating the 1,4-Distributed Bicyclo(2.2.2)Octane Ring System' by N. Carr, G.W. Gray and S.M. Kelly (1985);
 12. Clifford Paterson Lecture: 'Liquid Crystals: An Arena for Research and Industrial Collaboration Among Chemists, Physicists and Engineers' by G.W. Gray (1985).
- 1 file (12 pieces)

U DLCR/3/1/11

File: Reprints - George W. Gray (Liquid Crystals)

1986-1987

File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'Second Harmonic Generation in a Monomolecular Langmuir-Blodgett Film of a Performed Polymer' by Neil Carr, Martin J. Goodwin, Andrew M. McRoberts, George W. Gray, Richard Marsdden, R. Michael Scrowston (1987);
2. 'The Effect of Contamination by Side-Chain Precursor on the Molecular Dynamics of a Smectogenic Siloxane Copolymer as Studied by Dielectric Relaxation Spectroscopy' by George Simon Attard, Joaquim J. Moura-Ramos, Graham Williams, Gary Nester, Michael S. White, George W. Gray, David Lacey and Kenneth J. Toyne (1987);
3. 'Purity of Liquid Crystal Polysiloxanes, 1 Isolation Procedures' by Gary Nestor, Michael S. White, George W. Gray, David Lacey and Kenneth Toyne (1987);
4. 'Laser Addressed Thermo-Optic Effect in a Novel Dyed Liquid-Crystalline Polysiloxane' by C.B. McArdle, M.G. Clark, C.M. Haws, M.C.K. Wiltshire, A. Parker, G. Nester, G.W. Gray, D. Lacey and K.J. Toyne (1987);
5. 'Synthesis and Liquid Crystal Properties of Compounds Incorporating Cyclobutane, Spiro[3.3]Heptane and Dispiro[3.1.3.1]Decane Rings' by L.K.M. Chan, P.A. Gemmell, G.W. Gray, D. Lacey and K.J. Toyne (1987);
6. 'The Effect of Lateral Fluoro-Substitution on the Liquid Crystal Behaviour of Some 4"-Alkylphenylethyl- and Trans-4"-Alkylcyclohexylethyl-4,4'-Disubstituted Biphenyls' by G.W. Gray, D. Lacey, J.E. Stanton nee Fearon and K.J. Toyne (1986);
7. 'Trepeneoid Derivatives Having a High Ferroelectric Spontaneous Polarisation' by M.F. Bone, D. Coates, G.W. Gray, D. Lacey, K.J. Toyne and D.J. Young (1986);
8. 'Structure of the Smectic D Phase' by G. Etherington, A.J. Leadbetter, X.J. Wang, G.W. Gray and A.Tajbakhsh (1986);
9. 'Synthese und Kristallin-Flussige Eigenschaften Einiger 3,6-Disubstituierter Pyridazine' by Horst Sackmann (1986);
10. 'Preparation of Liquid Crystalline Polysiloxanes with Terminal Cyano Groups in the Side Chains' by George W. Gray, David Lacey, Gary Nestor and Michael S. White (1986);

11. 'Molecular Dynamics of Liquid Crystalline Side-Chain Polymers: The Dielectric Relaxation Behaviour of a Siloxan Polymer in the Nematic and Isotropic Phases' by G.S. Attard, G. Williams, G.W. Gray, D. Lacey and P.A. Gemmell (1986);

12. 'Reentrant Nematic and Injected Smectic Behaviour in Binary Mixtures Including Those of Terminally Non-Polar Compounds' by L.K.M. Chan, G.W. Gray, D. Lacey, T. Srithanratana and K.J. Toyne (1987).

1 file (12 pieces)

U DLCR/3/1/12

File: Reprints - George W. Gray (Liquid Crystals)

1988

File contains the following research papers and patents written or co-authored by George W.

Gray:

1. 'Ferroelectric Liquid-Crystal Mixtures For Mixtures For Electro-Optical Device Applications' by M.J. Bradshaw, V. Brimmell, J. Constant, J.R. Hughes, E.P. Raynes and A.K. Samra, L.K.M. Chan, G.W. Gray, D. Lacey, R.M. Scrowston, I.G. Shenouda, K.J. Toyne, J.A. Jenner, I.C. Sage (1988);

2. 'A Structural Investigation of Some Terminally Cyano-Substituted Side Chain Liquid-Crystalline Polysiloxanes' by H.H. Sutherland, A. Ali Adib, G.W. Gray, D. Lacey, G. Nestor and K.J. Toyne (1988);

3. 'Chapter 4 Synthesis and Properties of Side Chain Liquid Crystal Polysiloxanes' by G.W. Gray (c.1988);

4. 'The Synthesis and Liquid Crystal Properties of Some 2,5-Distributed Pyridines' by Michael P. Burrow, George W. Gray, David Lacey and Kenneth J. Toyne (1988);

5. 'Synthesis and Physical Evaluation of Novel Ferroelectric Materials with High Spontaneous Polarization' by M.F. Bone, M.J. Bradshaw, L.K.M. Chan, D. Coates, J. Constant, P.A. Gemmell, G.W. Gray, D. Lacey and K.J. Toyne (1988);

6. 'Synthesis and Liquid Crystalline Properties of 1-(trans-4-Alkylcyclohexylethyl)-4-Alkyl- and -4-Alkoxy-Benzenes, Their Ketone Precursors, and Some Lateral Fluoro-Derivatives' by George W. Gray, David Lacey, Richard M. Scrowston, Ibrahim G. Shenouda and Kenneth Toyne (1988);

7. 'Molecular Dynamics of a Siloxane Liquid-Crystalline Polymer as Studied by Dielectric Relaxation Spectroscopy' by K. Araki, George S. Attard, Andrzej Kozak, Graham Williams, G.W. Gray, D. Lacey and G. Nestor (1988);

8. 'Synthesis and Liquid Crystal Behaviour of Further 4, 4"-Disubstituted 2'-Fluoro-1,1':4',1"-Terphenyls' by L.K.M. Chan, G.W. Gray, D. Lacey and K.J. Toyne (1988);
 9. 'Liquid Crystalline trans,trans-4-Alkoxy-4'Alkylbicyclohexyls' by R. Eidenschink, G.W. Gray, K.J. Toyne and A.E.F. Wachtler (1988);
 10. 'A Comparison of Second Harmonic Generation and Electro-Optic Studies of Langmuir-Blodgett Monolayers of New Hemicyanine Dyes (1988);
 11. 'Liquid Crystalline Transition Metal Complexes Derived From Di(5-alkyloxysalicylidene)Ethylenediamines' by R. Paschke, H. Zschke, A. Madicke, J.R. Chipperfield, A.B. Blake, P.G. Nelson and G.W. Gray (1988)
- 1 file (11 pieces)

U DLCR/3/1/13

File: Reprints - George W. Gray (Liquid Crystals)
File contains the following research papers and patents written or co-authored by George W. Gray:

1989

1. 'The Synthesis and Transition Temperatures of Some 4,4"-Dialkyl- and 4,4"-Alkoxyalkyl-1,1':4',1"-terphenyls With 2,3- or 2',3'-Difluoro Substituents and of Their Biphenyl Analogues' by George W. Gray, Michael Hird, David Lacey and Kenneth J. Toyne (1989);
2. 'Si N.M.R. Investigations of Polysiloxanes' by G.W. Gray, W.D. Hawthorne, D. Lacey and M.S. White (1989);
3. 'X-ray Diffraction Studies on cis- and trans-4'-cyanobiphenyl-4-yl 3-n-propylcyclobutane-1-carboxylate' by J.M. Allman, R.M. Richardson, L.K.M. Chan, G.W. Gray and D. Lacey (1989);
4. 'The Preparation and Liquid Crystal Properties of Materials Incorporating a Mono-Substituted Ring System' by N. Carr and G.W. Gray (1989);
5. 'Side Chain Liquid Crystal Polysiloxanes and Their Low Tg Copolymer Analogues' by G. Nestor, G.W. Gray, D. Lacey and K.J. Toyne (1989);
6. 'Polysiloxanes with Laterally Attached Side Chains Bearing Terminal Cyano Groups' by Michael S.K. Lee, George W. Gray, David Lacey and Kenneth Toyne (1989);
7. 'Siloxane Copolymers with Laterally and Terminally Attached Mesogenic Side Chains' by G.W. Gray, J.S. Hill and D. Lacey (1989);

8. 'The Synthesis and Transition Temperatures of Some Fluoro-Substituted 4-Cyanophenyl and 4-Cyanobiphenyl-4'-yl 4-Pentyl- and 4-Butoxy-Benzoates' by G.W. Gray, M. Hird, D. Lacey and K.J. Toyne (1989);
 9. 'The Synthesis of Optically Active Cyanohydrin Esters and Their Use as High Ps Dopants for Ferroelectric Displays' by L.K.M. Chan, G.W. Gray, D. Lacey, R.M. Scrowston, I.G. Shenouda and K.J. Toyne (1989);
 10. 'Aspects of Side-chain Liquid Crystal Polymers, Especially Polysiloxanes, in Relation to their Potential for Speciality Applications' by G.W. Gray, W.D. Hawthorne, J.S. Hill, D. Lacey, M.S.K. Lee, G. Nestor and M.S. White (1989);
 11. 'Synthesis and Liquid Crystal Properties of Dimethylene Linked Compounds Incorporating the Cyclobutane or Spiro[3.3]heptanes Rings' by L.K.M. Chan, P.A. Gemmell, G.W. Gray and K.J. Toyne (1989).
- 1 file (11 pieces)

U DLCR/3/1/14

File: Reprints - George W. Gray (Liquid Crystals)

1990

File contains the following research papers and patents written or co-authored by George W. Gray:

1. 'The Effect of Diluting Polar Terminal Groups With Non-Polar Terminal Groups in Laterally Attached Side Chain Copolymers' by Michael S.K. Lee, George W. Gray, David Lacey and Kenneth Toyne (1990);
2. 'Polysiloxanes with Laterally Attached Mesogenic Side Chains' by G.W. Gray, J.S. Hill and D. Lacey (1990);
3. 'Di(5-substituted-salicylidene)ethylenediaminato-Complexes (Part II). Mesomorphic Properties of Di(5-alkylsalicylidene)ethylenediaminato Nickel(II) and Copper (II) Complexes and an X-Ray Structure Determination of Di(5-hexyloxysalicylidene)ethylenediaminato Nickel(II)' by R. Paschke, D. Balkow, U. Baumeister, h. Hartung, J.R. Chipperfield, A.B. Blake, P.G. Nelson and G.W. Gray (1990);
4. 'The Synthesis and Properties of Some Novel Liquid-Crystal Side Chain Polyesters' by Andrew M. McRoberts, Raymond Denman, George W. Gray and Richard M. Scrowston (1990);
5. 'The Synthesis and Properties of Some Novel Ferroelectric Materials - Hosts and Dopants' by G.W. Gray, M. Hird, D. Lacey and K.J. Toyne

6. 'Liquid-Crystalline Polysiloxanes with Fluoro-Substituted Side Chains' by G. Nestor, G.W. Gray, D. Lacey and K.J. Toyne (1990);
 7. 'Liquid Crystalline Cyclic Polymers' by Robert D.C. Richards, William D. Hawthorne, Jonathan S. Hill, Michael S. White, David Lacey, J. Anthony Semlyen, George W. Gray and Thomas C. Kendrick (1990);
 8. 'The Effects of Variation of a Core Ring System in the Mesogenic Side Chain of Liquid-Crystal Polysiloxanes' by George W. Gray, Jonathan S. Hill and David Lacey (1990);
 9. 'Unusual structures in some alkyl cyanoterphenyls' by A.J. Leadbetter, P.A. Tucker, G.W. Gray and A.R. Tajbakhsh (1990);
 10. 'Low-molar-mass thermotropic liquid crystals' by G.W. Gray (1990).
- 1 file (10 pieces)

U DLCR/3/1/15

File: Reprints - George W. Gray (Liquid Crystals)
File contains the following research papers and patents written or co-authored by George W. Gray:

1991-1994

1. 'Liquid Crystals and Their Applications' by G.W. Gray (1992); 'Some Developments in the Synthesis of Liquid Crystal Materials' by G.W. Gray, M. Hird and K.J. Toyne (1991);
2. 'Development of Liquid Crystal Materials for Information Technology' by G.W. Gray (1991);
3. 'The Liquid Crystalline Properties of Copper(II) Complexes of B-Diketones' by Neil J. Thompson, George W. Gray, John W. Goodby and Kenneth J. Toyne (1991);
4. 'Synthesis and Properties of Some Liquid Crystal Polysiloxanes with Laterally or Terminally Attached Side Chains' by G.W. Gray, J.S. Hill and D. Lacey (1991);
5. 'Electric Field Induced AC Alignment and Realignment, A Study of a Liquid-Crystalline Copolymer Having Longitudinally and Laterally Attached Mesogenic Groups as Side Chains Monitored Through Dielectric Spectroscopy and Optical Thermomicroscopy' by Ali Nazemi, Ewen J.C. Keller, Graham Williams, Frank E. Karask, Jonathan S. Hill, David Lacey and George Gray (1991);
6. 'The Synthesis of Several Lateral Difluoro-Substituted 4,4"-Dialkyl- and 4,4"-Alkoxyalkyl-Terphenyls and a Rationalisation of the Effect of Such Substitution on Mesophase Type and Transition Temperatures' by G.W. Gray, M. Hird

7. 'Cross-Coupling Reactions in the Synthesis of Liquid Crystals' by Michael Hird, George W. Gray and Kenneth J. Toyne (1991);
 8. 'Some developments in the synthesis of liquid crystal materials' by G.W. Gray (1991);
 - 9a. 'The synthesis and transition temperatures of some lateral cyano-substituted-1,1':4',1"-terphenyls' by Michael Hird, George W. Gray and Kenneth J. Toyne (1991);
 - 9b. 'The Synthesis and Transition Temperatures of Some Lateral Monofluoro-substituted 4,4''-Dialkyl- and 4,4''-Alkoxyalkyl-1,1':4',1''-terphenyls' by G.W. Gray, M. Hird and K.J. Toyne (1991);
 10. 'The synthesis and transition temperatures of novel low molar mass cholesteric materials derived from (R)-2-(4-Hydroxyphenoxy)propanoic Acid' by Christopher J. Booth, George W. Gray and Kenneth J. Toyne (1992);
 11. 'Synthesis and transition temperatures of some novel, chiral nematic, laterally attached, side-chain, siloxane polymers' by Russell A. Lewthwaite, George W. Gray and Kenneth J. Toyne (1992);
 12. 'The Synthesis and Transition Temperatures of Some trans-4-alkylcyclohexylethyl-substituted 2,3-difluorobiphenyls' by Michael Hird, George W. Gray and Kenneth J. Toyne (1992);
 13. 'The Synthesis and Liquid Crystal Properties of Some 4-n-Nonylphenyl Esters of 3-(4'-n-alkoxybiphenyl)- and 3-(4'-n-alkoxybiphenyl)-3-methyl-propanoic Acids and Their Laterally Fluorinated Analogues' by A.W. Hall, D. Lacey, G.W. Gray and J. Benson (1992);
 14. 'Neutron Scattering Studies of Terminally Attached Side Chain Liquid Crystal Polymers' by R.M. Richardson, G.W. Gray and A.R. Tajbakhsh (1993).
 15. 'Synthesis, Transition Temperatures and Optical Anisotropy of some Isothiocyanato-substituted Biphenyls' by Michael Hird, Alexander J. Seed, Kenneth J. Toyne, John W. Goodby, George W. Gray and D.G. McDonnell (1993);
 16. 'The synthesis and transition temperatures of some ferroelectric host materials based on 4- and 4'-(trans-4-alkylcyclohexylmethoxy)-2,3-difluorobiphenyls' by Michael Hird, Kenneth J. Toyne and George W. Gray (1994).
- 1 file (17 pieces)

U DLCR/3/1/16

File: Reprints - George W. Gray (Bacterial Cell Walls)

1963-1975

File contains the following research papers and patents written or co-authored by George W. Gray:

1. The Mechanism of the Antibacterial Action of Phenols and Salicylaldehydes Part 1 by K. Clarke, R.A. Cowen, G.W. Gray and E.H. Osborne (Journal of the Chemical Society, Jan 1963);
2. The relationship between the proton dissociation constants of salicylaldehydes and the stability constants of their complex ions by K. Clarke, R.A. Cowen, G.W. Gray and E.H. Osborne (Journal of the Chemical Society, Jan 1963);
3. The Mechanism of the Antibacterial Action of Phenols and Salicylaldehydes Part II Substituted Phenols by D.E. Burton, K. Clarke and G.W. Gray (Journal of the Chemical Society, Apr 1964);
4. The Mechanism of the Antibacterial Action of Phenols and Salicylaldehydes Part II Substituted Benzaldehydes by D.E. Burton, K. Clarke and G.W. Gray (Journal of the Chemical Society, Jul 1964);
5. The Mechanism of the Antibacterial Action of Phenols and Salicylaldehydes Part II Substituted Salicylaldehydes by D.E. Burton, K. Clarke and G.W. Gray (Journal of the Chemical Society, Jan 1965);
6. The Effects of Ethylenediaminetetra-acetic Acid on the Cell Walls of Some Gram-Negative Bacteria by G.W. Gray and S.G. Wilkinson (J. gen. Microbiol (1965);
7. The Action of Ethylenediaminetetra-acetic Acid on *Pseudomonas aeruginosa* (Journal of Applied Bacteriology Vol.28 No.1, Apr 1965);
- 8a. Lipid A Component from the Cell-walls of *Pseudomonas aeruginosa* by K. Clarke, G.W. Gray and D.A. Reaveley (Nature, Vol.208, No.5010, Nov 1965);
- 8b. 'The Synthesis of Some Substituted Biphenyl-4-Carboxylic Acids, 4-Biphenylacetic Acids, and 4-Aminobiphenyls' by D.J. Byron, G.W. Gray and R.C. Wilson (1966);
- 8c. 'The Effects of 2-Substituents on the Ionisation Constants of Biphenyl-4-carboxylic Acid, 4-Aminobiphenyl, and 4-Biphenylacetic Acid' by D.J. Byron, G.W. Gray and R.C. Wilson (1966);
- 8d. 'The Effects of 3'- and 4'-Substituents on the Ionisation Constants of Biphenyl-4-carboxylic Acid and 4-Aminobiphenyl' by D.J. Byron, G.W. Gray and R.C. Wilson (1966);
9. The Cell Walls of *Pseudomonas aeruginosa* General Composition by K. Clarke, G.W. Gray and

10. The Extraction of Cell Walls of *Pseudomonas aeruginosa* with Aqueous Phenol Material from the Phenol Layer by K. Clarke, G.W. Gray and D.A. Reaveley (Biochem. Journal, 1967);
11. The Extraction of Cell Walls of *Pseudomonas aeruginosa* with Aqueous Phenol Material from the Insoluble Residue and Material from the Aqueous Layers by K. Clarke, G.W. Gray and D.A. Reaveley (Biochem. Journal, 1967);
12. A Membrane Fraction Obtained by Disintegration of Cells of *Pseudomonas Aeruginosa* by G.W. Gray and P.F. Thurman (Biochimica et Biophysica Acta, 1967);
13. Release of lipopolysaccharide during the preparation of cell walls of *Pseudomonus aeruginosa* by N.A. Roberts, G.W. Gray and S.G. Wilkinson (Biochimica et Biophysica Acta, 1967);
14. The Chemical Composition of the Lipopolysaccharide of *Pseudomonus aeruginosa* by A.H. Fensom and G.W. Gray (Biochem. J., 1969);
15. The Effect of Ethylenediaminetetra-acetate on *Pseudomonus alcaligenes* and the Composition of the Bacterial Cell Wall by B.A. Key, G.W. Gray and S.G. Wilkinson (Biochem. J., 1970);
16. The Purification and Chemical Composition of the Lipopolysaccharide of *Pseudomonus alcaligenes* by B.A. Key, G.W. Gray and S.G. Wilkinson (Biochem. J., 1970);
17. The bactericidal action of ethylenediaminetetra-acetate acid on *Pseudomonus aeruginosa* by N.A. Roberts, G.W. Gray and S.G. Wilkinson (Microbios, 1970);
18. Release of Ethanolamine Pyrophosphate during Mild Acid Hydrolysis of the Lipopolysaccharide of *Pseudomonus aeruginosa* by David T. Drewry, George W. Gray and Stephen G. Wilkinson (Eur. J. Biochem. 21, 1971);
19. Further Studies of the Chemical Composition of the Lipopolysaccharide of *Pseudomonus aeruginosa* by I.R. Chester, G.W. Gray and S.G. Wilkinson (Biochem. J., 1972);
20. Low-Molecular-Weight Solutes Released during Mild Acid Hydrolysis of the Lipopolysaccharide of *Pseudomonas aeruginosa* Identification of Ethanolamine Triphosphate by David T. Drewry, George W. Gray and Stephen G. Wilkinson (Biochem. J., 1972);
21. Studies of Lipid A Fractions from the Lipopolysaccharides of *Pseudomonus aeruginosa* and *Pseudomonus alcaligenes* by David T. Drewry, James A. Lomax, George W. Gray and Stephen G.

22. Studies of the Polysaccharide Fraction from the Lipopolysaccharide of *Pseudomonus alcaligenes* by James A. Lomax, George W. Gray and Stephen G. Wilkinson (Biochem. J., 1974);

23. Studies of the Polysaccharide Fractions from the Lipopolysaccharide of *Pseudomonus aeruginosa* N.C.T.C. 1999 by David T. Drewry, Kenneth C. Symes, George W. Gray and Stephen G. Wilkinson (Biochem. J., 1975).

1 file (26 pieces)

U DLCR/3/1/17

File: Reprints - John W. Goodby

1976-1985

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'Molecular Structure and the Polymorphism of Smectic Liquid Crystals' by J.W. Goodby and G.W. Gray (Jun 1976);
2. 'Some Effects of Small Changes in Molecular Framework on the Incidence of Smectic C and Other Smectic Liquid Crystal Phases in Esters' by G.W. Gray and J.W. Goodby (1976);
3. 'Some New Smectic F Materials' by J.W. Goodby and G.W. Gray (1978);
4. 'Smectic F Phases in the Terephthalylidene_BIS_4_n_Alkylanines' by J.W. Goodby, G.W. Gray and A. Mosley (1978);
5. 'New Data on Smectic Materials' by G.W. Gray and J.W. Goodby (1978);
6. 'A Natural Progression from Smectic C to Tilted Smectic B Properties in the n-Alkyl 4'-n-Alkoxybiphenyl-4-carboxylates' by J.W. Goodby and G.W. Gray (1978);
7. 'A SA-SCH Transition - The problems of Phase Assignment' by J.D. Bunning, J.W. Goodby, G.W. Gray and J.E. Lydon (1978);
8. 'Characterisation and Structure of Some New Smectic F. Phases' by A.J. Leadbetter, J.P. Gaughan, B. Kelly, G.W. Gray and J. Goodby (Apr 1979);
9. 'Smectic F Trends in the 4-(2'-methylbutyl)phenyl esters of 4'-n-alkoxybiphenyl-4-carboxylic acids and 4'-n-alkylbiphenyl-4-carboxylic acids' by J.W. Goodby and G.W. Gray (Apr 1979);
10. 'Tilted Smectic B Phase or Smectic H Phase?' by J.W. Goodby and G.W. Gray (Apr 1979);
11. 'The 'Uniaxial' Smectic E Phase' by J.W. Goodby and G.W. Gray (1979);
12. 'Classification of Smectic Polymorphic Phases' by J.W. Goodby and G.W. Gray (1979);
13. 'The Previously Unclassified Smectic Phases of BIS-(4'-n-Heptyloxybenzylidene)-1,4-Phenylenediamine(Heptobpd);

14. 'Smectic F Phases Exhibited by the N-(4-n-Alkoxybenzylidene)-4'-n-Alylanilines' by J.W. Goodby and G.W. Gray (1979);
15. 'Structure of the Smectic-B Phase and the Nature of the Smectic-B to -H Transition in the N-(4-n-Alkoxybenzylidene)-4'-Alkylanilines' by A.J. Leadbetter, M.A. Mazid and B.A. Kelly (1979);
16. 'The Effect of the Reversal of the Central Schiff's Base Linkage on Liquid Crystal Properties: the 4-Phenylbenzylidene-4'-n-alkoxyanilines and 4-(4'-n-Alkoxybenzylideneamino)-biphenyls' by D.J. Byron, D.A. Keating, M.T. O'Neill, R.C. Wilson, J.W. Goodby, G.W. Gray (1980);
17. 'The Discotic Phase of Uro-Porphyrin I Octa-n-Dodecyl Ester' by J.W. Goodby, P.S. Robinson, Boon-Keng Teo and P.E. Cladis (1980);
18. 'Recommendation for the Use of the Code Letters G and H for Smectic Phases' by D. Demus, J.W. Goodby, G.W. Gray and H. Sackmann (1980) (2 copies);
19. 'The Unclassified Smectic Phase of N-(4-n-pentyloxybenzylidene)-4-n-hexylaniline(50.6)' by J.W. Goodby, G.W. Gray, A.J. Leadbetter and M.A. Mazid (1980);
20. 'The Smectic Phases of the N-(4-n-Alkyloxybenzylidene)-4'-n-alkylanilines(n0.m's) - Some Problems of Phase Identification and Structure' by J.W. Goodby, G.W. Gray, A.J. Leadbetter and M.A. Mazid (1980);
21. 'Recommendations for the Use of Code Letters G and H for Smectic Phases' by D. Demus, J.W. Goodby, G.W. Gray and H. Sackmann (1980);
22. 'The Classification of Mesophase of Di-i-butyilsilanediol' by J.D. Bunning, J.W. Goodby, G.W. Gray and J.E. Lydon (1980);
23. 'X-Ray Observation of a Stacked Hexatic Liquid-Crystal B Phase' by R. Pindak, D.E. Moncton, S.C. Davey and J.W. Goodby (Apr 1981);
24. 'Heat Capacity Study of the Transition from a Stacked-Hexatic-B Phase to a Smectic-A Phase' by C.C. Huang and J.M. Viner (May 1981);
25. 'Smectic Polymorphism and Molecular Shape - The Orthogonal Phases' by J.W. Goodby (1981);
26. 'Characterization of the Hexatic B and Crystal B Phases by Optical Microscopy' by J.W. Goodby and R. Pindak (1981);
27. 'A Compound Exhibiting A Crystal B to Hexatic B Phase Change' by J.W. Goodby (1981);
28. 'Mechanical Measurements on Free-Standing Films of Smectic Liquid-Crystal Phases' by R. Pindak, W.O. Sprenger, D.J. Bishop, D.D. Osheroff and J.W.

29. 'Structure Determination of the Low-Temperature Phase of Tertiary Butyl Cyanide by the Constrained Profile Refinement of the Powder Diffraction Pattern' by Jonathan C. Frost, Alan J. Leadbetter, Robert M. Richardson and Richard C. Ward (1982);
30. 'Cholesteric Pitch and Blue Phases in a Chiral-Racemic Mixture' by Matthew A. Marcus and John W. Goodby (1982) (2 copies);
31. 'Pressure Study of a Hexatic B and Crystal B Phase' by P.E. Cladis and J.W. Goodby (1982);
32. 'Pressure-temperature phase diagram of some tilted smectic phases' by P.E. Cladis and J.W. Goodby (1982);
33. 'Molecular Relaxations in a Glass of Cholesteric Liquid Crystal' by G.P. Joharis, J.W. Goodby & G.E. Johnson (May 1982);
34. 'Classification of the Mesophase of Di-isobutylsilanediol' by John D. Bunning, John E. Lydon, Colin Eaborn, Patricia M. Jackson, John Godby and George W. Gray (1982);
35. 'Polarization absorption spectroscopy: Determination of the direction and degree of orientation of absorption transitions' by J.M. Daniels, P.E. Cladis, P.L. Finn, L.S. Powers, J.C. Smith, R.W. Filas, J.W. Goodby and T.M. Leslie (1982);
36. 'Dielectric relaxations in a supercooled liquid and glassy smectic phase' by G.P. Johan and J.W. Goodby (Aug 1982);
37. 'Smectic-A - smectic-C transition: Mean field or critical' by R.J. Birgeneau, C.W. Garland, A.R. Kortan, J.D. Litster, M. Meichle, B.M. Ocko, C. Rosenblatt, L.J. Yu, J. Goodby (Feb 1983);
38. 'Heat capacity near the smectic-A-hexatic-B and hexatic-B-E transitions of n-hexyl-4'-n-pentyloxybiphenyl-4-carboxylate(65OBC)' by J.M. Viner, D. Lamey, C.C. Huang, R. Pindak and J.W. Goodby (Oct 1983);
39. 'Relationships between miscibility grouping and smectic mesophase structure' by J.W. Goodby (1983);
40. 'Liquid crystals: unique states of matter with Information Age applications' by John W. Goodby and Thomas M. Leslie (1983);
41. 'Synthesis, properties and applications of ferroelectric smectic liquid crystals' by John William Goodby (1983);
42. 'The Phase Behaviour of bis-(4'-n-Heptyloxybenzylidene)-1,4-Phenylenediamine(HEPTOBPD), Crystal J and K Phases' by P.A.C. Gane, A.J. Leadbetter, P.G. Wrighton, J.W. Goodby, G.W. Gray and A.R. Tajbakhsh (1983);

43. 'Some Novel Ferroelectric Smectic Liquid Crystals' by J.W. Goodby and T.M. Leslie (1984);
44. 'The Synthesis and Characterization of Some Perylene and Anthraquinone Dichroic Dyes for Liquid Crystal Display Applications' by T.M. Leslie, J.W. Goodby and R.W. Filas (1984);
45. 'Relationships between Molecular Structure and the Incidence of Crystal B and Hexatic B Phases' by J.W. Goodby (1984);
46. 'Characterization of the Phases of Two Isomeric Cyano-Ester Homologous Series - II' by P.E. Cladis, P.L. Finn, J.W. Goodby (1984);
47. 'A high resolution X-ray scattering study of the phases and phase transitions in N-(4-n-butylxybenzylidene)-4-n-heptylaniline(40.7)' by B.M. Ocko, A.R. Kortan, R.J. Birgeneau and J.W. Goodby (1984);
48. 'Esters that exhibit smectic F to isotropic liquid phase transitions' by C.R. Walton and J.W. Goodby (1984);
49. 'Heat-capacity studies near the smectic-A-smectic-C(-smectic-C) transition in a racemic (chiral) smectic liquid crystal' by S.C. Lien, C.C. Huang and J.W. Goodby (Mar 1984);
50. 'Ferroelectric Liquid Crystals - Structure and Design' by J.W. Goodby and T.M. Leslie (1984);
51. 'Liquid Crystal Phases Exhibited by Some Monosaccharides' by J.W. Goodby (1984);
52. 'Ferroelectric Switching in the Tilted Smectic Phases of R-(-4-n-Hexyloxybenzylidene-4'-amino-(2-chloropropyl)cinnamate(HOBACPC))' by J.W. Goodby, J.S. Patel and T.M. Leslie (1984);
53. 'A Reliable Method of Alignment for Smectic Liquid Crystals' by J.S. Patel, T.M. Leslie and J.W. Goodby (1984);
54. 'X-Ray Study of the Hexatic-B-to-Smectic-A Phase Transition in Liquid Crystal Films' by S.C. Davey, J. Budai, J.W. Goodby, Pindak, D.E. Moncton (Nov 1984);
55. 'A structural investigation of the liquid crystal phases of 4-(2'-methylbutyl)phenyl 4'-n-octylbiphenyl-4-carboxylate' by J. Budai, R. Pindak, S.C. Davey and J.W. Goodby (Nov 1984);
56. 'Antiphase Behaviour in the 4-n-alkoxybiphenyl-4'-cyanobenzoates(nOBCB's)' by J.W. Goodby and C.R. Walton (1985);
57. 'Smectic-A-hexatic-B transition of various compounds in the homologous series of n-alkyl-4'-n-alkoxybiphenyl-4-carboxylate' by T. Pitchford, G. Nounesis, S. Dumrongrattana, J.M. Viner, C.C. Huang and J.W. Goodby (Sep 1985);

58. 'The Crystal Structure of Octyl-D-gluconate: A Mesogenic Structure with Monolayer Head-to-Tail Molecular Packing' by Sarama Bhattacharjee, George A. Jeffrey and John W. Goodby (1985) Includes some attached correspondence relating to publication;
59. 'Smectic Liquid Crystals Textures and Structures' by G.W. Gray and J.W. Goodby (1984).
1 file (59 pieces)

U DLCR/3/1/18

File: Reprints - John W. Goodby

1986-1991

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'Alignment of liquid crystals which exhibit cholesteric to smectic C phase transitions' by J.S. Patel and J.W. Goodby (1986);
2. 'Ferroelectric liquid crystal devices' by J.S. Patel and J.W. Goodby (1986);
3. 'Thermal-Conductivity Studies near the Smectic-A-Hexatic-B Transition in a Liquid Crystal Compound' by G. Nounesis, C.C. Huang and J.W. Goodby (Apr 1986);
4. 'Helical Twist Sense and Spontaneous Polarization Direction in Ferroelectric Smectic Liquid Crystals 1' by J.W. Goodby, E. Chin, T.M. Leslie, J.M. Geary and J.S. Patel (1986);
5. 'Helical Twist and Spontaneous Polarization Direction in Ferroelectric Smectic Liquid Crystals 2' by J.W. Goodby and E. Chin (1986);
6. 'Liquid-crystalline behaviour in the n-alkyl gluconamides and other related carbohydrates' by B. Pffannemuller, W. Welte, E. Chin and J.W. Goodby (1986);
7. 'Heat-Capacity Study of Free-Standing Liquid Crystal Films' by T. Pitchford, C.C. Huang, R. Pindak and J.W. Goodby (Sep 1986);
8. 'Pyroelectric Detection with Smectic Liquid Crystals' by A.M. Glass, J.S. Patel, J.W. Goodby, D.H. Olson and J.M. Geary (Oct 1986);
9. 'Properties of Ferroelectric Liquid Crystals' by J.W. Goodby and J.S. Patel (Aug 1986);
10. 'A Protection-Deprotection Method for the Synthesis of Substituted Benzoyloxybenzoates' by E. Chin and J.W. Goodby (1986);
11. 'Existence and nature of a smectic-A-hexatic-B-smectic-I point' by T. Pitchford, C.C. Huang, J.D. Budai, S.C. Davey, R. Pindak and J.W. Goodby (Sep 1986);
12. 'Melting Phenomena and Liquid Crystalline Behaviour' by J.W. Goodby (Feb 1987);
13. 'The Magnitude of the Spontaneous Polarization in Two Ferroelectric Liquid Crystals' by J.S. Patel and

14. 'Properties and Applications of Ferroelectric Liquid Crystals' by J.S. Patel and J.W. Goodby (May 1987);
15. 'Thin-cell dielectric response of a ferroelectric liquid crystal' by R.J. Cava, J.S. Patel, K.R. Collen, J.W. Goodby and E.A. Rietman (May 1987);
16. 'Liquid Crystalline Derivatives of S-3,7-dimethyloctan-1-ol' by E. Chin, J.W. Goodby, J.S. Patel, J.M. Geary and T.M. Leslie (1987);
17. 'Contributions of the molecular species to the magnitude of the spontaneous polarization in ferroelectric liquid crystals' by J.S. Patel and J.W. Goodby (1987);
18. 'The Dependence of the Magnitude of the Spontaneous Polarization on the Cell Thickness in Ferroelectric Liquid Crystals' by J.S. Patel and J.W. Goodby (May 1987);
19. 'Critical behaviour at nematic-to-smectic-A phase transitions for smectic-A1 and reentrant smectic-Ad phases' by K.W. Evans-Lutterodt, J.W. Chung, B.M. Ocko, R.J. Birgeneau, C. Chiang, C.W. Garland, E. Chin, J. Goodby, Nguyen Huu Tinh (Aug 1987);
20. 'Rotational Damping and the Spontaneous Polarization in Ferroelectric Liquid Crystals' by J.W. Goodby, J.S. Patel and E. Chin (1987);
21. 'Observation of Polarization Sign Inversion in Ferroelectric Liquid Crystals Produced by Doping Sc Liquid Crystals' by J.S. Patel and J.W. Goodby (1987);
22. 'The Mechanism of Polymer Alignment of Liquid Crystal Materials' by J.M. Geary, J.W. Goodby, A.R. Kmetz and J.S. Patel (1987);
23. 'The Ferroelectric and Liquid-crystalline Properties of Some Chiral Alkyl 4-n-Alkanoyloxybiphenyl-4'-carboxylates' by John W. Goodby, Evelyn Chin, John M. Geary, Jayantilal S. Patel and Patrick L. Finn (1987);
24. 'Temperature and pulse shape dependence of the switching behaviour in ferroelectric liquid crystals' by J.S. Patel, J.W. Goodby (Jan 1988);
25. 'The Liquid-Crystalline Properties of Some Chiral Derivatives of the 4-n-alkanoyloxybiphenyl-4'-carboxylic acids' by E. Chin, J.W. Goodby and J.S. Patel (1988);
26. 'Dielectric studies of the hexatic B-smectic A and crystal B-smectic A transitions' by C. Nagabhushan, Geetha G. Nair, B.R. Ratna, R. Shashidhar and J.W. Goodby (1988);
27. 'Molecular Correlations in a Ferroelectric Liquid Crystal' by A.M. Glass, J.W. Goodby, D.H. Olson and J.S. Patel (Aug 1988);
28. 'A Chiral Induced Ferroelectric Liquid Crystal Phase Transition with a Vanishingly Small Enthalpy' by

29. 'The Thermotropic Liquid-Crystalline Properties of Some Straight Chain Carbohydrate Amphiphiles' by J.W. Goodby, M.A. Marcus, E. Chin, P.L. Finn and B. Pfannemuller (1988);
30. 'Heat Capacity Peaks Observed at the Blue Phase Transitions in Compounds of Different Purities' by P. Taborek, J.W. Goodby and P.E. Cladis (1989);
31. 'Characterization of a new helical smectic liquid crystal' by J.W. Goodby, M.A. Waugh, S.M. Stein, E. Chin, R. Pindak & J.S. Patel (Feb 1989);
32. 'Calorimetric Study of the Smectic-A-Hexatic-B Phase Transition of a Liquid-Crystal Binary Mixture (Apr 1989);
33. 'Dynamical Test of Phase Transition Order' by P.E. Cladis, Wim van Saarloos, David A. Huse, J.S. Patel, J.W. Goodby and P.L. Finn (Apr 1989);
34. 'Electric Field Effect on the Chiral Smectic C*-A* Phase Transition' by Sin-Doo Lee, J.S. Patel, J.W. Goodby and M.A. Waugh (1989);
35. 'Heat-Capacity Anomaly from Four-Layer Liquid-Crystal Films' by R. Geer, C.C. Huang, R. Pindak and J.W. Goodby (Jul 1989);
36. 'Calorimetric and Optical Microscopic Studies on one Ferroelectric Liquid Crystal Compound with the Smectic-A* Phase' by C.C. Huang, D.S. Lin, J.W. Goodby, M.A. Waugh, S.M. Stein and E. Chin (Oct 1989);
37. 'A New Molecular Ordering in Helical Liquid Crystals' by J.W. Goodby, M.A. Waugh, S.M. Stein, E. Chin, R. Pindak and J.S. Patel (1989);
38. 'Fluid, Hexatic and Crystal Phases in Terephthal-bis-(4n)-Alkylanilines' by D.Y. Noh, J.D. Brock, J.D. Litster, R.J. Birgeneau and J.W. Goodby (Sep 1989);
39. 'Electric-field-induced layer reorientation in ferroelectric liquid crystals' by J.S. Patel, Sin-Doo Lee and J.W. Goodby (Sep 1989);
40. 'Eutectic Mixtures of Ferroelectric Liquid Crystals' by J.W. Goodby, E. Chin and J.S. Patel (1989);
41. 'Critical slowing down near the smectic-A-hexatic-B transition' by R. Greer, H.Y. Liu, E.K. Hobbie, G. Nounesis, C.C. Huang and J.W. Goodby (Oct 1989);
42. 'Effect of the hexatic-B temperature range on the nature of the smectic-A-hexatic-B phase transition' by G. Nounesis, R. Greer, H.Y. Liu, C.C. Huang and J.W. Goodby (Nov 1989);
43. 'Structural Measurements on the Liquid-Crystal Analog of the Abrikosov Phase' by G. Srajer, R. Pindak, M.A. Waugh, J.W. Goodby and J.S. Patel (Mar 1990);

44. 'Electro-optical and thermal studies of one ferroelectric liquid crystal compound with a polarization sign reversal' by C.C. Huang, T. Min, D.S. Lin, B. Zhou and J.W. Goodby (Aug 1990);
45. 'Thermal Property Evolution Toward Effectively Two-Dimensional Substrate-free Systems' by R. Greer, T. Stoebe, C.C. Huang, R. Pindak and J. Goodby (1990);
46. 'Mesogen exhibiting a Ch-A*-A Phase Sequence, a Liquid-Crystalline Analogue of the Abrikosov Phase' by Andrew J. Slaney and John W. Goodby (1991);
47. 'Anomalous Electroclinic Effect Associated with Molecular Conformation Distributions in Chiral Smectic-A Liquid Crystals' by Sin-Doo Lee, J.S. Patel and J.W. Goodby (Jan 1991);
48. 'Hexatic and Crystal Phase Transitions in Thin Free-Standing Liquid Crystal Films' by R. Greer, T. Stoebe, C.C. Huang, R. Pindak, G. Strajer, J.W. Goodby, M. Cheng, J.T. Ho and S.W. Hui (Mar 1991);
49. 'TEM Study on Freeze-Fracture Structure of Smectic A* Phase' by K.J. Ihn, J. Zasadzinski, R. Pindak, J. Patel and J. Goodby (1991);
50. 'The effect of molecular chirality on the incidence of twisted smectic A phases' by A.J. Slaney and J.W. Goodby (1991);
51. 'Nature of Smectic Ordering at a Solid-Liquid-Crystal Interface and Its Influence on Layer Growth' by J.S. Patel, Sin-Doo Lee and J.W. Goodby (Apr 1991);
52. 'The Liquid-Crystalline Properties of Copper(II) Complexes of B-Diketones' by Neil J. Thompson, George W. Gray, John W. Goodby and Kenneth J. Toyne (1991);
53. 'Chirality in Liquid Crystals' by John W. Goodby (1991);
54. 'Effect of Dynamic Conformation Distributions on Molecular Tilt in Chiral Smectic Liquid Crystals' by Sin-Doo Lee, J.S. Patel and J.W. Goodby (1991);
55. 'The Synthesis and Characterisation of Liquid-Crystalline Crowns' by R.P. Tuffin, J.W. Goodby and K.J. Toyne (1991);
56. 'Magnetomesogens: bis(1,3-di(4'-decoxyphenyl)propane-1,3-dionato)oxovanadium (IV)' by Peter Styring, Sukrit Tantrawong, David R. Beattie and John W. Goodby' (1991);
57. 'Orientational epitaxy of a crystal-E overlayer on a hexatic-B substrate' by M. Cheng, J.T. Ho, S.W. Hui, J.W. Goodby, R. Geer and C.C. Huang (Dec 1991);
58. 'Effect of the I* Phase Temperature Range on the Nature of the Tilted Fluid to Hexatic Transition' by V.N. Raja, S. Krishna Prasad, D.S. Shankar Rao, J.W. Goodby and M.E. Neubert (1991);

59. 'Nature of the surface-induced order above the direct isotropic to chiral-smectic-A transition' by Sin-Doo Lee, J.S. Patel and J.W. Goodby (Aug 1991).
1 file (59 pieces)

U DLCR/3/1/19

File: Reprints - John W. Goodby

1992-1994

File contains reprints of the following research papers, written or co-authored by John W.

Goodby:

1. 'The effect of structural changes in the molecular core and periphery on the liquid-crystalline properties of some chiral 4-n-alkoxyphenylpropiolates' by M.A. Waugh, S.M. Stein, E. Chin and J.W. Goodby (1992);
2. 'Ferroelectric, Ferrielectric and Antiferroelectric Properties in the (R)- and (S)-1-Methylalkyl 4'-(4"-n-Alkoxybenzoyloxy)biphenyl-4-carboxylate Liquid Crystals' by John W. Goodby, Jay S. Patel and Evelyen Chin (1992);
3. 'Liquid-Crystalline Polymesomorphism in Copper(II) Complexes of B-Diketones' by Neil J. Thompson, John W. Goodby and Kenneth J. Toyne (1992);
4. 'Liquid Crystalline Polymesomorphism in Copper(II) Complexes of B-Diketones: The Effect of the Position of a Polar Substituent' by Neil J. Thompson, John W. Goodby and Kenneth J. Toyne (1992);
5. 'Twisted Smectic A Phases in Side Chain Liquid Crystal Polymers' by E.C. Bolton, D. Lacey, P.J. Smith and J.W. Goodby (1992);
6. 'Twist Inversion in a Cholesteric Material Containing a Single Chiral Centre' by Andrew J. Slaney, Isa Nishiyama, Peter Styring and John W. Goodby (1992);
7. 'Liquid-hexatic phase transitions in single molecular layers of liquid-crystal films' by R. Greer, T. Stoebe, C.C. Huang, R. Pindak, J.W. Goodby, M. Cheng, J.T. Ho and S.W. Hui (Jan 1992);
8. 'The Effect of 'Molecular Chirality' on Some New Smectic Phases' by I. Nishiyama, A.J. Slaney and J.W. Goodby (1992);
9. 'The Effect of Polymerization on the Stability of the Antiferroelectric Phase' by I. Nishiyama and J.W. Goodby (1992);
10. 'Ring Pattern Formation in 2-d Shear of Freely Suspended Films of s Smect C Liquid Crystal' by I. Mutabazi, P.L. Finn, J.T. Gleeson, J.W. Goodby, C.D. Andereck and P.E. Cladis (1992);
11. 'Chiral Ordered Fluids' by John Goodby

12. 'A Non-Chiral Swallow-Tailed Liquid Crystal Exhibiting a Smectic C Phase that has an Antiferroelectric Structure' by Isa Nishiyama and John W. Goodby (1992);
13. 'Observations of the Liquid-Crystal Analogue of the Abrikosov Phase' by K.J. Ihn, J.A.N. Zasadzinski, R. Pindak, A.J. Slaney, J. Goodby (Oct 1992);
14. 'Unusual Switching Behaviour of New Ferroelectric Liquid Crystals' by Sin-Doo Lee, J.S. Patel and J.W. Goodby (Oct 1992);
15. 'Triphenylene Hexa-n-alkylcyclohexanoates: A New Series of Disc-like Liquid Crystals' by David R. Beattie, Paul Hindmarsh, John W. Goodby, Simon D. Haslam and Robert M. Richardson (1992);
16. 'Defect dynamics and coarsening dynamics in smectic-C films' by A.N. Pargellis, P. Finn, J.W. Goodby, P. Panizza, B. Yurke and P.E. Cladis (Dec 1992);
17. 'Layer-by-Layer Surface Ordering near a Continuous Transition in Free-Standing Liquid-Crystal Films (Oct 1992);
18. 'Simultaneous Measurement of Heat Capacity and In-Plane Density of Thin Free-Standing Liquid Crystal Films' by T. Stoebe, C.C. Huang and J.W. Goodby (May 1992);
19. 'Effect of Surface Crystal-E Order on the Interior Smectic-A-Hexatic-B Transition' by R. Geer, T. Stoebe, C.C. Huang and J.W. Goodby (Nov 1992);
20. 'The effect of molecular structure on the stability of TGB and antiferroelectric phases' by Isa Nishiyama, A.J. Slaney and J.W. Goodby (c.1992) note that this is written in Japanese;
21. 'Effect of Size of the Lateral Substituent at the Chiral Centre on the Stability of Some Chiral Smectic Liquid-Crystalline Phases: The 'Propyl Effect' in Some Chiral Phenylpropiolates and Benzoates' by Isa Nishiyama and John W. Goodby (1993);
22. 'Ferroelectric and Antiferroelectric Properties of a Fluoro-substituted Biphenyl Ester' by Isa Nishiyama, Evelyn Chin and John W. Goodby (1993);
23. 'Effect of Polymerization on the Stability of Antiferroelectric Liquid-Crystalline Phases: Liquid-Crystalline Properties of Some Chiral Acrylates and their Corresponding Polyacrylates' by Isa Nishiyama and John W. Goodby (1993);

24. 'Optical Observations of Layer Ordering in Helical Smectic A* Liquid Crystals' by J.S. Patel, Sin-Doo Lee, Seong-Woo Suh and J.W. Goodby (1993);
25. 'Effect of Backbone Flexibility and the Position of the Lateral Group on the Mesophase Stability of Laterally Attached, Side-Chain Polymers' by Russell A. Lewthwaite, John W. Goodby and Kenneth J. Toyne (1993);
26. 'The Effect of the Ferrocene Unit on Mesomorphic Properties' by Neil J. Thompson, John W. Goodby and Kenneth J. Toyne (1993);
27. 'Inversion of Chirality-Dependent Properties in Optically Active Liquid Crystals' by Peter Styring, Jelle D. Vuijk, Isa Nishiyama, Andrew J. Slaney and John W. Goodby (1993);
28. 'Chirality in Liquid Crystals: The Remarkable Phenylpropiolates' by J.W. Goodby, I. Nishiyama, A.J. Slaney, C.J. Booth and K.J. Toyne (1993);
29. 'The Anomaly in Layer Ordering and Electro-Optic Properties of Smectic A Liquid Crystals' by Sin-Doo Lee, Jae-Hoon Kim, J.S. Patel and J.W. Goodby (1993);
30. 'Novel Chiral Liquid Crystals Derived from (R)-2-(4-Hydroxyphenoxy)propan-1-ol' by Christopher J. Booth, John W. Goodby, Judith P. Hardy, Olwen C. Lettington and Kenneth J. Toyne (1993);
31. 'Synthesis, Transition Temperatures and Optical Anisotropy of Some Isothiocyanato-substituted Biphenyls' by Michael Hird, Alexander J. Seed, Kenneth J. Toyne, John Goodby and George W. Gray (1993);
32. 'Optical Activity and Light Scattering in the Isotropic and Smectic A* Phases of a Highly Chiral Smectic Liquid Crystal' by Brian D. Yanoff, Andrew A. Ruether, Peter J. Collings, Andrew J. Slaney and John W. Goodby (1993);
33. 'A Specialized Apparatus for the Study of Liquid Crystals at High Pressures' by C. Carboni, H.F. Gleeson, J.W. Goodby and A.J. Slaney (1993);
34. 'Observing Molecular Motions of a Fluorinated Ferroelectric Liquid Crystal Using Fluorine-19 NMR' by C. Loubser, P.L. Wessels, J.W. Goodby and P. Styring (1993);
35. 'Fluorosubstituted Chiral Liquid Crystals Derived From (R)-2-(4-Hydroxyphenoxy)propan-1-ol' by C.J. Booth, J.W. Goodby, J.P. Hardy, O.C. Lettington and K.J. Toyne (1993);

36. 'Lateral Substitution in the Peripheral Moieties of Triphenylen-2,3,6,7,10,11-hexayl Hexakis(4-alkoxybenzoate)s: Dimethyl-substituted Systems' by Paul Hindmarsh, Michael Hird, Peter Styring and John Goodby (1993);
37. 'Discotic Mesomorphism in Oxovanadium(IV) Complexes Processing Four Alkyl Substituents' by Sukrit Tantrawong, Peter Styring and John W. Goodby (1993);
38. 'Destruction of a first-order smectic-A - smectic C* phase transition by dimensional crossover in free-standing films' by Isabelle Kraus, Pawel Pieranski, Evgenij Demikhov, Horst Stegemeyer, John Goodby (1993);
39. 'Phase Diagrams for the Blue Phases of Highly Chiral Liquid Crystals' by Miriam B. Bowling, Peter J. Collings, Christopher J. Booth and John W. Goodby (Nov 1993);
40. 'The Synthesis and Transition Temperatures of Some Difluoro-Substituted Cyclohexanes' by Michael Hird, Kenneth J. Toyne, Andrew J. Slaney, John W. Goodby and George W. Gray (1993);
41. 'Surface Ordering and Finite-size Effects at the First Order Phase Transition SmA-SmC* in Liquid-Crystalline Free-Standing Films' by I. Kraus, P. Pieranski, E. Demikhov, H. Stegemeyer, J. Goodby, A. Slaney, M. Osipov (1993);
42. 'Inversion Phenomena in Chiral Liquid Crystals' by J.W. Goodby, P. Styring, A.J. Slaney, J.D. Vuijk, J.S. Patel, C. Loubser, P.L. Wessels (1993);
43. 'Surface Ordering and its Influence on Electro-Optic Properties of Chiral Smectic Compounds' by Seong-Woo Suh, Sin-Doo Lee, J.S. Patel, and J.W. Goodby (1993);
44. 'The Observation of a Novel Twist Inversion in a Chiral Nematic Phase and an Induced TGBA* Phase in a Binary Liquid-Crystalline Mixture of a Chiral Propanonitrile and a Chiral 1-Alkoxypropane' by C.J. Booth, J.W. Goodby, J.P. Hardy and K.J. Toyne (1994);
45. 'Helix Inversion in the Chiral Nematic Phase of a Ferroelectric Liquid Crystal Containing a Single Chiral Centre' by Christa Loubser, P.L. Wessels, Peter Styring and John W. Goodby (1994);
46. 'The Effect of a Lateral Hydroxy Substituent on the Thermal Stability of the Chiral Smectic C Phase' by Russell A. Lewthwaite, John W. Goodby and Kenneth J. Toyne (1994);

47. 'Chirality and Frustration in Ordered Fluids' by J.W. Goodby, A.J. Slaney, C.J. Booth, I. Nishiyama, J.D. Vuijk, P. Styring and K.J. Toyne (1994);
48. 'Pattern Formation at the Traveling Liquid-Crystal Twist-Grain-Boundary-Smectic-A Interface' by P.E. Cladis, A.J. Slaney, John W. Goodby and Helmut R. Brand (Jan 1994);
49. 'Dielectric Relaxation Processes in Ferrielectric and Antiferroelectric Liquid Crystals' by D. Kilian, S. Hiller, J.W. Goodby, I. Nishiyama, S.A. Pikin and W. Haase (1994);
50. 'Effect of the Position of Lateral Fluoro Substituents on the Phase Behaviour and Ferroelectric Properties of Chiral 1-Methylheptyl4'-[2- or -3Fluoro-4-tetradecyloxyphenyl]propioyloxy]biphenyl-4-carboxylates' by Christopher J. Booth, David A. Dunmur, John W. Goodby, Jaskaran S. Kang and Kenneth J. Toyne (1994);
51. 'The Influence of the Liquid Crystalline Core Geometry on the Mesogenicity of Novel Chiral2-(4-substituted-phenoxy)propanonitriles' by Christopher J. Booth, John W. Goodby, Judith P. Hardy, Olwen C. Lettington and Kenneth Toyne (1994);
52. 'Ellipsometric Study of Free-Standing Films of a Liquid Crystal Possessing Ferroelectric, Ferrielectric and Antiferroelectric Phases' by Ch. Bahr, D. Fliegner, C.J. Booth and J.W. Goodby (Jun 1994);
53. 'A Novel, Efficient and General Synthetic Route to Unsymmetrical Triphenylene Mesogens Using Palladium-Catalysed Cross-Coupling Reactions' by John W. Goodby, Michael Hird, Kenneth J. Toyne and Timothy Watson (1994);
54. 'Sign Inversion of Induced Molecular Tilt in Chiral Smectic A Liquid Crystals' by Jae-Hoon Kim, Sin-Doo Lee, J.S. Patel and J.W. Goodby (1994);
55. 'Electron Diffraction Studies of Surface Freezing in Hexatic B Films' by Ming Cheng, John T. Ho, S.W. Hui, Ronald Pindak and J.W. Goodby (1994);
56. 'Pyroelectric Properties of Polymeric Liquid Crystal Systems' by D.K. Das Gupta, E.C. Bolton, D. Lacey and J.W. Goodby (1994);
57. 'Liquid Crystals: An Overview' by J.W. Goodby (1994);

58. 'Relaxation Processes in the Antiferroelectric Phase as Studied by Dielectric Spectroscopy' by Steffen Hiller, Sergei A. Pikin, Wolfgang Haase, John W. Goodby and Isa Nishiyama (1994);
 59. 'Dielectric Dispersion in Ferrielectric Phase of Antiferroelectric Liquid Crystal' by Steffen Hiller, Sergei A. Pikin, Wolfgang Haase, John W. Goodby and Isa Nishiyama (Aug 1994);
 60. Paper in Japanese (1994);
 61. 'Pattern Formation at the Traveling Liquid-Crystal Twist Grain Boundary-Smectic A Interface' by P.E. Cladis, A.J. Slaney, J.W. Goodby and H.R. Brand (1994);
 62. 'Phase Diagram Involving the Twist Grain Boundary Phase in the Vicinity of a Virtual Cholesteric-Smectic A-Smectic C* Point' by S.K. Prasad, V.N. Raja, G.G. Nair and J.W. Goodby (1994);
 63. 'Continuous Sign Inversion in Ferroelectric Liquid Crystals' by Jae-Hoon Kim, Youngjin Kim, Seong-Woo Suh, Sin-Doo Lee and J.W. Goodby (Dec 1994).
- 1 file (63 pieces)

U DLGR/3/1/20

File: Reprints - John W. Goodby

1995-1997

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'Ferrocene-Containing Thermotropic Liquid Crystals' by Robert Deschenaux and John W. Goodby (1995);
2. 'Liquid Crystal Phases' by John W. Goodby (1995);
3. 'Synthesis, Optical Anisotropies, Polarisabilities and Order Parameters of 4-Cyanophenyl and 4-Isothiocyanatophenyl-4-Butylsulfanylbenzoates with Oxygen and Sulfur Substitution in the Ester Linkage' by Alexander J. Seed, Kenneth J. Toyne, John W. Goodby and Damien G. McDonnell (1995);
4. 'Observation of the Smectic-C-Smectic-I Critical Point' by S. Krishna Prasad, D.S. Shankar Rao, S. Chandrasekhar, M.E. Neubert and J.W. Goodby (Jan 1995);
5. 'Synthesis and Transition Temperatures of Host Materials for Ferroelectric Mixtures' by Michael Hird, Kenneth J. Toyne, Andrew J. Slaney and John W. Goodby (1995);
6. 'Synthesis of some 2,4- and 2,5-Disubstituted Thiophene Systems and the Effect of the Pattern of Substitution on the Refractive Indices, Optical Anisotropies, Polarisabilities and Order Parameters in Comparison with those of the Parent Biphenyl and Dithienyl Systems' by Alexander J. Seed, Kenneth J.

7. 'Novel Chiral Mesomorphic Compounds based on α -Amino Acid Derivatives: Synthesis and Properties' by Andrew J. Slaney and John W. Goodby (1995);
8. 'Continuous Sign Inversion in Ferroelectric Liquid Crystals' by Jae-Hoon Kim, Youngjin Kim, Seong-Woo Suh and Sin-Doo Lee (Dec 1994);
9. 'Experimental Indication of a Devil's Staircase Structure in a Smectic Liquid Crystal' by Ch. Bahr, D. Fliegner, C.J. Booth and J.W. Goodby (May 1995);
10. 'The Influence of Lateral Fluoro-Substituents on TGB Phases in Chiral Propiolates' by Christopher J. Booth, John W. Goodby, Kenneth J. Toyne, David A. Dunmur and Jaskaran S. Kang (1995);
11. 'Non-Chiral Compounds Exhibiting Alternating Tilt Smectic Phases' by R.P. Tuffin, J.W. Goodby, D. Bennemann, G. Heppke, D. Lotzsch, G. Scherowsky (1995);
12. 'The Synthesis, Mesomorphic Behaviour and the Uniaxial Nature of 1,2,4,5-tetra-(4-alkoxybenzoyloxy)benzenes' by W.D.J. Amilaprasadh Norbert, John W. Goodby, Michael Hird, Kenneth J. Toyne, J. Cliffe and Jay S. Patel (1995);
13. 'Pressure Induced Twist Grain Boundary Phase' by S. Krishna Prasad, Geetha G. Nair, S. Chandrasekhar and J.W. Goodby (1995);
14. 'An Investigation of the Field-Induced Ferrielectric Subphases in Antiferroelectric Liquid Crystals' by Yu P. Panarin, H. Xu, S.T. MacLughadhat, J.K. Vij, A.J. Seed, M.Hird and J.W. Goodby (1995);
15. 'Crystal Smectic-B Phase from a Mesomorphic Ferrocene Derivative' by Robert Deschenaux, Jean-Luc Marendaz, Julio Santiago and John W. Goodby (1995);
16. 'Unusual Orientational Behaviour of Liquid Crystals: Investigation of the Effect of Dipolar Interactions on the Ferroelectric Properties' by Christa Loubser and John W. Goodby (1995);
17. 'Optical Activity Studies in the Pretransitional Isotropic Region of Strongly Chiral Propiolate Ester Liquid Crystals' by Jaskaran S. Kang, David A. Dunmur, Christopher J. Booth, John W. Goodby, Kenneth J. Toyne and Isa Nishiyama (1995);
18. 'Investigation of the TGBA* Phase in a Ferroelectric Liquid Crystal Using Dielectric Spectroscopy' by H Xu, Yu P. Panarin, J.K. Vij, A.J. Seed, M. Hird and J.W. Goodby (1995);
19. 'Lattice Melting at the Clearing Point in Frustrated Systems' by J.W. Goodby, D.A. Dunmur, and P.J. Collings (1995);
20. 'Behaviour of a Surface Phase Transition in Freely Suspended Liquid-Crystal Films' by Ch. Bahr,

21. 'Liquid Crystals - An Introduction' by J.W. Goodby (1995);
22. 'Effect of Macrocyclic Ring Size on the Liquid-Crystalline Properties of Calamitic Materials' by Rachael P. Tuffin, Kenneth J. Toyne and John W. Goodby (1995);
23. 'Investigation of the Effect of Bulky Lateral Substituents on the Discotic Mesophase Behaviour of Triphenylene Benzoates' by Paul Hindmarsh, Marcus J. Watson, Michael Hird and John W. Goodby (1995);
24. 'Liquid-Crystalline Properties of Some Chiral Benzoate and Phenylpropiolate Esters with Optically Active Centres Derived from (S,S)-Isoleucine and (S,R)-allo-Isoleucine' by Andrew J. Slaney, Marcus Watson and John W. Goodby (1995);
25. 'Mesomorphic Properties and Spontaneous Polarization of Ferroelectric Liquid Crystal Mixtures Based on Chiral Dopants Synthesized by Chiral Hydroboration' by Stephen J. Lock, John W. Goodby, Michael Hird and Kenneth J. Toyne (1995);
26. 'Synthesis of the Series of Monofluoro-substituted 4-Butylsulfanyl-4'-cyanobiphenyls and Effect of the Position of Fluorine within the Core on Refractive Indices, Optical Anisotropies, Polarisabilities and Order Parameters' by Alexander J. Seed, Kenneth J. Toyne and John W. Goodby (1995);
27. 'Amphitropic Liquid-Crystalline Properties of Some Novel Alkyl Furanosides' by John W. Goodby, Julie A. Haley, Grahame Mackenzie, Marcus J. Watson, Daniel Plusquellec and Vincent Ferrieres (1995);
28. 'A Study of the Electroclinic Effect in the Smectic A* Phase of Mixtures with Strongly Chiral Alkoxybiphenyl-Phenyl Carboxylate Dopants' by Jaskaran S. Kang, David A. Dunmur, Christopher J. Booth, John W. Goodby and Kenneth J. Toyne (1996);
29. 'Achiral Swallow-Tailed Materials with 'Antiferroelectric-like' Structure and Their Potential Use in Antiferroelectric Mixtures' by Christopher Booth, David A. Dunmur, John W. Goodby, Julie Haley and Kenneth J. Toyne (1996);
30. 'Investigation of the Field Induced Ferrielectric Subphases in Antiferroelectric Liquid Crystals' by Yu P. Panarin, H. Xu, S.T. MacLughadha, J.K. Vij, A. Seed, M. Hird and J.W. Goodby (1996);
31. 'Influence des Parametres Structuraux des Derives Z-Alkyl-itols sur les Domaines Mesophasiques' by S. Bachir, O. Douillet, B. Harmouch, A. Ramiz, P. Gode, G. Goethals, J. Goodby, S. Kelly, P. Martin, G. Ronco, P. Villa and

32. 'Supermolecules Containing a Tetrahedral Core: A New Class of Liquid-Crystalline Siloxanes' by Georg H. Mehl and John W. Goodby (1996);
33. 'Pyroelectric and Dielectric Properties of Side-Chain Liquid Crystal Polymers' by Georg H. Mehl, Ina Nordmann, David Lacey, John W. Goodby, J.H. Christopher Hogg and Dilip K. Das-Gupta (Apr 1996);
34. 'Electroclinic and Antiferroelectric Properties of (R)-(-)-nonan-3-yl 4-(4'-dodecyloxybiphenyl-4-ylcarbonyloxy)-3-fluorobenzoate' by Christopher J. Booth, David A. Dunmur, John W. Goodby, Kenneth J. Toyne and Marcus J. Watson (1996);
35. 'Critical Point for the Blue-Phase-III-Isotropic Phase Transition in Chiral Liquid Crystals' by Zdravko Kutnjak, Carl W. Garland, Colin G. Schatz, Peter Collings, Christopher J. Booth and John W. Goodby (May 1996);
36. 'Surface Induced Order Near the Smectic-A-Smectic-C Transition: Comparison Between Ferroelectric And Antiferroelectric Compounds' by Ch. Bahr, C.J. Booth, D. Fliegner, J.W. Goodby (1996);
37. 'Electric Field-Induced Transition From the Twist Grain Boundary TGBA Phase to the Tilted Smectic SmC*' by Heinz-S. Kitzerow, Andrew J. Slaney and John W. Goodby (1996);
38. 'The Synthesis and Properties of Chiral Smectic C Materials for Use in High Spontaneous Polarization Mixtures' by Michael Hird, Stephen J. Lock, Kenneth J. Toyne and John W. Goodby (1996);
39. 'Novel Side Chain Liquid Crystal Polyesters' by G.H. Mehl, D. Lacey, J.W. Goodby, P. Wilson and J.H.C. Hogg (1996);
40. 'The Ferro-, Ferri- and Antiferro-Electric Properties of a Series of Novel 2- or 3-Substituted-Alkyl 4-(4'-Dodecyloxybiphenyl-4-Carbonyloxy)-Benzoate Esters' by Christopher J. Booth, David A. Dunmur, John W. Goodby and Kenneth J. Toyne (1996);
41. 'An Investigation into the Effect of Lateral Fluoro Substitution in the Molecular Core on the Spontaneous Polarization of Chiral Cyclohexanes' by S.J. Lock, J.W. Goodby, M. Hird and K.J. Toyne (1996);
42. 'Phasmidic Phases in Macrocyclic Liquid Crystals' by Rachel P. Tuffin, Kenneth J. Toyne and John W. Goodby (1996);
43. 'Pyroelectric Properties of an Antiferroelectric Liquid Crystal' by J.W. O'Sullivan, Yu P. Panarin, J.K. Vij, A.J. Seed, M. Htid and J.W. Goodby (1996);

44. 'Sign Inversion of the Spontaneous Polarization in Ferroelectric Liquid Crystals: A Thickness Dependence Study in Freely Suspended Films' by Ch. Bahr, C.J. Booth, D. Fliegner and J.W. Goodby (Jun 1996);
45. 'Critical Adsorption at the Free Surface of a Smectic Liquid Crystal Possessing a Second-Order Phase Transition' by Ch. Bahr, C.J. Booth, D. Fliegner and J.W. Goodby (Aug 1996);
46. 'Liquidcrystalline, substituted octakis-(dimethylsiloxy)octasilsesquioxanes: Oligomeric supermolecular materials with defined typology' by Georg H. Mehl and John W. Goodby (1996);
47. '5-Bromo-2-Iodopyrimidine: A Novel, Useful Intermediate in Selective Palladium-Catalysed Cross-Coupling Reactions for Efficient Convergent Syntheses' by John W. Goodby, Michael Hird, Robert A. Lewis and Kenneth J. Toyne (1996);
48. 'Properties of Side Chain Liquid Crystal Polyesters Containing Chiral Groups in the Main Chain' by G.H. Mehl, F. Valvo, D. Lacey, J.W. Goodby and D.K. Das-Gupta' (Dec 1996);
49. 'Inter-Layer Coupling in Freely Suspended Films of Tilted Smectic Liquid-Crystal Phases' by Ch. Bahr, C.J. Booth, D. Fliegner and J.W. Goodby (1996);
50. 'Substitution Effects on the Liquid Crystalline Properties of D,L-Xylitol Amphiphiles' by John W. Goodby, Julie A. Haley, Marcus J. Watson, Grahame Mackenzie, Stephen M. Kelly, Philippe Letellier, Olivier Douillet, Paul Gode, Gerard Goethals, Gino Ronco and Pierre Villa (1997);
51. 'The Effect of Substituent Position on the Liquid Crystalline Properties of Dodecyl-D-Xylitols' by John W. Goodby, Julie A. Haley, Marcus J. Watson, Grahame Mackenzie, Stephen M. Kelly, Philippe Letellier, Paul Gode, Gerard Goethals, Gino Ronco, Benali Harmouch, Patrick Martin and Pierre Villa (1997);
52. 'Achiral Liquid Crystals with an Antiferroelectric-Like Phase' by J.W. Goodby, S.M. Kelly and D.D. Parghi (1997);
53. 'The Mesomorphism of Some 6-O -n -Alkyl- α -D-Galactopyranoses and 6-O -n -Alkyl-D-Galactitols' by J.W. Goodby, J.A. Haley, S.M. Kelly, P. Bault, P. Gode, G. Goethals, G. Ronco and P. Villa (1997);
54. 'The Mesomorphism of Some N -Acyl-B-D-Glycopyranosylamines and N -Acyl-2-Amino-2-Deoxy- α / β -D-Glucopyranoses' by D.F. Ewing, M. Glew, J.W. Goodby, J. Haley, S.M. Kelly, P. Letellier and G. Mackenzie (1997);

55. 'Unsymmetrical Hexakis(n-alkoxy) Mesogens: The Dependence of Mesomorphism on Molecular Shape' by S. Cross, J.W. Goodby, A.W. Hall, M. Hird, S.M. Kelly, K.J. Toyne and K. Wu (1997);
56. 'The Synthesis and Mesomorphic Behaviour of the 1,2,4,5-Tetra-Substituted Benzenes with (4-Tridecyloxyphenyl)Ethyne and (4-Tridecyloxyphenyl)Carbonyloxy Substituents' by W.D.J. Amilaprasadh Norbert, John W. Goodby, Michael Hird and Kenneth J. Toyne (1997);
57. 'The Effect of Hydrogen Bonding, Molecular Shape, Dipole Moments and Chain Length on the Mesomorphism of Some D-Glucose and D-Glucosamine Derivatives' by P. Letellier, D.F. Ewing, J.W. Goodby, J. Haley, S.M. Kelly and G. Mackenzie (1997);
58. 'Observation and Investigation of the Ferroelectric Subphase with High q_r Parameter' by Yu P. Panarin, O. Kalinovskaya, J.K. Vij and J.W. Goodby (Apr 1997);
59. 'An Improved One Step Synthesis of B-Glycosides' by David F. Ewing, John W. Goodby, Stephen M. Kelly, Philippe Letellier and Grahame Mackenzie (1997);
60. 'Synthesis of O-Alkyl D-Xylitols With Potential Liquid-Crystalline Properties' by Benali Harmouch, Paul Gode, Gerard Goethals, John W. Goodby, Julie Haley, Stephen Kelly, Phillipe Letellier, Grahame Mackenzie, Patrick Martin, Gino Ronco, Marcus Watson and Pierre Villa (1997);
61. 'N-Acyl-B-D-Glycopyranosylamines and 2-Alkylamido-2-Deoxy- α/β -D-Glucopyranoses: Relationship Between Molecular Structure and Mesomorphism' by D.F. Ewing, J.W. Goodby, J.A. Haley, S.M. Kelly, P. Letellier and G. Mackenzie (1997);
62. 'Studies on Bis(2,3:5,6-di-O-Isopropylidene-D-Mannofuranosyl)amine and its Protected and Deprotected N-Acyl Derivatives - An Approach to Novel Non-Ionic Surfactants' by David F. Ewing, John W. Goodby, Sophie Guenais, Philippe Letellier, Grahame Mackenzie, Isabelle Piastrelli and Daniel Plusquellec (1997);
63. 'A Study of Antiferroelectric Liquid Crystals Using the Pyroelectric Technique' J.W. O'Sullivan, Yu P. Panarin J.K. Vij, A.J. Seed, M. Hird and J.W. Goodby (1997);
64. 'Difluorobiphenyl Dioxaborinanes for Ferroelectric Liquid Crystal Applications' by Chu Chuan Dong, Peter Styring, Lawrence K.M. Chan and John W. Goodby (1997);

65. 'Monodisperse Oligomeric Liquid Crystal Supermolecules with Defined Topology' by G.H. Mehl and J.W. Goodby (1997);
 66. 'Optically Active Dopants Incorporating A 2,4-Disubstituted Oxazoline Ring' by Alexander G.M. Lamb, Michael Hird, Stephen M. Kelly and John W. Goodby (1997);
 67. 'Tilted Layered Phases: The Influence of the Inclusion of A Non-Linear Macrocyclic in Calamitic Liquid Crystals - Synthesis and Phase Behaviour' by R.P. Tuffin, G.H. Mehl, K.J. Toyne and J.W. Goodby (1997);
 68. 'Studies on the Dielectric Behaviour of TGBA Phase' by S.K. Roy, S. Hiller, J.W. Goodby and W. Haase (1997);
 69. 'Static and Dynamic Light Scattering Near the Liquid Crystalline Blue Phase III - Isotropic Liquid Crystal Point' by Upindranath Singh, Peter J. Collings, Christopher J. Booth and John W. Goodby (Nov 1997).
- 1 file (69 pieces)

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File: Reprints - John W. Goodby
File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'An Homologous Series of 6-O-n-Alkyl-a-D-Galactopyranoses: Synthesis and Thermotropic Mesomorphic Properties' by P. Bault, P. Gode, G. Goethals, J.W. Goodby, J.A. Haley, S.M. Kelly, G.H. Mehl, G. Ronco and P. Villa (1998);
2. 'The Mesomorphism of Some 6-S-n-Alkyl-6-thio-a-D-galactopyranoses and Some 6-O-(Propylene-[3'-S-n-alkyl])-a-D-galactopyranoses' by P. Bault, P. Gode, G. Goethals, J.W. Goodby, J.A. Haley, G.H. Mehl, S.M. Kelly, D. Postel, G. Ronco and P. Villa (1998);
3. 'SmCalt-Forming Liquid Crystals with a 'Swallowtail' Structure' by D.D. Parghi, S.M. Kelly and J.W. Goodby (1998);
4. 'N-Acyl-B-D-Glycopyranosylamines Containing 1,2-Distributed Cyclohexyl and Phenyl Rings: Mesomorphism and Molecular Structure Relationships' by David F. Ewing, Mandy Glew, John W. Goodby, Julie A. Haley, Stephen M. Kelly, Bernd U. Komenschek, Philippe Letellier, Grahame Mackenzie and 5. Georg H. Mehl (1998);
6. 'Ferroelectric and Antiferroelectric Liquid Crystalline Materials: Hosts and Dopants for Display Applications' by J.W. Goodby (Feb 1998);

1998-1999

7. 'In Situ Photopolymerization Behaviour of a Chiral Liquid-Crystalline Monomer Showing a Ferroelectric Phase' by Sayuri Ogiri, Akihiko Kanazawa, Takeshi Shiono, Tomiki Ikeda, Isa Nishiyama and John W. Goodby (1998);
8. 'Unsymmetrical Alkoxy-Substituted Triphenylenes: The Dependence of Mesomorphism on Molecular Shape' by S.J. Cross, J.W. Goodby, A.W. Hall, M. Hird, S.M. Kelly, K.J. Toyne and C. Wu (1998);
9. 'Liquid Crystalline Derivatives of Galactose and Galactitol: Dependence of Thermotropic Mesomorphism on Carbohydrate Form' by P. Bault, P. Gode G. Goethals, J.W. Goodby, J.A. Haley, S.M. Kelly, G.H. Mehl, G. Ronco and P. Villa (1998);
10. 'The Dependence of Mesomorphic Behaviour on the Extent of Hydrogen-Bonding in Sugar Derived Polyols' by John W. Goodby, Marcus J. Watson, Graham Mackenzie, Stephen M. Kelly, Sabrina Bachir, Phillipe Bault, Paul Gode, Gerard Goethals, Patrick Martin, Gino Ronco and Pierre Villa (1998);
11. 'An Efficient Synthesis of Analogues of Unsymmetrical Archaeal Tetraether Glycolipids' by Gregory Lecollinet, Rachel Auzely-Velty, Thierry Benvegnu, Grahame Mackenzie, John W. Goodby and Daniel Plusquellec (1998);
12. 'Variety of Wetting Behaviours at the Free Surface of Isotropic Liquid Crystals' by R. Lucht, Ch. Bahr, G. Heppke and J.W. Goodby (Mar 1998);
13. 'Polarization Sign Inversion and Smectic-A - Smectic-C Surface Transitions in Freely Suspended Films of Fluorinated and Nonfluorinated Compound' by D. Schlauf, Ch. Bahr, C.C. Huang and John Goodby (1998);
14. 'A Phenomenological Approach to the Inversion of the Helical Twist Sense in the Chiral Nematic Phase' by Marcus J. Watson, Mark K. Horsburgh, John W. Goodby, Kohki Takatoh, Andrew J. Slaney, Jay S. Patel and Peter Styring (1998);
15. 'Self-Organization and Formation of Liquid Crystal Phases by Molecular Templates Related to Membrane Components of Archaeobacteria' by Rachael Auzely-Velty, Thierry Benvegnu, Daniel Plusquellec, Grahame Mackenzie, Julie A. Haley and John W. Goodby (1998);
16. 'Achiral Liquid Crystals with an Antiferroelectric-Like Phase' by D.D. Parghi, S.M. Kelly and J.W. Goodby (1998);
17. 'Observation of Exotic Subphases in an Antiferroelectric Liquid Crystal' by O.E. Kalinovskaya, Yu P. Panarin, J.K. Vij, A.J. Seed, M.

18. 'X-Ray and Optical Studies of the Tilted Phases of Materials Exhibiting Antiferroelectric, Ferrielectric and Ferroelectric Mesophases' by Joanne T. Mills, Helen F. Gleeson, John W. Goodby, Michael Hird, Alexander Seed and Peter Styring (1998);
19. 'Design of Low-Molar Mass Thermomesogens in the Search for Biaxial Nematic Liquid Crystals' by K. Praefcke, D. Blunk, D. Singer, J.W. Goodby, K.J. Toyne, M. Hird, P. Styring and W.D.J.A. Norbert (1998);
20. 'Synthesis and Liquid-Crystalline Properties of Novel Archaeal Diether-Type Glycolipids Possessing One or Two Furanosyl Units' by Rachel Auzely-Velty, Thierry Benvegnu, Grahame Mackenzie, Julie A. Haley, John W. Goodby and Daniel Plusquellec (1998);
21. 'Substituted Siloxysilanes and the Structure of Oligomeric Liquid Crystals' by Georg H. Mehl and John W. Goodby (1999);
22. 'The Synthesis and Mesomorphic Properties of 2,2',3-tri- and 2,2',3,3'-tetra-fluoro-1,1':4',1"-terphenyls for High Dielectric Biaxiality Ferroelectric Liquid Crystal Mixtures' by Margaret E. Glendenning, John W. Goodby, Michael Hird and Kenneth J. Toyne (1999);
23. 'Diastereospecific Synthesis and Amphiphilic Properties of New Alkyl B-D-Fructopyranosides' by Vincent Ferrieres, Thierry Benvegnu, Martine Lefeuvre, Daniel Plusquellec, Grahame Mackenzie, Marcus J. Watson, Julie A. Haley, John W. Goodby, Ron Pindak and Mark K. Durbin (1999);
24. 'Synthetic Approaches to Novel Archaeal Tetraether Glycolipid Analogues' by Gregory Lecollinet, Rachel Auzely-Velty, Mathieu Danel, Thierry Benvegnu, Grahame Mackenzie, John W. Goodby and Daniel Plusquellec (1999);
25. 'Preliminary Communication Supermolecular Liquid Crystal Dendrimers Based on the Octasilsesquioxane Core' by Isabel M. Saez and John W. Goodby (1999);
26. 'Synthesis and Mesomorphism of 6-Z-n-alkyl-a-D-galactopyranose' by P. Bault, P. Gode, G. Goethals, J.W. Goodby, J.A. Haley, S.M. Kelly, G.H. Mehl and P. Villa (1999);
27. 'Observation of an SmCa* Phase in an Antiferroelectric Liquid Crystal Using Pyroelectrics and Dielectrics' by N.M. Shtykov, J.K. Vij, V.P. Panov, R.A. Lewis, Michael Hird and John W. Goodby (1999);

28. 'The Synthesis and Electro-Optic Properties of Liquid Crystalline 2-(2,3-difluorobiphenyl-4'-yl)-1,3-dioxanes' by Chu Chuan Dong, Peter Styring, John W. Goodby and Lawrence K.M. Chan (1999);
29. 'Competition between Ferroelectric and Flexoelectric Polarization in Freely Suspended Smectic Films' by D. Schlauf, Ch. Bahr, V.K. Dolganov and J.W. Goodby (1999);
30. 'Preliminary Communication A Possible Structural Model of the SmCB* Phase' by H.F. Gleeson, L. Baylis, W.K. Robinson, J.T. Mills, J.W. Goodby, A. Seed, M. Hird, P. Styring, C. Rosenblatt and S. Zhang (1999);
31. 'Conoscopic Observations of Multiple Ferrielectricity in a Chiral Liquid Crystal' by Lee J. Baylis, Helen F. Gleeson, Alex J. Seed, Pete J. Styring, Michael Hird and John W. Goodby (1999);
32. 'Dielectric Investigations of a Racemic AFLC Host (+/-)-12F1M7' by Dirk Kilian, Deven D. Parghi, Stephen M. Kelly, Wolfgang Hasse and John W. Goodby (1999);
33. 'A Comparison of the Optical and Steric Tilt in Antiferroelectric Liquid Crystals' by Joanne T. Mills, Helen F. Gleeson, John W. Goodby, Michael Hird, Alex Seed and Peter Styring (1999);
34. 'Synthesis, Mesomorphic Properties and Physical Measurements of a Series of Fluorinated Antiferroelectric Liquid Crystals' by D.D. Parghi, S.M. Kelly and J.W. Goodby (1999);
35. 'The Synthesis and Properties of Fluoro-terphenyls for High Dielectric Biaxiality Ferroelectric Liquid Crystal Mixtures' by Margaret E. Glendenning, John W. Goodby, Michael Hird, J. Clifford Jones, Kenneth J. Toyne, Andrew J. Slaney and Victoria Minter (1999);
36. 'The Synthesis and Properties of Fluorinated Quinoline Liquid Crystals' by Robert A. Lewis, John W. Goodby, Michael Hird and Kenneth J. Toyne (1999);
37. 'Synthesis and Mesomorphism of Four Series of 6-Z-n-Alkyl- α -D-Galactopyranoses' by Philip Bault, Paul Gode, Gerard Goethals, John Goodby, Julie Haley, Stephen Kelly, Georg Mehl, Gino Ronco and Pierre Villa (1999);
38. 'Oligomers and Dendrimers Based on Siloxane and Silsesquioxane Cores: Does the Structure of the Central Core Affect the Liquid-Crystalline Properties?' by G.H. Mehl, A.J. Thornton and J.W. Goodby (1999);

39. 'The Synthesis of Oxetane Monomers and their Polymerisation to give Side-Chain Liquid-Crystalline Polymers with Broad Smectic C Phases' by Stephen J. Cowling, Kenneth J. Toyne and John W. Goodby (1999);

40. 'The Synthesis of 3a-/3B- Cholesteryl and Cholestanyl Esters and Ethers - an Assessment of their Mesogenicity' by Simon M. Harwood, Kenneth J. Toyne, John W. Goodby and Michael Parsley (1999);

41. 'Mesogenic Molecular Crystalline Materials' by J.W. Goodby (1999);

42. 'Structures of Chiral Smectic-C Mesophases Revealed by Polarization-Analyzed Resonant X-Ray Scattering' by P. Mach, R. Pindak, A.M. Levelut, P. Barois, H.T. Nguyen, H. Baltes, M. Hird, K. Toyne, A. Seed, J.W. Goodby, C.C. Huang and L. Furenlid (1999).

1 file (42 pieces)

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File: Reprints - John W. Goodby

2000-2001

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'The Synthesis and Mesomorphic Properties of 4,4"-dialkyl-2,2',3- and 2,2',3'-trifluoro-1,1':4',1"-terphenyls for High Dielectric Biaxiality Ferroelectric Liquid Crystal Mixtures' by Margaret E. Glendenning, John W. Goodby, Michael Hird and Kenneth J. Toyne (2000);

2. 'The Synthesis of Cholest-5-ene-3B-carboxylates and a Comparison of Their Mesomorphic Behaviour with Isomeric Cholesterol Esters with a Reversed Ester Linkage' by Simon M. Harwood, Kenneth J. Toyne, John W. Goodby, Michael Parsley and George W. Gray (2000);

3. 'On the Occurrence of the SmCalt Phase in an Homologous Series of Liquid Crystals' by D.D. Parghi, S.M. Kelly and J.W. Goodby (2000);

4. 'Chiral Liquid Crystals for Ferroelectric, Electroclinic and Antiferroelectric Displays and Photonic Devices' by J.W. Goodby, K.J. Toyne, M. Hird, P. Styring, R.A. Lewis, A. Beer, C.C. Dong, M.E. Glendenning, J.C. Jones, K.P. Lymer, A.J. Slaney, V. Minter and L.K.M. Chan (Jan 2000);

5. 'Nematic Materials with Negative Dielectric Anisotropy for Display Applications' by Michael Hird, John W. Goodby, Kenneth J. Toyne (2000);

6. 'Resonant X-Ray Scattering at the Se Edge in Liquid Crystal Free-Standing Films and Devices' by L.S. Matkin, H.F. Gleeson, P. Mach, C.C. Huang, R. Pindak, G. Strajer, J. Pollmann, J.W. Goodby, M. Hird and A. Seed (2000);

7. 'Nematic Silsesquioxanes - Towards Nanocrystals Dispersed in a Nematic Liquid Crystal Matrix' by Ralf Elsaber, Georg H. Mehl, John W. Goodby and Demetri J. Photinos (2000);
8. 'Structure of the Liquid-Crystal Ferrielectric Phases as Determined by Ellipsometry' by P.M. Johnson, D.A. Olson, S. Pankratz, T. Nguyen, J. Goodby, M. Hird and C.C. Huang (May 2000);
9. 'Liquid-Crystalline Abrikosov Flux Phase with an Antiferroelectric Structure' by J.W. Goodby, A. Petrenko, M. Hird, R.A. Lewis, J. Meier and J.C. Jones (2000);
10. 'Synthesis Transition Temperatures, and Optical Properties of Compounds With Simple Phenyl Units Linked by Double Bond, Triple Bond, Ester or Propiolate Linkages (2000);
11. 'Electric Field-Induced Layer Deformations in the Subphases of an Antiferroelectric Liquid Crystal Device' by L.S. Matkin, H.F. Gleeson, L.J. Baylis, S.J. Watson and N. Bowring (Jul 2000);
12. 'Field-Induced Phase Transitions in an Antiferroelectric Liquid Crystal Using the Pyroelectric Effect' by N.M. Shtykov, J.K. Vij, R.A. Lewis, M. Hird and J.W. Goodby (Aug 2000);
13. 'Ferrielectric Liquid Crystal Subphase Studied by Polarized Fourier-Transform Infrared Spectroscopy' by A.A. Sigarev, J.K. Vij, Yu P. Panarin and J.W. Goodby (Aug 2000);
14. 'Synthesis, Transition Temperatures and Optical Properties of Various 2,6-Disubstituted Naphthalenes and Related 1-Benzothiophenes with Butylsulfanyl and Cyano or Isothiocyanato Terminal Groups' by Alexander J. Seed, Kenneth J. Toyne, John W. Goodby and Michael Hird (2000);
15. 'A Twist Grain Boundary Phase with a Local Antiferroelectric Structure' by A.S. Petrenko, M. Hird, R.A. Lewis, J.G. Meier, J.C. Jones and J.W. Goodby (2000);
16. 'Planar Chirality: A Fascinating Symmetry Breaking Which Leads to Ferroelectricity in Ferrocenyl Liquid Crystals' by Thierry Chuard, Stephen J. Cowling, Maria Fernandez-Ciurleo, Isabelle Jauslin, John W. Goodby and Robert Deschenaux (2000);
17. 'Optical Reflectivity Study of Synclitic and Anticlinic Structures in Thin Freely Suspended Smectic Films (2000);
18. 'Ferroelectric Liquid Crystalline Materials: Hosts, Dopants and Gels for Display Applications' by J.W. Goodby, K.J. Toyne, M. Hird, P. Styring, R.A. Lewis, A. Beer, C.C. Dong, M.E. Glendenning, J.C. Jones, K.P. Lymer, A.J. Slaney, V. Minter and L.K.M. Chan (2000);

19. 'Rearrangement Products of Some 1R,4R-2-arylidene-p-methan-3-ones in Acid Media, Their Structures, and Conformational Analysis' by V.V. Vaschenko, N.S. Pivnenko, L.A. Kutulya, A.S. Petrenko, S.V. Iksanova and J.W. Goodby (Jul 2000);
20. 'The Synthesis and Properties of Host Materials with Fluoro Substituents in the Core and in a Terminal Chain for High Dielectric Biaxiality FLC Mixtures' by John W. Goodby, Michael Hird, J. Clifford Jones, , Robert A. Lewis, Ian C. Sage and Kenneth J. Toyne (2000);
21. 'Towards Low Birefringent Achiral Smectic C Hosts for New Display Applications' by J.G. Meier, S.T. Lagerwall, M. Hird and J.W. Goodby (2000);
22. 'Achiral Liquid Crystals with an Anticlinic Smectic C Structure' by D.D. Parghi, S.M. Kelly and J.W. Goodby (2000);
23. 'The Structural Transformations with Temperature and Electric Field in Antiferroelectric Liquid Crystals' by Yu P. Panarin, O.E. Kalinovskaya, J.K. Vij, D.D. Parghi, M. Hird and J.W. Goodby (2000);
24. 'Polarized FTIR Spectroscopic Study of a High-Temperature Ferrielectric Phase of an Antiferroelectric Liquid Crystal' by Andrei A. Sigarev, Jagdish K. Vij, Yuri P. Panarin and John W. Goodby (2000);
25. 'The Relaxation Phenomena in Antiferroelectric and Ferrielectric Phases' by Yu. P. Panarin, O.E. Kalinovskaya, J.K. Vij and J.W. Goodby (2000);
26. 'Ellipsometric Studies of Synclitic and Anticlinic Arrangements in Liquid Crystal Films' by P.M. Johnson, D.A. Olson, S. Pankratz, Ch. Bahr, J.W. Goodby and C.C. Huang (Dec 2000);
27. 'New Antiferroelectric Liquid Crystal Exhibiting A Direct TGB-SmCA* Transition' by A. Petrenko, J.W. Goodby, J. Meier (2000);
28. 'The Effect of Molecular Shape and Microphase Segregation on the Formation of Liquid Crystal Phases in Poly-Ols' by Jonathan J. West, Guenola Bonsergent, Grahame Mackenzie, David F. Ewing, John W. Goodby, Thierry Benvegna, Daniel Plusquellec, Sabrina Bachir, Phillipe Bault, Olivier Douillet, Paul Gode, Gerard Goethals, Patrick Martin and Pierre Villa (2001);
29. 'The Development of Materials, Mixtures and Gels for Ferroelectric Displays' by Michael Hird, John W. Goodby and Kenneth J. Toyne (2001);
30. 'Side-Chain Liquid Crystal Polymers Derived from Oxetane Monomers Containing 2- or 3-Fluorophenyl Moieties in the Core of the Mesogen' by Stephen J. Cowling, Kenneth J. Toyne and John W. Goodby (2001);

31. 'The Synthesis and Transition Temperatures of 5-(4-alkyl- and 4-alkyl-phenyl)-2-cyanobenzo[b]furans and a 5-(4'-alkylbiphenyl-4-yl)-2-cyanobenzo[b]furan: A Comparison with Their Biphenyl and Terphenyl Analogues' by Mark R. Friedman, Kenneth J. Toyne, John W. Goodby and Michael Hird (2001);
32. 'Chiral Organic Compounds in Liquid Crystal Systems with Induced Helical Structure' by Lidiya Kutulya, Valery Vashchenko, Galina Semenkov, Natal'ya Shkolnikova, Tat'yana Drushlyak and John Goodby (2001);
33. 'A Liquid-Crystalline Silsesquioxane Dendrimer Exhibiting Chiral Nematic and Columnar Mesophases' by Isabel M. Saez, John W. Goodby and Robert M. Richardson (2001);
34. 'The Synthesis, Phase Transitions and Optical Properties of Novel Tetrathiafulvalene Derivatives with Extremely High Molecular Polarizabilities' by Alexander J. Seed, Kenneth J. Toyne and John W. Goodby (2001); 'Nematic Dendrimers Based on Carbosilazane Cores' by R. Elsasser, G.H. Mehl, J.W. Goodby and M. Veith (2001);
35. 'Nematic Dendrimers Based on Carbosilazane Cores' by R. Elsasser, G.H. Mehl, J.W. Goodby and M. Veith (2001);
36. 'Dielectric and Optical Rotatory Power Investigations of an Antiferroelectric Liquid Crystal 12OF1M7 in a Homeotropic Cell: Implications for Models of the Structure of Ferrielectric Phases' by N.M. Shtykov, J.K. Vij, R.A. Lewis, M. Hird and J.W. Goodby (2001);
37. 'Resonant X-Ray Scattering Study of the Antiferroelectric and Ferrielectric Phases in Liquid Crystal Devices' L.S. Matkin, S.J. Watson, H.F. Gleeson, R. Pindak, J. Pitney, P.M. Johnson, C.C. Huang, P. Barois, A.M. Levelut, G. Srajer, J. Pollmann, J.W. Goodby and M. Hird (2001);
38. 'An Introduction to Materials Discussion No.4: Molecular Topology in Liquid Crystals' by J.W. Goodby, D.W. Bruce, M. Hird, C. Imrie and M. Neal (Sep 2001);
39. 'A Symmetric Chiral Liquid-Crystalline Twin Exhibiting Stable Ferrielectric and Antiferroelectric Phases and a Chirality-Induced Isotropic-Isotropic Liquid Transition' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2001);
40. 'The Synthesis and Transition Temperatures of 2-(4-alkyl- and 4-alkoxy-phenyl)-5-cyano-1-benzofurans and Related Diaryl-1-benzofurans - An Assessment of How Deviations from Linearity and Conformational Effects in a Core Unit Affect Mesogenicity' by Mark R. Friedman, Kenneth J. Toyne, John W. Goodby and Michael Hird (2001);

41. 'The Effect of Molecular Shape on the Liquid Crystal Properties of the Mono-O-(2-hydroxydodecyl)sucroses' by Yves Queneau, Juliette Gagnaire, Jon J. West, Grahame Mackenzie and John W. Goodby (2001);
 42. 'Nematic Phase Behaviour of Inorganic-Organic Hybrid Systems Based on Dendritic Carbosilazane Cores' by R. Elsaber, G.H. Mehl, J.W. Goodby and M. Veith (2001);
 43. 'Liquid-Crystalline Inorganic-Organic Hybrids Based on Terminally Attached Mesogens' by K.J. Shepperson, R. Elsaber, A.J. Thornton, G.H. Mehl and J.W. Goodby (2001);
 44. 'Molecular and Crystal Structures of 1R,4S-(4-Carbomethoxy)benzylidene-n-Methan-3-one' by S.V. Shishkina, T.G. Drushlyak, L.A. Kutulya, O.V. Shishkin and John W. Goodby (2001);
 45. 'Dendritic and Multipodal Liquid-Crystalline Materials Based on Organic-Inorganic Hybrid Carbosilazane Cores' by G.H. Mehl, R. Elsaber, J.W. Goodby and M. Veith (2001);
 46. 'New Chiral Ether Derivatives of 2-Arylidene-p-Menthane-3-Ones as Components of Induced Ferroelectric Systems' by M.N. Pivnenko, V.V. Vashchenko, A.I. Krivoshey, L.A. Kutulya and J.W. Goodby (2001);
 47. 'Trans-1,2-Difluorostilbenes: Promising Materials for High Dielectric Biaxiality Ferroelectric Mixtures' by John W. Goodby, Paul Hindmarsh, Michael Hird, Robert A. Lewis and Kenneth J. Toyne (2001);
 48. 'The Synthesis and Mesomorphic Properties of Some Novel Antiferroelectric Liquid Crystals' by Michael Hird, John W. Goodby, Kenneth J. Toyne, Helen F. Gleeson, I. Peter Buxton, Alexander J. Seed and Mark R. Herbert (2001);
 49. 'The Synthesis and Investigation of the Liquid-Crystalline Phase Behaviour of a Series of N,N-bis(1-deoxy-D-mannitol-1-yl)-alkamides' by D.F. Ewing, P. Letellier, G. Mackenzie, G.H. Mehl and J.W. Goodby (2001).
- 1 file (49 pieces)

U DLGR/3/1/23

File: Reprints - John W. Goodby
File contains reprints of the following research papers, written or co-authored by John W. Goodby:
1. 'The Antiferroelectric TGB Phase: Textures, Field-Induced Effects and Microscopic Model' by J.G. Meier, P. Rudquist, A.S. Petrenko, J.W. Goodby and S.T. Lagerwall (2002);

2002-2003

2. 'Supramolecular Self-Assembling Properties of Membrane-Spanning Archaeal Tetraether Glycolipid Analogues' by Gregory Lecollinet, Annette Gulik, Grahame Mackenzie, John W. Goodby, Thierry Benvegna and Daniel Plusquellec (2002);
3. 'Surface Structures and Transitions in the Smectic-C* Phase of One Chiral Liquid Crystal Compound' by X.F. Han, D.A. Olson, A. Cady, J.W. Goodby and C.C. Huang (2002);
4. 'Influence of Electric Fields on the Smectic Layer Structure of Ferroelectric and Antiferroelectric Liquid Crystal Devices' by S.J. Watson, L.S. Matkin, L.J. Baylis, N. Bowring, H.F. Gleeson, M. Hird and J. Goodby (2002);
5. 'Liquid Crystals, Molecular Design of: Chiral Systems' by J.W. Goodby (2002);
6. 'Novel Non-Symmetric Chiral Twin Liquid Crystals Possessing Two Identical Chiral Moieties at Both Peripheral Ends: High Chirality-Sensitive Phases Appeared Between Smectic and Isotropic Liquid Phases' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2002);
7. 'Interlayer Structures of the Chiral Smectic Liquid Crystal Phases Revealed by Resonant X-Ray Scattering' by L.S. Hirst, S.J. Watson, H.F. Gleeson, P. Cluzeau, P. Barois, R. Pindak, J. Pitney, A. Cady, P.M. Johnson, C.C. Huang, A-M. Levelut, G. Srajer, J. Pollmann, W. Cliebe, A. Seed and M.R. Herbert, J.W. Goodby, M. Hird (2002);
8. 'Chiral Two Ring Compounds Exhibiting Antiferroelectric Phases' by T. Futterer, G. Heppke, D. Lotzsch, D. Moro, J.W. Goodby, R.P. Tuffin (2002);
9. 'Conformational Analysis of Some 1R,4S-2-arylidene-p-mentan-3-ones by H NMR Spectroscopy and Molecular Simulation' by Nikolay S. Pivnenko, Tatyana G. Drushlyak, Lidiya A. Kutulya, Valeriy V. Vashchenko, Andrey O. Doroshenko and John W. Goodby (2002);
10. 'Orientational Order and Dynamics of Nematic Multipodes Based on Carbosilazane Cores Using Optical and Dielectric Spectroscopy' by L. Tajber, A. Kocot, J.K. Vij, K. Merkel, J. Zalewska-Rejdak, G.H. Mehl, R. Elsasser, J.W. Goodby and M. Veith (2002);
11. 'Ferroelectric and Antiferroelectric Chiral Twin Liquid Crystals Showing a Stable Chiral Nematic Phase' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2002);
12. 'Self-Organizing Properties of Natural and Related Synthetic Glycolipids' by Fabienne Dumoulin, Dominique Lafont, Paul Boullanger, Grahame Mackenzie, Georg H. Mehl and John W. Goodby (2002);

13. 'The Design, Synthesis and Structure-Property Relationships of Ferroelectric and Antiferroelectric Liquid Crystal Materials' by Michael Hird, John W. Goodby, Paul Hindmarsh, Robert A. Lewis, Kenneth J. Toyne (2002);
14. 'Ferro-, Ferri-, Antiferroelectric and TGB Phases Created by Chiral Twin Liquid Crystals' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2002);
15. 'Optical Bragg Reflections From a Series of Antiferroelectric Heterocyclic Esters (2002);
16. 'Twist Grain Boundary and Frustrated Liquid Crystal Phases' by John W. Goodby (2002);
17. 'An Experimental and Theoretical Investigation into the Reflection Spectra of SmC* and SmCA* Phases' by Nicholas W. Roberts, Helen F. Gleeson, Nicholas Bowring, Alexander Seed, L.N. Nassif, M.R. Herbert, John W. Goodby and Mike Hird (2003);
18. 'Liquid Crystals for Applications in Photonics' by J.W. Goodby, M. Hird, R.A. Lewis and S.J. Cowling (2003);
19. 'Multipodal Liquid-Crystalline Materials Based on Ferrocene Cores' by T. Meyer, R. Elsaber, K.J. Shepperson, D. Vos, B. Donnio, D. Guillon, J.W. Goodby, P. Jutzi, G.H. Mehl (2003);
20. 'Structure Properties Relationships of Dendritic and Multipodal Liquid Crystal Materials Based on Carbosilazane Cores' by R. Elsaber, D. Rodriguez Martin, R.M. Richardson, D.J. Photinos, J.W. Goodby, M. Veith, G.H. Mehl (2003);
21. 'Functional Polypedes-Chiral Nematic Fullerenes' by Stephane Campidelli, Carine Eng, Isabel M. Saez, John W. Goodby and Robert Deschenaux (2003);
22. 'Design and Properties of 'Janus-Like' Supermolecular Liquid Crystals' by Isabel M. Saez and John W. Goodby (2003);
23. 3 articles re work of J.W. Goodby and Isabel M. Saez on 'Two-Faced Liquid Crystals - Supramolecular Materials Found to Self-Organize Like Proteins' (2003);
24. 'Achiral Non-Branched Rod-Shaped Liquid Crystals Showing Anticlinic Smectic Phase' Isa Nishiyama, Takahiro Yamamoto, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2003);
25. 'Novel, Highly Polarizable Thiophene Derivatives for Use in Nonlinear Optical Applications' by Alexander J. Seed, Gregory J. Cross, Kenneth J. Toyne and John W. Goodby (Sep 2003);
26. "Janus' Supermolecular Liquid Crystals - Giant Molecules with Hemispherical Architectures' by Isabel M. Saez and John W. Goodby (2003);

27. 'Optical Rotary Power, Biaxiality and Models of Chiral Tilted Smectic Phases' by V.P. Panov, J.K. Vij, N.M. Shtykov, S.S. Seomun, D.D. Parghi, M. Hird and J.W. Goodby (2003);
28. 'Liquid Crystal Trimers Showing Stable Anticlinic Structures in Smectic C and I Phases' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2003);
29. 'A Bilayer to Monolayer Phase Transition in Liquid Crystal Glycolipids' by Valerie Molinier, Paul H.J. Kouwer, Yves Queneau, Juliette Fitremann, Grahame Mackenzie and John W. Goodby (2003);
30. 'Segregated Liquid Crystalline Dendritic Supermolecules - Multipedes Based on Pentaerythritol Scaffolds' by Isabel M. Saez and John W. Goodby (2003);
31. 'The Fascinating Influence of Fluoro Substituents on the Synthesis and Properties of Liquid Crystals' by Michael Hird, John W. Goodby, Robert A. Lewis and Kenneth J. Toyne (2003);
32. 'Helical Structures Produced in Some Binary Mixtures Between Twin and Monomeric Liquid Crystals (Isa Nishiyama, Jun Yamamoto, Hiroshi Yokoyama and John W. Goodby (2003);
33. 'Structure-Properties Relationships in a Series of Liquid Crystals Based on Carbosilazane Cores' by R. Elsaber, J.W. Goodby, G.H. Mehl, D. Rodriguez-Martin, R.M. Richardson, D.J. Photinos and M. Veith (2003).
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U DLCR/3/1/24

File: Reprints - John W. Goodby

2004-2006

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'Optical Waveguide Characterization of a Tristable Antiferroelectric Liquid Crystal Cell' by S.A. Jewell, J.R. Sambles, J.W. Goodby, A.W. Hall and S.J. Cowling (Mar 2004);
2. 'On the Temperature Dependence of the Tilt and Spontaneous Polarisation in High Tilt Antiferroelectric Liquid Crystals' by Helen F. Gleeson, Ying Wang, Samantha Watson, Daniel Sahagun-Sanchez, John W. Goodby, Michel Hird, Alex Petrenko and Mikhail A. Osipov (2004);
3. 'Synthesis, Mesomorphic Behaviour and Optical Anisotropy of Some Novel Materials for Nematic Mixtures of High Birefringence' by Michael Hird, Kenneth J. Toyne, John W. Goodby, George W. Gray, Victoria Minter, Rachel P. Tuffin and Damien G. McDonnell (2004);

4. 'Self-Assembled Uniaxial and Biaxial Multilayer Structures in Chiral Smectic Liquid Crystals Frustrated Between Ferro- and Antiferroelectricity' by V.P. Panov, N.M. Shtykov, A. Fukuda, J.K. Vij, Y. Suzuki, R.A. Lewis, M. Hird and J.W. Goodby (2004);
5. 'Complex Liquid Crystals - Big is Beautiful' by Isabel M. Saez and John W. Goodby (2004);
6. 'Antiferroelectric Siloxane Twin Liquid Crystal' by Isa Nishiyama, Jun Yamamoto, Hiroshi Yokoyama, Stephane Mery, Daniel Guillon and John W. Goodby (2004);
7. 'Novel Chiral Effects on the Molecular Organization in the Liquid-Crystalline Phases' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (2004);
8. 'Effect of Introducing Thioether Linkages on the Molecular Organization of Chiral Twin Liquid Crystals' by Isa Nishiyama, Jun Yamamoto, John W. Goodby and Hiroshi Yokoyama (Nov 2004);
9. 'Chirality-Induced Liquid-Crystalline Nano-Structures and Their Properties' by I. Nishiyama, J. Yamamoto, J.W. Goodby and H. Yokoyama (Aug 2004);
10. 'Chirality Issues and Interesting Properties of Achiral and Racemic Materials with Bent Molecular Structures' by Michael Hird, Yann Raoul, John W. Goodby and Helen Gleeson (2004);
11. 'Iron(III) Salen-Type Catalysts for the Cross-Coupling of Aryl Grignards with Alkyl Halides Bearing B-Hydrogens (2004);
12. 'Observation of Switching in Tri-Stable Antiferroelectric Cells' by S.A. Jewell, J.R. Sambles, J.W. Goodby, A.W. Hall and S.J. Cowling (2004);
13. 'A Chiral Electrooptic Response in a Racemic Liquid Crystal' by Stephen J. Cowling, Alan W. Hall and John W. Goodby (2005);
14. 'Electro-Optic Response in a Racemic Smectic C Liquid Crystal' by Stephen J. Cowling, Alan W. Hall and John W. Goodby (2005);
15. 'Enantioselective Segregation in Achiral Nematic Liquid Crystals' by Verena Gortz and John W. Goodby (2005);
16. 'Molecular Design Controlling Smectic Stability and Clinicity' by Isa Nishiyama, Takahiro Yamamoto, Jun Yamamoto, Hiroshi Yokoyama and John W. Goodby (2005);
17. 'Dielectric Spectroscopy of the Twist Grain Boundary Phase and Smectic-Like Behaviour in the Isotropic Phase' by M.R. Dodge, J.K. Vij, S.J. Cowling, A.W. Hall and J.W. Goodby (2005);

18. 'Self-Assembly of Biaxial Ordering and Molecular Tilt Angle of Chiral Smectic Liquid Crystals in Homeotropically Aligned Cells Investigated Using Infrared Spectroscopy' by R. Korlacki, A. Fukuda, J.K. Vij, A. Kocot, V. Gortz and J.W. Goodby (2005);
19. 'Effect of Terminal Functional Group Size on Ferroelectric and Antiferroelectric Properties of Liquid Crystals' by Stephen J. Cowling, Alan W. Hall and John W. Goodby (Dec 2005);
20. 'Self-Organizing Properties of Monosubstituted Sucrose Fatty Acid Esters: The Effects of Chain Length and Unsaturation' by Valerie Molinier, Paul J.J. Kouwer, Julliette Fitremann, Alain Bouchu, Graham Mackenzie, Yves Queneau and John W. Goodby (2006);
21. 'Surface-Induced Multiple Reentrant Transitions' by B.K. McCoy, Z.Q. Liu, S.T. Wang, V.P. Panov, J.K. Vij, J.W. Goodby and C.C. Huang (2006);
22. 'Examination of the Interlayer Strength of Smectic Liquid Crystals Through the Study of Partially Fluorinated and Branched Fluorinated End-Groups' by Stephen J. Cowling, Alan W. Hall, John W. Goodby, Ying Wang and Helen F. Gleeson (2006);
23. 'Investigations of Nanoscale Helical Pitch in Smectic-Ca* and Smectic-C* Phases of a Chiral Smectic Liquid Crystal Using Differential Optical Reflectivity Measurements' by V.P. Panov, B.K. McCoy, Z.Q. Lui, J.K. Vij, J.W. Goodby and C.C. Huang (2006);
24. 'High Tilt Antiferroelectric Esters Bearing a Perfluorobutanoyloxy Terminal Chain: The Influence of Lateral Fluoro Substitutents on Mesomorphic Behaviour, Tilt Angle and Spontaneous Polarization' by Andrew I. Stipetic, John W. Goodby, Michael Hird, Yann M. Raoul and Helen F. Gleeson (Jul 2006);
25. 'An Optically-Active Liquid-Crystalline Hexa-Adduct of [60]Fullerene Which Displays a Supramolecular Helical Organisation' by Stephane Campidelli, Torsten Brandmuller, Andreas Hirsch, Isabel M. Saez, John W. Goodby and Robert Deschenaux (2006);
26. 'Introduction: New Directions in Liquid Crystal Science' by Duncan W. Bruce, John W. Goodby, J. Roy Sambles and Harry J. Coles (2006);
27. 'Dichroic Properties and the Molecular Tilt Angle of a Large-Tilt Angle Antiferroelectric Liquid Crystal Studied Using Polarized Infrared Spectroscopy' by A.A. Sigarev, J.K. Vij, A.W. Hall, S. Cowling and J.W. Goodby (2006);
28. 'Study of the SmCa* Phase in the Tokyo Mixture by Conoscopy Using Tilted Cell' by Jangkun Song, A.D.L. Chandani, O.E. Panarina, Atsuo Fukuda,

29. 'Liquid-Crystalline Glycolipids: Towards Understanding the Roles of Liquid Crystals in Biological and Life Processes' by J.W. Goodby (2006);
 30. 'Commentary on: Liquid-Crystalline Behaviour in the n-Alkyl Gluconamides and Other Related Carbohydrates' by B. Pfannemuller, W. Welte, E. Chin and J.W. Goodby (2006).
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File: Reprints - John W. Goodby

2007

File contains reprints of the following research papers, written or co-authored by John W.

Goodby:

1. 'Shape Dependence in the Formation of Condensed Phases Exhibited by Disubstituted Sucrose Esters' by Valerie Molinier, Paul J.J. Kouwer, Juliette Fitremann, Alain Bouchu, Grahame Mackenzie, Yves Queneau and John W. Goodby (2007);
2. 'V-Shaped Switching and Interlayer Interactions in Ferroelectric Liquid Crystals' by Alexey Petrenko and John W. Goodby (2007);
3. 'Synthesis and Liquid Crystalline Properties of Mono-, Di- and Tri-O-alkyl Pentaerythritol Derivatives Bearing Tri-, Di- or Monogalactosyl Heads: The Effects of Curvature of Molecular Packing on Mesophase Formation' by Fabienne Dumoulin, Dominique Lafont, Thai-Le Huynh, Paul Boullanger, Grahame Mackenzie, Jon J. West and John W. Goodby (2007);
4. 'Synthesis and Thermotropic Behaviour of Simple New Glucolipid Amides' by Stephane Chambert, Alain Doutheau, Yves Queneau, Stephen J. Cowling, John W. Goodby and Grahame Mackenzie (2007);
5. 'Conformational Distribution of a Ferroelectric Liquid Crystal Revealed Using Fingerprint Vibrational Spectroscopy and the Density Functional Theory' by R. Korlacki, M. Steiner and A.J. Meixner, J.K. Vij, M. Hird and J.W. Goodby (2007);
6. 'Discontinuous Change in the Smectic Layer Thickness in Ferroelectric Liquid Crystals' by V.P. Panov, J.K. Vij, Yu. P. Panarin, C. Blanc, V. Lorman and J.W. Goodby (2007);
7. 'Possible Model of a Antiferroelectric Twist Grain Boundary Phase' by J.G. Meier, N. Noili, T. Carlsson, P. Rudquist, A.S. Petrenko, J.W. Goodby, M. Brunet and S.T. Lagerwall (2007);
8. 'Editorial: Liquid Crystals' by J.W. Goodby (2007);

9. 'Thermotropic Liquid Crystalline Glycolipids' by J.W. Goodby, V. Gortz, S.J. Cowling, G. Mackenzie, P. Martin, D. Plusquellec, T. Benvegnu, P. Boullanger, D. Lafont, Y. Queneau, S. Chambert and J. Fitremann (Dec 2007);
 10. 'Molecular Orientational Properties of a High-Tilt Chiral Smectic Liquid Crystal Determined from its Infrared Dichroism' by A.A. Sigarev, J.K. Vij, A.W. Hall, S.J. Cowling and J.W. Goodby (2007);
 11. 'Calibrating Radiotherapy Doses Using MRI' by G.P. Liney, A.W. Beavis, J.W. Goodby and L.W. Turnbull (2007);
 12. 'Extension of the Resonant Scattering Technique to Liquid Crystals Without Resonant Element' by P. Fernandes, B. Barois, E. Grelet, F. Nellet, J. Goodby, M. Hird and J-S. Micha (c.2007).
- 1 file (12 pieces)

U DLCR/3/1/26

File: Reprints - John W. Goodby

2008-2010

File contains reprints of the following research papers, written or co-authored by John W. Goodby:

1. 'Palladium-Catalysed Suzuki Cross-Coupling Reactions in a Microemulsion' by Valery Vashchenko, Alexander Krivoshey, Irina Knyazeva, Alexey Petrenko, John W. Goodby (2008);
2. 'Transmission and Amplification of Information and Properties in Nanostructured Liquid Crystals' by John W. Goodby, Isabel M. Saez, Stephen J. Cowling, Verena Gortz, Michael Draper, Alan W. Hall, Susan Sia, Guirac Cosquer, Seung-Eun Lee and E. Peter Raynes (2008);
3. 'Supermolecular Liquid Crystals' by Isabel M. Saez and John W. Goodby (2008);
4. 'Probing the Material Properties and Phase Transitions of Ferroelectric Liquid Crystals by Determination of the Landau Potential' by P. Archer, I. Dierking, V. Gortz and J.W. Goodby (2008);
5. 'Thermotropic Biaxial Nematic Order Parameters and Phase Transitions Deduced by Raman Scattering' by C.D. Southern, P.D. Brimicombe, S.D. Siemianowski, S. Jaradat, N. Roberts, V. Gortz, J.W. Goodby and H.F. Gleeson (2008);
6. 'Unusual Properties of a Bent-Core Liquid-Crystalline Fluid' by Verena Gortz, Christopher Southern, Nicholas W. Roberts, Helen F. Gleeson and John W. Goodby (2009);
7. 'Revealing the Uniaxial to Biaxial Nematic Liquid Crystal Phase Transition Via Distinctive Electroconvection' by Ying Xiang, J.W. Goodby, V. Gortz and H.F. Gleeson (2009);

8. 'Nonplanar Tilts in Very Thin Smectic Films of One Liquid Crystal Compound' by B.K. McCoy, Z.Q. Liu, S.T. Wang, Lidong Pan, Shun Wang, J. W. Goodby and C.C. Huang (2009);
9. 'Propagation of an Electromagnetic Wave in the Absorbing Anisotropic Medium and Infrared Transmission of Liquid Crystals: Comparison with Experiments' by B.K.P. Scaife, A.A. Sigarev, J.K. Vij, and J.W. Goodby (2009);
10. 'The Unusual Self-Organising Behaviour of a Glycosteroidal Bolaphile' by Fahima Ali Rachedi, Stephane Chambert, Fouad Ferkous, Yves Queneau, Stephen J. Cowling and John W. Goodby (2009);
11. 'Investigations of Optical Activity of Natural Products and Chiral Pharmaceuticals Using Liquid Crystal Technologies' by Peter Raynes, Stephen J. Cowling and John W. Goodby (2009);
12. 'Chiral Liquid Crystal Dopants Derived from Optically Active Drugs' by S. Jeeva, S.J. Cowling, E.P. Raynes, J.W. Goodby (2009);
13. 'Relaxometry Changes in a Gel Dosimetry Phantom Due to Continued RF Exposure' by Gary P. Liney, Mark J. Godber, Andrew D. Wilson, John W. Goodby and Lindsay W. Turnbull (2009);
14. 'Liquid Crystal Nano-Particles, LCNANOP - a SONS II Collaborative Research Project' by John W. Goodby, Martin Bates, Isabel M. Saez, Ewa Gorecka, Heinz-S. Kitzerow, Daniel Guillon, B. Donnio, Jose-Luis Serrano and Robert Deschenaux (2009);
15. 'The Influence of an Alkenyl Terminal Group on the Mesomorphic Behaviour and Electro-Optic Properties of Fluorinated Terphenyl Liquid Crystals' by Julita S. Gasowska, Stephen J. Cowling, Martin C.R. Cockett, Michael Hird, Robert A. Lewis, E. Peter Raynes and John W. Goodby (2009);
16. 'Evaluation of Structural and Physical Properties' by John W. Goodby (2009);
17. 'Diastereoisomerically Pure Fulleropyrrolidines as Chiral Platforms for the Design of Optically Active Liquid Crystals' by Stephane Campidelli, Philippe Bourgun, Boris Guintchin, Julien Furrer, Helen Stoeckli-Evans, Isabel M. Saez, John W. Goodby and Robert Deschenaux (2010);
18. 'Evolution of a Rare Sequence of Surface Transitions with Temperature and Film Thickness' by B.K. McCoy, Lidong Pan, Z.Q. Liu, S.T. Wang, Shun Wang, J.W. Goodby and C.C. Huang (2010);
19. 'Core Chirality Based Tailoring of the Liquid Crystalline Properties of Supramolecular Tetrapedes' by Abdelhak Belaïssaoui, Stephen J. Cowling, Isabel M. Saez and John W. Goodby (2010);

20. 'Optical Measurements of Orientational Order in Uniaxial and Biaxial Nematic Liquid Crystals' by H.F. Gleeson, C.D. Southern, P.D. Brimicombe, J.W. Goodby and V. Gortz (Jul 2010);
21. 'Photopolymerization of Self-Organizing Ionic Liquids' by Nils A. Bongartz and John W. Goodby (2010);
22. 'Liquid-Crystalline Aromatic-Aliphatic Copolyester Bioresorbable Polymers' by Horacio Montes de Oca, Joanne E. Wilson, Andrew Penrose, David M. Langton, Anthony C. Dagger, Melissa Anderson, David F. Farrar, Christopher S. Lovell, Michael E. Ries, Ian M. Ward, Andrew D. Wilson, Stephen J. Cowling, Isabel M. Saez, John W. Goodby (2010);
23. 'Optically Active Liquid-Crystalline Fullerodendrimers from Enantiomerically Pure Fulleropyrrolidines' by Frederic Lincker, Philippe Bourgun, Helen Stoeckli-Evans, Isabel M. Saez, John W. Goodby and Robert Deschenaux (2010).
- 1 file (23 pieces)

U DLCR/3/2	Books Books written or edited by Professor George W. Gray and various members of the research group including John W. Goodby on liquid crystal related subjects 24 volumes	1958-2014
U DLCR/3/2/1	Book: Steric Effects in Conjugated Systems. Proceedings of a Symposium held at the University, Hull, 15-17 July, 1958 by The Chemical Society (Butterworths Scientific Publications, 1958), hardback. G.W. Gray (ed.) 1 volume	1958
U DLCR/3/2/2	Book: Molecular Structure and the Properties of Liquid Crystals (Academic Press, 1962), hardback. G.W. Gray 1 volume	1962
U DLCR/3/2/3	Book: Liquid Crystals & Plastic Crystals Volume 1: Physico-chemical Properties and Methods of Investigation (Ellis Horwood Limited, 1974), hardback. G.W. Gray and P.A. Winsor (eds.) 1 volume	1974

U DLCR/3/2/4	Book: Liquid Crystals & Plastic Crystals Volume 2: Physico-chemical Properties and Methods of Investigation (Ellis Horwood Limited, 1974), hardback. G.W. Gray and P.A. Winsor (eds.) 1 volume	1974
U DLCR/3/2/5	Book: Critical Reports on Applied Chemistry Volumes 22: Thermotropic Liquid Crystals (published on behalf of the Society of Chemical Industry by John Wiley & Sons, 1987), hardback. G.W. Gray (ed.) 1 volume	1987
U DLCR/3/2/6	Book: Handbook of Liquid Crystals. Fundamentals, Vol.1 (Wiley-VCH, 1998), hardback. D. Demus, J. Goodby, G.W. Gray, H-W Spiess, V. Vill (eds.) 1 volume	1998
U DLCR/3/2/7	Book: Handbook of Liquid Crystals. Low Molecular Weight Liquid Crystals I, Vol.2A (Wiley-VCH, 1998), hardback. D. Demus, J. Goodby, G.W. Gray, H-W Spiess, V. Vill (eds.) 1 volume	1998
U DLCR/3/2/8	Book: Handbook of Liquid Crystals. Low Molecular Weight Liquid Crystals II, Vol.2B (Wiley-VCH, 1998), hardback. D. Demus, J. Goodby, G.W. Gray, H-W Spiess, V. Vill (eds.) 1 volume	1998
U DLCR/3/2/9	Book: Handbook of Liquid Crystals. High Molecular Weight Liquid Crystals, Vol.3 (Wiley-VCH, 1998), hardback. D. Demus, J. Goodby, G.W. Gray, H-W Spiess, V. Vill (eds.) 1 volume	1998
U DLCR/3/2/10	Book: Physical Properties of Liquid Crystals (Wiley-VCH, 1999), hardback. D. Demus, J. Goodby, G.W. Gray, H-W Spiess, V. Vill (eds.) 1 volume	1999
U DLCR/3/2/11	Book: The Liquid Crystals Book Series: Iain W. Stewart, The Static and Dynamic Continuum Theory of Liquid Crystals - A Mathematical Introduction (Taylor & Francis, 2004), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2004

U DLCR/3/2/12	Book: The Liquid Crystals Book Series: Timothy J. Sluckin, David A. Dunmur, Horst Stegemeyer (eds.), Crystals That Flow - Classic Papers from the History of Liquid Crystals (Taylor & Francis, 2004), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2004
U DLCR/3/2/13	Book: The Liquid Crystals Book Series: Patrick Oswald and Pawel Pieranski, Nematic and Cholesteric Liquid Crystals - Concepts and Physical Properties Illustrated by Experiments (Taylor & Francis, 2005), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2005
U DLCR/3/2/14	Book: The Liquid Crystals Book Series: Kohki Takatoh, Masaki Hasegawa, Mitsuhiro Koden, Nobuyuki Itoh, Ray Hasegawa, Masanori Sakamoto, Alignment Technologies and applications of Liquid Crystal Devices (Taylor & Francis, 2005), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2005
U DLCR/3/2/15	Book: The Liquid Crystals Book Series: Giovanni Barbero and Luiz Roberto Evangelista, Adsorption Phenomena and Anchoring Energy in Nematic Liquid Crystals (Taylor & Francis, 2006), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2006
U DLCR/3/2/16	Book: The Liquid Crystals Book Series: Patrick Oswald and Pawel Pieranski, Smectic and Columnar Liquid Crystals - Concepts and Physical Properties Illustrated by Experiments (Taylor & Francis, 2006), hardback. Edited by G.W. Gray, J.W. Goodby and A. Fukuda. 1 volume	2006
U DLCR/3/2/17	Book: Handbook of Liquid Crystals (2nd ed.) Volume 1: Fundamental Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014

U DLCR/3/2/18	Book: Handbook of Liquid Crystals (2nd ed.) Volume 2: Physical Properties and Phase Behaviour of Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/19	Book: Handbook of Liquid Crystals (2nd ed.) Volume 3: Nematic and Chiral Nematic Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/20	Book: Handbook of Liquid Crystals (2nd ed.) Volume 4: Smectic and Columnar Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/21	Book: Handbook of Liquid Crystals (2nd ed.) Volume 5: Non-Conventional Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/22	Book: Handbook of Liquid Crystals (2nd ed.) Volume 6: Nanostructured and Amphiphilic Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/23	Book: Handbook of Liquid Crystals (2nd ed.) Volume 7: Supermolecular and Polymeric Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes 1 volume	2014
U DLCR/3/2/24	Book: Handbook of Liquid Crystals (2nd ed.) Volume 8: Applications of Liquid Crystals (Wiley-Vch, 2014), hardback. Edited by J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H.F. Gleeson, R. Raynes	2014

U DLCR/3/3	Patents	1976-1997
	Patent applications, specifications and certificates of grants of patent in which Professor George W. Gray and other members of the research group are named as an inventor. Note that dates given are publication dates. 130 items	
U DLCR/3/3/1	United States Patent 3947375 'Liquid Crystal Materials and Devices' Invented by George William Gray and Kenneth Harrison 1 item	30 Mar 1976
U DLCR/3/3/2a	UK Patent Specification 1433130 'Substituted Biphenyl and Polyphenyl Compounds and Liquid Crystal Materials and Devices Containing Them' Invented by George William Gray and Kenneth John Harrison 1 item	22 Apr 1976
U DLCR/3/3/2b	UK Patent Specification 1452826 'Liquid Crystal Compositions' Invented by George William Gray, Kenneth John Harrison, David Sanderson Hulme and Edward Peter Raynes 1 item	20 Oct 1976
U DLCR/3/3/3a	United States Patent 4119558 'Liquid Crystal Materials' Invented by David Coates and George William Gray 1 item	10 Oct 1978
U DLCR/3/3/3b	UK Patent Specification 1551043 'Biphenyl Compounds Containing A Cyano Group and Liquid Crystal Materials and Devices Containing such Compounds' Invented by David Coates and George William Gray 1 item	22 Aug 1979
U DLCR/3/3/4a	UK Patent Specification 1555954 'Solutions of Pleochoric Azo Dye in Liquid Crystal Material and Devices Incorporating Such Solutions' Invented by David Coates, George William Gray and Damien Gerard McDonnell 1 item	14 Nov 1979

U DLCR/3/3/4b	UK Patent Specification 1555955 'Solutions of Pleochoric Azo Dye in Liquid Crystal Material and Devices Incorporating Such Solutions' Invented by David Coates, George William Gray and Damien Gerard McDonnell 1 item	14 Nov 1979
U DLCR/3/3/5	UK Patent Application 2027027A 'Alkylbicyclo (2,2,2) Octyl-phenyl-or-polyphenyl-nitriles, their Use as Liquid Crystal Compounds and Materials and Devices Containing Them' Invented by George William Gray, Stephen Malcolm Kelly, Damien Gerard McDonnell, Alan Mosley 1 item	2 Aug 1979
U DLCR/3/3/6	United States Patent 4257911 'Liquid Crystal Materials' Invented by George W. Gray and Damien G. McDonnell 1 item	24 Mar 1981
U DLCR/3/3/7	United States Patent 4261652 'Liquid Crystal Compounds and Materials and Devices Containing Them' Invented by George W. Gray, Stephen M. Kelly, Damien G. McDonnell and Alan Mosley 1 item	14 Apr 1981
U DLCR/3/3/8	UK Patent Application 2058789A 'Fluorophenols' Invented by George William Gray, David Lacey, John Anthony Jenner, Martin Geoffrey Pellatt 1 item	15 Apr 1981
U DLCR/3/3/9	UK Patent Application 2027708A 'Substituted Bicyclo-octane Compounds Having Liquid Crystal Properties and Materials and Devices Containing Them' Invented by George William Gray, Stephen Malcolm Kelly, Damien Gerard McDonnell and Alan Mosley 1 item	27 Feb 1980
U DLCR/3/3/10	UK Patent Application 2041915A 'The Preparation of Bromo-p-terphenyl Derivatives' Invented by George William Gray and Alan Mosley 1 item	17 Sep 1980

U DLCR/3/3/11	UK Patent Application 2065104A 'Liquid Crystal Bicyclo-octane Compounds' Invented by George William Gray and Stephen Malcolm Kelly 1 item	24 Jun 1981
U DLCR/3/3/12	United States Patent 4261651 'Liquid Crystal Compounds' Invented by George W. Gray and Damien G. McDonnell 1 item	14 Apr 1981
U DLCR/3/3/13	UK Patent Specification 1587819 'Aromatic Diester Liquid Crystal Materials' Invented by David Coates and George William Gray 1 item	8 Apr 1981
U DLCR/3/3/14	UK Patent Application 2063250 'Liquid Crystal Esters' Invented by George William Gray, David Lacey, Bennett Sturgeon, Martin Geoffrey Pellatt 1 item	3 Jun 1981
U DLCR/3/3/15	UK Patent Application 2069483A 'Bicyclo(2,2,2)Octane Carboxylic Ester Liquid Crystal Compounds, Materials and Devices Containing Them' Invented by George William Gray, Stephen Malcolm Kelly, Damien Gerard McDonnell, Alan Mosley 1 item	26 Aug 1981
U DLCR/3/3/16	UK Patent Application, 2070594A 'Liquid Crystal Compounds Containing an Alicyclic Ring' Invented by Neill Carr, George William Gray, Stephen Malcolm Kelly 1 item	9 Sep 1981
U DLCR/3/3/17	UK Patent Application 2071649A 'Liquid Crystal Bicyclo-octane Carboxylic Esters' Invented by George William Gray, Stephen Malcolm Kelly and Neil Carr 1 item	23 Sep 1981
U DLCR/3/3/18	UK Patent Specification 1592147 'Trans-4-Alkylcyclohexane-1-Carboxylic Acid Ester Liquid Crystal Materials' Invented by David Coates, George William Gray and Damien Gerard McDonnell 1 item	1 Jul 1981

U DLGR/3/3/19	UK Patent Specification 1592161 'Biphenyl Carboxylic Esters and Their Use as Liquid Crystal Materials' Invented by George William Gray and Damien McDonnell 1 item	1 Jul 1981
U DLGR/3/3/20	UK Patent Specification 1596012 'Optically Active Liquid Crystal Materials and Liquid Crystal Devices Containing Them' Invented by George William Gray and Damien Gerard McDonnell 1 item	19 Aug 1981
U DLGR/3/3/21	UK Patent Specification 1596013 'Optically Active Liquid Crystal Materials and Liquid Crystal Devices Containing Them' Invented by George William Gray and Damien Gerard McDonnell 1 item	19 Aug 1981
U DLGR/3/3/22	UK Patent Specification 1596014 'Optically Active Liquid Crystal Materials and Liquid Crystal Devices Containing Them' Invented by George William Gray and Damien Gerard McDonnell 1 item	19 Aug 1981
U DLGR/3/3/23	UK Patent Specification 1603075 'Liquid Crystal Esters Containing Naphthyl Groups' Invented by David Coates and George William Gray 1 item	18 Nov 1981
U DLGR/3/3/24	United States Patent '4149413 'Optically Active Liquid Crystal Mixtures and Liquid Crystal Devices Containing Them' Invented by George W. Gray and Damien G. MacDonnell 1 item	17 Apr 1979
U DLGR/3/3/25	UK Patent Specification 1551043 'Biphenyl Compounds Containing A Cyano Group and Liquid Crystal Materials and Devices Containing Such Compounds' Invented by David Coates and George William Gray 1 item	22 Aug 1975

U DLCR/3/3/26	UK Patent Specification 1603076 'Esters of (+)-4-(2'-Methylbutyl)phenol and Their Use as Liquid Crystal Materials' Invented by David Coates, George William Gray and Damien Gerard McDonnell 1 item	18 Nov 1981
U DLCR/3/3/27	UK Patent Application 2079275A 'Liquid Crystal Bicyclo[2.2.2]Octane Esters' Invented by Neil Carr, George William Gray and Stephen Malcolm Kelly 1 item	20 Jan 1982
U DLCR/3/3/28	UK Patent Application 2081707A 'Liquid Crystal Aromatic Nitrile Ethers' Invented by Neil Carr, George William Gray and Stephen Malcolm Kelly 1 item	24 Feb 1982
U DLCR/3/3/29	UK Patent 2023136B 'Cyclohexane-containing Derivatives of Aromatic Nitriles and their Use as Liquid Crystal Compounds' Invented by George William Gray and Damien Gerard McDonnell 1 item	15 Sep 1982
U DLCR/3/3/30	UK Patent, 2027027B, 'Liquid Crystal Alkyl Bicyclo(2,2,2)octyl Phenyl or Biphenyl Nitrile Compounds and Liquid Crystal Materials and Devices Containing Them' Invented by George William Gray, Stephen William Gray, Stephen Malcolm Kelly, Damien Gerard McDonnell and Alan Mosley 1 item	15 Dec 1982
U DLCR/3/3/31	UK Patent 2027708B 'Substituted Bicyclo-octane Liquid Crystal Compounds and Devices Containing Them' Invented by George William Gray, Stephen Malcolm Kelly, Damien Gerard McDonnell and Alan Mosley 1 item	27 Oct 1982
U DLCR/3/3/32	United States Patent 4366330 'Intermediates Useful in the Production of Liquid Crystal Compounds' Invented by George W. Gray, David Lacey, John A. Jenner and Martin G. Pellatt 1 item	28 Dec 1982

U DLCR/3/3/33	UK Patent Application 2102414A 'Substituted Bicyclo(2,2,2)octane Compounds and their Use in Liquid Crystal Compound Production' Invented by Nigel Alan Langley, David Lacey, George William Gray, Kenneth Johnson Toyne 1 item	2 Feb 1983
U DLCR/3/3/34	UK Patent 2041915B 'The Preparation of Derivatives of 4-bromo-p-terphenyl' Invented by George William Gray and Alan Mosley 1 item	27 Jul 1983
U DLCR/3/3/35	UK Patent Application 2118934A 'Production of Liquid Crystal Cyanophenylethanes' Invented by Neil Carr and George William Gray 1 item	9 Nov 1983
U DLCR/3/3/36	UK Patent Application 2121406A 'Liquid Crystal Cyanophenylethanes' Invented by Neil Carr, George William Gray and Damien Gerald McDonnell 1 item	21 Dec 1983
U DLCR/3/3/37	UK Patent Application 2122991A 'Liquid Crystal Derivatives of 1,3-Dioxan or Pyrimidine' Invented by Beatrice Mary Andrews, Neil Carr, George William Gray and Christine Hogg 1 item	25 Jan 1984
U DLCR/3/3/38	UK Patent 2070594B 'Alicyclic-aromatic Ethers Suitable for Use in Liquid Crystal Materials' Invented by Neil Carr, George William Gray, Stephen Malcolm Kelly 1 item	23 May 1984
U DLCR/3/3/39	UK Patent 2071649B 'Liquid Crystal Bicyclo-octane Carboxylic Esters' Invented by George William Gray, Stephen Malcolm Kelly, Neil Carr 1 item	28 Mar 1984
U DLCR/3/3/40a	UK Patent 2079275B 'Liquid crystal ester compounds' Invented by Neil Carr, George William Gray, Stephen Malcolm Kelly 1 item	4 Jul 1984

U DLCR/3/3/40b	UK Patent 2058789 'Substituted fluorophenols and their use in the preparation of liquid crystal esters' Invented by George William Gray, David Lacey, John Anthony Jenner and Martin Geoffret Pellatt 1 item	11 Jul 1984
U DLCR/3/3/41	UK Patent 2063250B 'Fluorinated Phenyl Esters of Phenyl and Cyclohexyl Carboxylic Acids and Their Use in Liquid Crystal Compositions' Invented by George William Gray, David Lacey, Bennett Sturgeon, Martin Geoffrey Pellatt 1 item	31 May 1984
U DLCR/3/3/42	UK Patent Application 2134110A 'Liquid Crystal 1-fluorophenyl-2-cyclohexyl-ethanes' Invented by David Ian Bishop, Peter Hugh Balkwill, Andrew David Pearson, Ian Charles Sage, Damien Gerard McDonnell, George William Gray, David Lacey, Kenneth Johnson Toyne 1 item	8 Aug 1984
U DLCR/3/3/43	German Patent DE3321373A1 'Bycyclohexyle der Formel I' Invented Rudolf Eidenschink, Michael Romer, Georg Weber, George William Gray, Kenneth Johnson Toyne 1 item	20 Dec 1984
U DLCR/3/3/44	UK Patent 2058789B 'Substituted Fluorophenols and Their Use in the Preparation of Liquid Crystal Esters' Invented by George William Gray, David Lacey, John Anthony Jenner, Martin Geoffrey Pellatt 1 item	11 Jul 1984
U DLCR/3/3/45	UK Patent 2089345B '4(4'-Alkyl- and Alkoxy-Benzoyloxy)Alkoxybenzenes and Their Use in Liquid Crystal Materials' Invented by George William Gray and Neil Carr 1 item	16 Jan 1985
U DLCR/3/3/46a	UK Patent 2111974B 'Chlorophenyl Acyloxybenzoates and Their Use in Liquid Crystal Materials and Devices' Invented by George William Gray and Alan Mosley 1 item	30 Jan 1985

U DLCR/3/3/46b	United States 4512636 'Liquid Crystal Compounds' Invented by Beatrice M. Andrews, Neil Carr, George W. Gray and Christine Hogg 1 item	23 Apr 1985
U DLCR/3/3/47	UK Patent 2106127B 'Liquid Crystal Materials and Additive Compounds Containing an Ethyl Bridged Structure Suitable for Use in Them' Invented by George William Gray, Neil Carr, Jennifer Constant, Damien Gerard McDonnell, Edward Peter Raynes 1 item	14 Aug 1985
U DLCR/3/3/48	European Patent 0149208 'Ethanderivate' Invented by Julie Elizabeth Fearon, Wendy Elaine Smith, George William Gray, David Lacey, Kenneth Johnson Toyne, Georg Weber [written in German] 1 item	24 Jul 1985
U DLCR/3/3/49	German Patent 3401320A1 'Ethanderivate' Invented by Julie Elizabeth Fearon, Wendy Elaine Smith, George William Gray, David Lacey, Kenneth Johnson Toyne, Georg Weber [written in German] 1 item	25 Jul 1985
U DLCR/3/3/50	UK Patent 2102414B 'Substituted Bicyclo(2.2.2)Octane Compounds, Their Use in the Synthesis of Liquid Crystal Compounds and the Products Synthesised Thereby' Invented by George William Gray, David Lacey, Nigel Alan Langley, Kenneth Johnson Toyne 1 item	18 Sep 1985
U DLCR/3/3/51	UK Patent 2093057B 'Liquid Crystal Composition' Invented by George William Gray and Neil Carr 1 item	16 Oct 1985
U DLCR/3/3/52	United States Patent 4512636 'Liquid Crystal Compounds' Invented by Beatrice M. Andrews, Neil Carr, George W. Gray, and Christine Hogg 1 item	23 Apr 1985
U DLCR/3/3/53	UK Patent 2118934B 'Production of Liquid Crystal Cyanophenylethanes' Invented by Neil Carr and George William Gray 1 item	8 May 1986

U DLCR/3/3/54	UK Patent 2134535B 'Liquid Crystal Materials and Additive Compounds Containing a Bicyclo(2,2,2)Octane Structure Suitable for Use in Them' Invented by Hilal Masoud Abdullah, George William Gray, Kenneth Toyne, Damien Gerard McDonnell, Jennifer Constant 1 item	9 Jul 1986
U DLCR/3/3/55	United States Patent 4622164 'Bicyclohexyls' Invented by Rudolf Eidenschink, Michael Romer, Georg Weber, George W. Gray and Kenneth J. Toyne 1 item	11 Nov 1986
U DLCR/3/3/56	UK Patent 2134110B 'Disubstituted Ethanes and Their Use in Liquid Crystal Materials and Devices' Invented by David Ian Bishop, Peter Hugh Balkwill, Andrew David Pearson, Ian Charles Sage, Damien Gerard McDonnell, George William Gray, David Lacey, Kenneth Johnson Toyne 1 item	14 Jan 1987
U DLCR/3/3/57	UK Patent 2155946B 'Substituted cyclobutanes and their use in liquid crystal materials' Invented by Lawrence Kammin Chan, Peter Alan Gemmell, George William Gray, David Lacey 1 item	25 Nov 1987
U DLCR/3/3/58a	German Patent 3600052A1 'Heterocyclische Verbindungen' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Michael Peter Burrow, Rudolf Eidenschinck, Georg Weber [written in German] 1 item	9 Jul 1987
U DLCR/3/3/58b	International Patent WO87/04158 'Heterocyclische Verbindungen als Komponenten Flüssigkristalliner Phasen' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Michael Peter Burrow, Rudolf Eidenschinck, Andreas Wachtler, Georg Weber [written in German] 1 item	16 Jul 1987
U DLCR/3/3/59	United States Patent 4659502 'Ethane Derivatives' Invented by Julie E. Fearon, Wendy E. Smith, George W. Gray, David Lacey, Kenneth J. Toyne and Georg Weber 1 item	21 Apr 1987

U DLCR/3/3/60	UK Patent Application 2179351A 'Amino Acid Derivatives Suitable for Use in Ferroelectric Liquid Crystal Materials' Invented by George William Gray, Richard Michael Scowston, Adam Jackson 1 item	4 Mar 1987
U DLCR/3/3/61	UK Patent Application 2193209A 'Biphenyl Ethanes and Their Use in Liquid Crystal Materials and Devices' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Eike Poetsch, Georg Wilhelm Leuschner Weber 1 item	3 Feb 1988
U DLCR/3/3/62	German Patent 3712995A1 'Thiazol- und Thiadiazol-Derivate Enthaltende Medien Mit Smektischer Flussigkristalliner Phase' Invented by George William Gray, Richard Michael Scowston, Kenneth Johnson Toyne, David Lacey, Adam Jackson, Joachim Krause, Thomas Geelhaar, Georg Weber, Andreas Wachtler [written in German] 1 item	3 Nov 1988
U DLCR/3/3/63	UK Patent Application 2200912A 'Terphenyl Derivatives and Liquid Crystal Materials Containing Them' invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Richard Michal Scrunston, Lawrence Kam Ming Chan 1 item	17 Aug 1988
U DLCR/3/3/64a	UK Patent Application 2197868A 'Methoxy-Bridged Liquid Crystal Compounds and Materials Using Them' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne and Andrew Ifil 1 item	2 Jun 1988
U DLCR/3/3/64b	UK Patent Application 2198743A 'Ferroelectric smectic liquid crystal mixtures containing terphenyls' Invented by Edward Peter Raynes, Madeline Joan Bradshaw 1 item	22 Jun 1988
U DLCR/3/3/65	UK Patent 2162515B 'Esters and Their Use in Liquid Crystal Materials and Devices' Invented by George William Gray, Robert Tudor Nicholas, John Biggs, Robert Andrew Smith 1 item	18 May 1988

U DLCR/3/3/66	UK Patent 2171696B 'Pyrimidine Ester Liquid Crystal Materials' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Richard Michael Scrowston, Adam Jackson and Edward Peter Raynes 1 item	13 Apr 1988
U DLCR/3/3/67	United States Patent 4868341 'Bicyclohexyls' Invented by Rudolf Eidenschink, Micahel Romer, Georg Weber, George W. Gray, Kenneth J. Toyne 1 item	19 Sep 1989
U DLCR/3/3/68	European Patent 0104327 'Verwendung von Ringverbindungen als Komponenten-Flussigkristallinen-Dielektrika' Invented by Rudolf Eidenschink, Joachim Krause, Beatrice Mary Andrews, George William Gray, Neil Carr 1 item	11 Oct 1989
U DLCR/3/3/69	German Patent 3807956 'Derivate des p-Ter-bzw.p-Quaterphenyls' Invented by George William Gray, Michael Hird, David Lacey, Kenneth Johnson Toyne, Volker Reiffenrath, Andreas Wachtler, Joachim Krause, Ulrich Finkenzeller, Thomas Geelhaar 1 item	21 Sep 1989
U DLCR/3/3/70	International Patent WO89/08687 '2,3-Difluorobiphenyls' Invented by Volker Reiffenrath, Joachim Krause, Andreas Wachtler, Georg Weber, Ulrich Finkenzeller, David Coates, Ian Charles Sage, Simon Greenfield 1 item	21 Sep 1989
U DLCR/3/3/71	European Patent Specification 0201578 'Alpha-Hydroxy Carboxylic Acid Derivatives Suitable for Use in Liquid Crystal Materials and Devices' Invented by Lawrence Kam Ming Chan, David Coates, Peter Alan Gemmell, George William Gray, David Lacey, Kenneth Johnson Toyne 1 item	2 Nov 1989

U DLCR/3/3/72	United State Patent 4852977 'a-Hydroxy Carboxylic Acid Derivatives Suitable for Use in Liquid Crystal Materials and Devices' Invented by Lawrence Kam Ming Chan, David Coates, Peter Alan Gemmell, George William Gray, David Lacey, Kenneth Johnson Toyne and Daniel J.S. Young 1 item	1 Aug 1989
U DLCR/3/3/73	German Patent 3807861 '2,3-Difluorbiphenyle' Invented by Volker Reiffenrath, Joachim Krause, Andreas Wachtler, Georg Weber, Ulrich Finkenzeller, David Coates, Ian Charles Sage, Simon Greenfield, George William Gray, Michael Hird, David Lacey, Kenneth Johnson Toyne [written in German] 1 item	21 Sep 1989
U DLCR/3/3/74	International Patent Application WO89/02425 'Fluorintated Oligophenyls and Their Use in Liquid Crystal Materials' Invented by George William Gray, Michael Hird and David Lacey 1 item	23 Mar 1989
U DLCR/3/3/75	European Patent Specification 0097033 'Liquid Crystal Compounds' Invented by Beatrice Mary Andrews, Neil Carr, George William Gray and Christine Hogg 1 item	3 Jan 1990
U DLCR/3/3/76a	Canadian Patent 1277133 'Compounds for Ferroelectric Liquid Crystal Devices' Invented by Lawrence Chan, David Coates, Peter Gemmell, George W. Gray, David Lacey, Kenneth J. Toyne, Daniel J. Young, Adam Jackson and Matthew F. Bone 1 item	12 Apr 1990
U DLCR/3/3/76b	UK Patent 2179351B 'Amino Acid Derivatives Suitable for Use in Liquid Crystal Materials and Devices' Invented by George William Gray, Richard Michael Scrowston, Adam Jackson, Kenneth Johnson Toyne and David Lacey 1 item	18 Apr 1990
U DLCR/3/3/76c	German Patent DE3037318C2 'Substituierte Phenole, ihre Herstellung und Verwendung' Invented by Martin Geoffrey Pellatt, John Anthony Jenner, George William Gray, David Lacey	19 Apr 1990

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1 item

- U DLCR/3/3/76d United States Patent 4941992 'N-Substituted Amino Acid Derivatives for use in Liquid Crystal Materials and Devices'
Invented by Adam Jackson, Richard M. Scrowston, George W. Gray, David Lacey, Kenneth J. Toyne
1 item 17 Jul 1990
- U DLCR/3/3/76e German Patent DE3321373C2 'Bicyclohexyle und Bicyclohexyle enthaltende flussigkristalline Dielektrika'
Invented by Rudolf Eidenschink, Michael Romer, Georg Weber, George William Gray, Kenneth Johnson Toyne
1 item 9 Aug 1990
- U DLCR/3/3/76f European Patent Specification 0258298 'Liquid Crystal Compounds Containing Two or More Chiral Centres'
Invented by George William Gray, David Lacey, Kenneth J. Toyne, David Coates, Adam Jackson, Richard Michael Scrowston
1 item 29 Aug 1990
- U DLCR/3/3/77a UK Patent 2197868B 'Methoxy-Bridged Liquid Crystal Compounds and Materials Using Them'
Invented by George William Gray, David Lacey, Kenneth Johnson Toyne and Andrew Ifil
1 item 7 Nov 1990
- U DLCR/3/3/77b European Patent Specification 0258298 'Liquid crystal compounds containing two or more chiral centres'
Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, David Coates, Adam Jackson, Richard Michael Scrowston
1 item 7 Nov 1990
- U DLCR/3/3/78 UK Patent 2193209B 'Biphenyl Ethanes and Their Use in Liquid Crystal Materials and Devices'
Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Eike Poetsch, Georg Wilhelm Leuschner Weber
1 item 2 May 1990

U DLCR/3/3/79a	Patent Application 9105362.9 'Anisotropic Organic Compounds' Invented by Damien Gerard McDonnell, Edward Peter Raynes, Sally Elizabeth Day, Kenneth John Harrison, John William Goodby, Kenneth Johnson Toyne, George William Gray, David Lacey, Michael Hird, Alexander Seed 1 item	13 Mar 1991
U DLCR/3/3/79b	Patent Application 9105359.5 'Naphthyl Organic Compounds' Invented by Damien Gerard McDonnell, Edward Peter Raynes, Sally Elizabeth Day, Kenneth John Harrison, John William Goodby, Kenneth Johnson Toyne, George William Gray, David Lacey, Michael Hird, Alexander Seed 1 item	13 Mar 1991
U DLCR/3/3/79c	United States Patent 5037576 'Liquid Crystal Compounds, Mixtures and Devices' Invented by George W. Gray, David Lacey, Kenneth J. Toyne, Richard M. Scrowston and Adam Jackson 1 item	6 Aug 1991
U DLCR/3/3/80	UK Patent 2230265B 'Laterally Cyano-Substituted Terphenyls' Invented by George William Gray, David Lacey, Michael Hird and Kenneth Johnson Toyne 1 item	2 Oct 1991
U DLCR/3/3/81	Dutch Patent 187017 'Werkwijze ter bereiding van een vloeibaar kristalmateriaal, alsmede vloeibaar kristal bevattende elektro-optische inrichting, werkwijze voor oppervlakthermografie en voor temperatuur gevoelige afleesinrichting' [written in Dutch] 1 item	4 Apr 1991
U DLCR/3/3/82	Dutch Patent 187016 'Werkwijze ter bereiding van een vloeibaar kristalmateriaal alsmede gedraaide nematische cel, dynamische verstrooiingscel of elektro-optische inrichting met een vloeibaar kristalmateriaal' 1 item	4 Apr 1991
U DLCR/3/3/83	UK Patent 2244710B 'Phenyl Naphthalenes Having Liquid Crystalline Properties' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey and Michael Hird 1 item	30 Sep 1992

U DLCR/3/3/84	European Patent Specification 0310620 B1 'Chiral Liquid Crystal Compounds' Invented by David Lacey, Kenneth Johnson Toyne, Richard Michael Scrowston, Adam Jackson, Lawrence Kam Ming Chan, Ibrahim Gindy Shenouda 1 item	2 Sep 1992
U DLCR/3/3/85	German Patent 3401320 'Ethanderivate, Verfahren zu deren Herstellung und diese enthaltende flussigkristalline Phasen' Invented by Julie Elizabeth Fearon, George William George, David Lacey, Kenneth Johnson Toyne and Georg Weber 1 item	11 Jun 1992
U DLCR/3/3/86	Japanese Patent Application 1639049 'Phenol Derivative' Invented by Martin Geoffrey Pellatt, John Anthony Jenner, George William Gray and David Lacey 1 item	31 Jan 1992
U DLCR/3/3/87	UK Patent 2227742B 'Difluorinated terphenyls and their use in liquid crystal materials' Invented by George William Gray, Michael Hird, David Lacey, Kenneth Johnson Toyne, Volker Reiffenrath, Dr Andreas Wachtler, Joachim Krause, Dr Ulrich Finkenzeller, Dr Thomas Geelhaar 1 item	5 Feb 1992
U DLCR/3/3/88	European Patent 0473208A2 'Heterocyclische Verbindungen der Formel Iec' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Michael Peter Burrow, Rudolf Eidenschink, Andreas Wachtler, Georg Weber 1 item	4 Mar 1992
U DLCR/3/3/89	UK Patent 2235192B 'Difluorphenyl esters and their use as liquid crystal materials' Invented by George William Gray, David Lacey, Alan Hall, David Holmes 1 item	6 May 1992
U DLCR/3/3/90	European Patent Specification 0334845B1 'Liquid crystal compounds, mixtures and devices' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Richard Michael Scrowston, Adam Jackson 1 item	6 May 1992

U DLCR/3/3/91	UK Patent 2232156B 'Phenyl esters and their use in liquid crystal materials' Invented by George William Gray, Michael Hird, David Lacey, John Anthony Jenner, Robert Clemitson, Kenneth Johnson Toyne, David Coates, Ian Charles Sage 1 item	17 Jun 1992
U DLCR/3/3/92	European Patent Specification 0333760B1 'Cyano-Alicyclic Esters and Liquid Crystal Compositions' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, David Holmes, Richard Michael Scrowston 1 item	1 Jul 1992
U DLCR/3/3/93	UK Patent 2243605B 'Fluorinated 4"-cyano substituted terphenyls' Invented by Lawrence Kam Ming Chan, Michael Hird, George William Gray, David Lacey, Kenneth Johnson Toyne, David Coates, Ian Sage, Simon Greenfield 1 item	5 Aug 1992
U DLCR/3/3/94	United States Patent 5147577 'Cyano-alicyclic esters in liquid crystal compositions' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, David Holmes, Richard M. Scroston 1 item	15 Sep 1992
U DLCR/3/3/95	Austrian Patent E73120B 'Biphenyl-athane und ihre verwendung in flussigkristall-materialien und -vorrichtungen' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Eike Poetsch, Georg Weber [written in Austrian] 1 item	25 Sep 1992
U DLCR/3/3/96	United States Patent 5156763 'Laterally fluorinated 4-cyanophenyl and 4'-cyanobiphenyl benzoates' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Michael Hird, Damien G. McDonnell 1 item	20 Oct 1992

U DLCR/3/3/97	German Patent 4117113A1 'Polymerisierbare Flüssigkristallmaterialien und ferroelektrische smektische, flüssigkristalline Phasen aufweisende Polymerzusammensetzungen' Invented by George William Gray, David Coates [written in German] 1 item	26 Nov 1992
U DLCR/3/3/98	United States Patent 5167862 'Alpha-hydroxy carboxylic acid derivates suitable for use in liquid crystal materials and devices' Invented by Lawrence Kam Ming Chan, David Coates, Peter A. Gemmell, George William Gray, David Lacey, Kenneth Johnson Toyne, Daniel J.S. Young 1 item	1 Dec 1992
U DLCR/3/3/99	European Patent 0515972A1 'Polymerisierbare Flüssigkristallmaterialien und ferroelektrische smektische, flüssigkristalline Phasen aufweisende Polymerzusammensetzungen' Invented by George William Gray and David Coates 1 item	20 May 1992
U DLCR/3/3/100	UK Patent Application 2257969A 'Thermochromatic materials' Invented by Kiyoharu Hasegawa, Yoshimitsu Tanabe, Masakatsu Nakatsuka, Kazuyoshi Kikkawa, Akihiro Yamaguchi 1 item	27 Jan 1993
U DLCR/3/3/101	European Patent Specification 0329752B1 'Fluorinated oligophenyls and their use in liquid crystal materials' Invented by George William Gray, Michael Hird, David Lacey, Kenneth Johnson Toyne, Volker Reiffenrath, Andreas Wachtler, Joachim Krause, Ulrich Finkenzeller, Thomas Geelhaar 1 item	17 Mar 1993
U DLCR/3/3/102a	United States Patent 5204019 '2,3-Difluorobiphenyls' Invented by Volker Reiffenrath, Joachim Krause, Andreas Wachtler, Georg Weber, Ulrich Finkenzeller, David Coates, Ian C. Sage, Simon Greenfield, George W. Gray, Michael Hird, David Lacey, Kenneth J. Toyne 1 item	20 Apr 1993

U DLCR/3/3/102b	European Patent Specification 0259423B1 'Liquid crystal compounds, mixtures and devices' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Richard Michael Scrowston, David Holmes, Madeline Joan Bradshaw 1 item	21 Apr 1993
U DLCR/3/3/103	Canadian Patent 1317975 'Chiral liquid crystal compounds mixtures and devices containing them' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Richard Michael Scrowston, Adam Jackson, Lawrence Kam Ming Chan, Ibrahim G. Shenouda, Madeline Joan Bradshaw, Victoria Brimmell, Jennifer Constant, Edward P. Raynes 1 item	18 May 1993
U DLCR/3/3/104	European Patent 0362318B1 '2,3-difluorbiphenyle' Invented by Volker Reiffenrath, Joachim Krause, Andreas Wachtler, Georg Weber, Ulrich Finkenzeller, David Coates 1 item	4 Aug 1993
U DLCR/3/3/105	UK Patent 2255776B 'Liquid crystal cyanoalkanes and cyanoalkenes' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Ibrahim Gindy Shenouda, Abdul Luheshi 1 item	8 Sep 1993
U DLCR/3/3/106	German Patent 3225290C2 'Ringverbindungen' Invented by Rudolf Eidenschink, Joachim Krause, Beatrice Mary Andrews, George William Gray, Neil Carr 1 item	16 Sep 1993
U DLCR/3/3/107	United States Patent 5252253 'Phenyl naphthalenes having liquid crystalline properties' Invented by George William Gray, Kenneth Johnson Toyne, David Lacey, Michael Hird, 1 item	12 Oct 1993
U DLCR/3/3/108	United States Patent 5262081 'Liquid crystalline polyesters for optical data storage' Invented by George William Gray, Andrew M. McRoberts, Raymond Denman, Richard Michael Scrowston, David Lacey 1 item	16 Nov 1993

U DLCR/3/3/109	International Patent Application WO94/00532 '1-methyl-2-oxaalkoxy-derivatives' Invented by Christopher James Booth, John William Goodby, Judith Penelope Hardy, Kenneth Johnson Toyne, George William Gray 1 item	6 Jan 1994
U DLCR/3/3/110	European Patent Specification 039566B1 'Laterally cyano- and fluoro-substituted terphenyls' Invented by George William Gray, David Lacey, Michael Hird, Kenneth Johnson Toyne 1 item	4 May 1994
U DLCR/3/3/111	United States Patent 5312563 'Fluorinated 4"-cyano substituted terphenyls' Invented by David Coates, Ian Sage, Simon Greenfield, George William Gray, David Lacey, Kenneth Johnson Toyne, Lawrence Kam Ming Chan, Michael Hird 1 item	17 May 1994
U DLCR/3/3/112	United States Patent 5334327 'Laterally fluorinated 4-cyanophenyl and 4'-cyanobiphenyl benzoates' Invented by George William Gray, David Lacey, Kenneth Johnson Toyne, Michael Hird, Damien G. McDonnell 1 item	2 Aug 1994
U DLCR/3/3/113	International Patent Application WO94/29263 'Discotic Compounds for Use in Liquid Crystal Mixtures' Invented by John William Goodby, Michael Hird, David Richard Beattie, Paul Hindmarsh, George William Gray, Damien Gerard McDonnell, John Clifford Jones, Timothy Jonathan Phillips 1 item	22 Dec 1997
U DLCR/3/3/114	European Patent EP0309514B2 'Thiazol- und thiadiazol-derivate enthaltende medien mit smektischer flussigkristalliner phase' Invented by George William Gray, Richard Michael Scrowston, Kenneth Johnson Toyne, David Lacey, Adam Jackson, Joachim Krause, Eike Poetsch, Thomas Geelhaar, Georg Weber, Andreas Wachtler [written in German] 1 item	15 Oct 1997

U DLCR/3/4	Working Files re Publications Files of correspondence, drafts and reprints relating to publications by or contributed to by George W. Gray. These are working files and not actual copies of publications. For a comprehensive series of reprints of published research papers please see U DLCR/3/1, or for a series of books please see U DLCR/3/2. 9 items	1975-2011
U DLCR/3/4/1	File: Cross-Coupling Reactions Reprints and published papers written by various persons in the field of liquid crystals including George W. Gray, file compiled by George W. Gray 1 file	1975-1989
U DLCR/3/4/2	File: Nomenclature of Liquid Crystals Papers and correspondence relating to the work of a working party formed to produced a document titled 'Liquid Crystal (LC) Document: Definitions of Basic Terms Relating to Low Molar Mass and Polymer Liquid-Crystals'. Compiled by George W. Gray who was initially asked to consult on the document and then invited to become a member of the working party. 1 file	1994-1997
U DLCR/3/4/3	File: LiqCryst Database File contains correspondence between Professor Gray and Dr Vill regarding entries and records in a database relating to liquid crystal compounds compiled and maintained by Dr Vill. Also contains two information leaflets relating to the database. 1 file	9 Jan 1997- 1 Sep 1999
U DLCR/3/4/4	File: Taylor & Francis Liquid Crystals Book Series File contains correspondence between Professor Gray and various persons at Taylor & Francis Publishers regarding a book series on liquid crystals edited by Professor Gray whilst working at Merck Ltd UK and Professor John Goodby whilst working at the University of Hull. 1 file	14 May 1998- 9 Jun 2003
U DLCR/3/4/5	File: Encyclopedia of Materials: Science and Technology (Introduction to and History of Liquid Crystals) File contains correspondence, manuscript and typescript drafts, reprint article and a Macintosh formatted floppy disk containing the final text of an article written by George W. Gray's for the Encyclopedia of Materials: Science and Technology published by Elsevier Science Ltd.	1999-2001

Hull History Centre:	Liquid Crystals & Advanced Materials Research Group, University of Hull 1 file	
U DLCR/3/4/6	File: Liquid Crystals Journal Special Issue Reprints and published papers collated by George W. Gray whilst editing a special issue of the Liquid Crystals Journal 1 file	2011
U DLCR/3/4/7	File: Smectic Liquid Crystals - Textures and Structures File contains figures and photographs compiled by John W. Goodby for a book written with George W. Gray 1 file	1984
U DLCR/3/4/8	File: Liquid Crystals Journal File contains correspondence between George Gray and Professor Gordon T. Stewart along with drafts of a two part review article by Professor Stewart titled 'Liquid crystals in biology'. Correspondence relates to the publication of the article in journal Liquid Crystals edited by George Gray. 1 file	2002-2003
U DLCR/3/4/9	File: British Liquid Crystal Society Newsletter Article File contains letter from Dr Tim Wilkinson inviting George Gray to compile a short article relating to the work of Professor Heino Finkelmann and his being awarded the 2006 G.W. Gray Medal. Also includes typescript copy of the article by Gray and various biographical notes. 1 file	13 Jun 2006- 7 Jul 2006
U DLCR/3/4/10	Handbook of Liquid Crystals Second Edition Files and papers relating to the editing of the Handbook of Liquid Crystals Second Edition by Professor George W. Gray and Professor John W. Goodby 4 pieces	1990s
U DLCR/3/4/10/1	Photograph Album: Liquid Crystals Dr Gray File contains photographs of various liquid crystals [taken using Professor Gray's Nikon microscope for use as illustrations in the publication The Chemistry of Liquid Crystals: Handbook of Liquid Crystals] 1 volume	c.1990s

- U DLCR/3/4/10/2 File: Letters re VCH Handbook of Liquid Crystals (2nd Edition) 8 Sep 1995-11 Apr 1997
Letters and faxes between John W. Goodby and George Gray as editors of the 2nd edition of the Handbook. References to contributors and editing work. Also references to the Hallcrest CASE. Includes some letters from others involved in the handbook such as Ute Anton, Jorn Ritterbusch, Harry Coles, P. Barois, Bill Crossland, Renate Sutter. Also includes a page of brief contributor biographies.
1 file
- U DLCR/3/4/10/3 File: Handbook of Liquid Crystals Second Edition 13 Jul 1994-11 Jun 1997
File contains a subfile of correspondence between John Goodby, George Gray and VCH Publishing relating to the publishing of the second edition of The Chemistry of Liquid Crystals: Handbook of Liquid Crystals. Also contains the following subfiles of typescript drafts of chapters written by John W. Goodby for inclusion in the second edition: Chapter 1 - Properties and Structures of Liquid Crystals and a Guide to the Nomenclature and Classification of Liquid Crystals; Chapter 2.1 Phase Structures of Calamitic Liquid Crystals; Chapter 5.1 Symmetry and Chirality in Liquid Crystals; Chapter 6.1 Synthesis of Non-Chiral Smectic Liquid Crystals; Chapter 9.2 Structures of Ferroelectric Smectic Modifications; Chapter 9.3.1 Molecular Symmetry.
1 bundle (6 files)
- U DLCR/3/4/10/4 File: Handbook of Liquid Crystals Second Edition c.1990s
File contains subfiles of typescript drafts of chapters for inclusion in the second edition of The Chemistry of Liquid Crystals: Handbook of Liquid Crystals. Contains the following subfiles: Chapter 10 Side Chain Liquid Crystal Polymers by D. Lacey; Introduction [by Professor George Gray?]; Chapter 2 Nematic Liquid Crystals by Kenneth J. Toyne; Liquid Crystals by Ian Sage; Chapter 8.2 Chiral Smectic C (Sc*) Materials as Ferroelectric Systems [by George Gray?]; Chapter 8.3 Achiral Smectic C Materials as Ferroelectric Hosts [by George Gray?].
1 bundle (6 files)

U DLCR/3/5	Files: Research Papers by Author Files of reprints and published papers written by various researchers in the field of liquid crystals. These files were compiled by George W. Gray from papers sent to him by the following colleagues working at other organisations: Dietrich Demus; Maged A. Osman; Hp. Schad; S.M. Kelly; V.P. Shibaev; Volkmar Vill; Tim J. Sluckin; John W. Goodby. 6 items	1962-2010
U DLCR/3/5/1	File: Papers by Dietrich Demus Reprints and published papers written by Dietrich Demus in the field of liquid crystals and sent to George W. Gray 1 file	1962-1986
U DLCR/3/5/2	File: Papers by Maged A. Osman, Hp. Schad and S.M. Kelly of the Brown Boveri Research Centre, Switzerland Reprints and published papers written by Maged A. Osman, Hp. Schad and S.M. Kelly of the Brown Boveri Research Centre, Switzerland, in the field of liquid crystals and sent to George W. Gray, also letter from Osman to Gray 1 file	1983-1985
U DLCR/3/5/3	File: Papers by V.P. Shibaev Reprints and published papers written by V.P. Shibaev in the field of liquid crystals and sent to George W. Gray 1 file	1992-1995
U DLCR/3/5/4	File: Papers by Volkmar Vill Reprints and published papers written by Volkmar Vill in the field of liquid crystals and sent to George W. Gray, also letter from Vill in Hamburg to Gray enclosing two papers 1 file	1999
U DLCR/3/5/5	File: Papers by Tim J. Sluckin File contains correspondence between George Gray and Tim Sluckin re a book written by Sluckin titled 'Crystals that Flow' and an inaugural lecture given at the University of Southampton in 2000/2001 by Sluckin titled 'Fluids with Attitude'. Also contains a copy of the inaugural lecture. 1 file	2002-2010

U DLCR/3/5/6

File: Papers by John W. Goodby
Reprints and published papers written by John W. Goodby in the field of liquid crystals and sent to George W. Gray, also letters from Goodby to Gray relating to an application by Goodby to be considered for a Royal Society Fellowship
1 file

2006

U DLCR/4	Conferences, Lectures and Presentations Contains files and material compiled by the following members of the Liquid Crystal Research Group at the University of Hull Chemistry Department, and relating to their attendance at and participation in conferences, lectures and presentations: George W. Gray; John W. Goodby 2 subseries	1970s-2000s
U DLCR/4/1	Conferences, Lectures and Presentations: George W. Gray Contains files and material compiled by Gray relating to his attendance at and participation in conferences, lectures and presentations 65 items	1970s-2000s
U DLCR/4/1/1	File: Miscellaneous Overheads for Lectures File contains overhead slides produced by Gray for use in lectures on various subjects, but not relating to a specific lecture 1 file	c.1970s-1990s
U DLCR/4/1/2	File: Miscellaneous Overheads for Lectures File contains miscellaneous overheads for lectures given by Gray, includes viewgraphs used during a visit to Germany c.1987 1 file	c.1987
U DLCR/4/1/3	File: Miscellaneous Overheads for Lectures File contains miscellaneous overheads used by Gray during unidentified lectures, includes manuscript lecture notes 1 file	c.1989
U DLCR/4/1/4	File: Miscellaneous Overheads for Lectures File contains miscellaneous overheads for lectures given by Gray. Includes overheads relating to 'Flexible Spacer Side Chain Liquid Crystal Polymers' and 'Low Molar Mass Liquid Crystal Systems'. 1 file	c.1990s
U DLCR/4/1/5	File: Miscellaneous Overheads for Lectures File contains miscellaneous overheads used by Gray during unidentified lectures, includes photographs showing liquid crystal microscopy 1 file	c.1990s

U DLCR/4/1/6	File: Miscellaneous Overheads for Lectures File contains miscellaneous overheads used by Gray during unidentified lectures, includes manuscript lecture notes 1 file	c.1990s
U DLCR/4/1/7	File: Lecture 'Basics' File contains overheads for a lecture given by Gray [as part of his teaching career?] 1 file	c.1970s-1990s
U DLCR/4/1/8	File: Lecture 'Basic Liquid Crystal Science Introduction to Liquid Crystals' File contains overheads for a lecture given by Gray [as part of his teaching career?] 1 file	c.1970s-1990s
U DLCR/4/1/9	File: Lecture 'Liquid Crystals - The Basics' File contains overheads for a lecture given by Gray [as part of his teaching career?] based on developments at Hull University Chemistry Department involving John Goodby et al and developments of Tschierske et al at Halle in Germany 1 file	c.1970s-1990s
U DLCR/4/1/10	File: Lecture 'PDLC Multiplexing' File contains overheads for a lecture given by Gray [as part of his teaching career?] 1 file	c.1970s-1990s
U DLCR/4/1/11	File: Lecture 'Polymer Viewgraphs' File contains overhead slides produced by Gray for general use when discussing Polymers, but not relating to a specific lecture [note on old cover read 'No Assignment to Lecture'] 1 file	c.1970s-1990s
U DLCR/4/1/12	File: Lecture 'Phases' File contains overheads for a lecture given by Gray [as part of his teaching career?] 1 file	c.1970s-1990s
U DLCR/4/1/13	File: Lecture 'Synthesis' File contains overheads for a lecture given by [as part of his teaching career?] 1 file	c.1970s-1990s
U DLCR/4/1/14	File: Lecture 'Sherowsky' File contains overheads for a lecture given by Gray at Berlin [in honour of Sherowsky?] 1 file	c.1970s-1990s

U DLCR/4/1/15	File: Lecture 'Liquid Crystal Polymers' File contains overhead slides produced by Gray for general use when discussing Polymers, but not relating to a specific lecture [note on old cover read 'Overheads -Liquid Crystal Polymers Msc.'] 1 file	c.1970s-1990s
U DLCR/4/1/16	File: Lecture 'Effects of Structural Change on Materials for Monolayers and LB Films' File contains overheads compiled by Gray and used during a presentation given in connection with a Joers/Alvey project 1 file	c.1980s
U DLCR/4/1/17	File: Lecture 'The Development of Liquid Crystal Materials for Display Devices' File contains overheads compiled by Gray and used during a lecture 1 file	c.1980s
U DLCR/4/1/18	File: Lecture 'Synthesis and Properties of Some Novel Ferroelectric Materials - Hosts and Dopants' File contains overheads used by Gray, M. Hird, D. Lacey and K.J. Toyne during a presentation given in connection with a Joers/Alvey project 1 file	c.1980s
U DLCR/4/1/19	File: Lecture 'Molecular Chemistry for Electronics - Low Molar-Mass Thermotropic Liquid Crystals' File contains overheads used by Gray during lecture 1 file	c.1989
U DLCR/4/1/20	File: Lecture - Liquid Crystal Polymers File contains photocopy of overheads from a lecture given by Gray [in his capacity as research consultant at Merck Ltd (UK)?] 1 file	c.1990s
U DLCR/4/1/21	File: Lecture 'The Development of Liquid Crystal Materials for Information Technology' File contains overheads used by Gray when delivering a lecture for Merck Ltd 1 file	c.1990s
U DLCR/4/1/22	File: Note Cards re Visits and Travel Index cards on which are recorded a list of places visited with expenses not recovered and an account of expenses incurred during a visit to BBC Switzerland Aug-Sep 1981, compiled by Gray 1 file	1981-1982

- U DLCR/4/1/23 File: Lecture 'Developments in the Synthesis of Liquid Crystal Materials' c.1992
File contains overheads for a lecture given by Gray in his capacity as Research Co-ordinator for Merck Ltd UK [in Sep 1992?]
1 file
- U DLCR/4/1/24 File: Lecture - Synthesis and Properties of Liquid Crystal Polymers c.1992
File contains overheads for a lecture given by Gray [in his capacity as research consultant at Merck Ltd (UK)?]. Note that the title slide bears the reference GWG/RPF/92.
1 file
- U DLCR/4/1/25 File: Ninth International Liquid Crystal Conference, Bangalore Feb 1982-
Dec 1982
File contains papers relating to the Ninth International Liquid Crystal Conference, held in Bangalore, 6-10 Dec 1982. Gray gave two lectures, one titled 'New liquid crystal materials' with N. Carr and D.G. Mc Donnell, and another titled 'Novel liquid crystalline derivatives of cubanes and...cubanes' with N.A. Langley and K.J. Toyne. File contains the following Papers: Delegate list; Correspondence between Gray and Professor S. Chandrasekhar, conference organiser; Correspondence between Professor Gray and Miss Elizabeth Wright of the British Council; Draft and printed report on the conference written by Professor Gray, Dec 1982; Completed application for an overseas conference grant from the University of Hull [note that this gives Gray's period of employment at the university as starting on 1 Oct 1946].
1 file
- U DLCR/4/1/26 Badge: American Chemical Society 186th National Meeting, 28 Aug 1983-2 Sep 1983 1983
Visitor's badge for 'G.W. Gray, University of Hull, Hull, England', meeting held in Washington DC
1 file
- U DLCR/4/1/27 File: Lecture 'Developments in New Liquid Crystal Material' Jan 1985
File contains overhead slides, paper prints of overheads and texts, and notes re timings for a lecture given by Gray at a BLCG meeting held at Royal Holloway College
1 file

U DLCR/4/1/28	<p>File: ILCC, Berkley, USA</p> <p>File contains overheads for the presentation of a paper titled 'Re-entrant Nematic and Injected Smectic Behaviour in Binary Mixtures of Polar/Non-Polar and Non-Polar/Non-Polar Compounds'. Paper written by L.K.M. Chan, G.W. Gray, D. Lacey, T. Srithanratana and K.J. Toyne at the University of Hull, presented by Professor George Gray at the ILCC [International Liquid Crystal Conference] held in Berkley. Also contains proceedings volume containing a list of participants and summaries of scientific sessions and abstracts of papers presented at the conference held Clark Kerr Campus, University of California at Berkeley, Berkeley, California.</p> <p>1 file</p>	30 Jun 1986- 4 Jul 1986
U DLCR/4/1/29	<p>File: GDCh-Kolloquium at the University of Freiburg</p> <p>File contains correspondence between Professor George Gray and Professor Heino Finkelmann re a lecture given by Gray at the GDCh-Kolloquium held at the University of Freiburg on 17 Nov 1986</p> <p>1 file</p>	23 Jul 1986- 24 Nov 1986
U DLCR/4/1/30	<p>File: Lecture 'Smectics'</p> <p>File contains overheads and correspondence for a lecture given by Professor George Gray on 9 Dec 1986 at Philips Research Laboratories, Eindhoven. Note that the correspondence is between Gray and W.J.A. Goossens of Philips Research Laboratories, Eindhoven, and refers to Professor Gray also giving an informal seminar on polymers, low molar mass materials and chemical constitution and physical properties of new and old liquid crystalline materials.</p> <p>1 file</p>	20 Oct 1986- 24 Nov 1986
U DLCR/4/1/31	<p>File: Lecture 'Some Aspects of Side-Chain Liquid Crystal Polymers, Especially Polysiloxanes, in Relation to Their Potential for Speciality Applications'</p> <p>File contains overheads produced by Gray for use in a lecture given at the 1988 ILCC [International Liquid Crystal Conference] held in Frieburg, and also a notebook used to make notes during the plenary talk given by Dietrich Demus whilst at the conference</p> <p>1 file</p>	1988
U DLCR/4/1/32	<p>File: Lecture 'Liquid Crystal Polymers'</p> <p>File contains overheads for a lecture given by Gray at York in 1990 [whilst working at the School of Chemistry, University of Hull?]</p> <p>1 file</p>	1990

U DLCR/4/1/33	File: Lecture 'Liquid Crystal Polymers' File contains overheads for a lecture given by Gray in his capacity as Research Co-ordinator for Merck Ltd UK [in Sep 1990?] 1 file	Sep 1990
U DLCR/4/1/34	File: Lecture 'Early Events, Current Activity and Furture Possibilities in the Chemical Development of Liquid Crystal Materials for Applications' File contains overheads produced by Gray for use in a review lecture given by him in his capacity as Research Co-ordinator for Merck Ltd 1 file	Jun 1991
U DLCR/4/1/35	File: Lecture 'Classification of Calamitic Liquid Crystals' File contains overheads for a lecture given by Gray at the Second G.I.F. Meeting on 'Materials Science & Properties' held at the University of Heidelberg, 15-18 Dec 1991. Includes a programme of the meeting and a business card for Dr Neomy Soffer, Scientific Advisor for the German-Israeli Foundation for Scientific Research and Development [organiser of the meeting?]. 1 file	Dec 1991
U DLCR/4/1/36	File: 14th International Liquid Crystals Conference, Pisa File contains notes made by Gray during the conference 1 file	1992
U DLCR/4/1/37	File: Lecture - Recent Results on Liquid Crystal Polymers and Chiral Mesogens File contains notes and overheads for a lecture given by Gray in Berlin [in his capacity as research consultant at Merck Ltd (UK)?]. Note that the title page of the lecture bears the reference GWG/GS/09/92. 1 file	1992
U DLCR/4/1/38	File: Ben Sturgeon Memorial Lecture File contains overheads for a lecture titled 'Ben Sturgeon: The life and work of the man'. Given by Gray in Honour of Ben Sturgeon at a meeting of the British Liquid Crystal Society in Oxford. Note that this was the first in a now established series of British Liquid Crystal Society Sturgeon Lectures. 1 file	1992

- U DLCR/4/1/39 File: Cursos de Verano July 1992 Summer School on Liquid Crystals 16 Mar 1992-24 Jul 1992
File kept by Gray relating to the organisation and delivery of the summer school. Includes correspondence, notes, overheads re programme and lectures. Note that Professor Gray and Dr David A. Dunmar delivered the lecture programme 20-24 Jul 1992.
1 file
- U DLCR/4/1/40 File: 33rd Moretonhampstead Conference of the High Polymer Research Group 12 Aug 1992-10 May 1993
File contains papers relating to the attendance of Gray at the 33rd Moretonhampstead Conference of the High Polymer Research Group, held at the Manor House Hotel, Moretonhampstead, 26-30 Apr 1993. Gray gave a lecture on the structure and dynamics of Liquid Crystal polymers during the morning session on 29 Apr 1993. File contains the following papers: Programme; Delegate list; Correspondence between Gray and the conference organiser W.J. Feast; Notes made by Gray; Print out of overhead slides used by Gray during his lecture; Summary of a research project at Merck Ltd re High Temperature Superconductor Research and Development.
1 file
- U DLCR/4/1/41 File: Lecture 'Liquid Crystals: Past, Present & Maybe' Jan 1993
File contains overhead slides and manuscript notes for a lecture given by Gray whilst working as a consultant for Merck Ltd at a Colloquium held in the Chemistry Department of the University of Sheffield in Jan 1993
1 file
- U DLCR/4/1/42 File: BA Festival - Science For Life 1993
File contains manuscript notes, overheads, and meeting minutes relating to a lecture [presidential address?] given by Gray at the British Association for the Advancement of Science 'Science for Life Festival' held at Keele University in 1993. Note that the file contains minutes of a meeting of the British Association for the Advancement of Science Section B Committee listing Gray as President of the committee.
1 file

U DLCR/4/1/43	File: Conferences Attended by George W. Gray File contains the following correspondence, programmes, notes, and delegate lists relating to conferences on Liquid Crystals which Gray attended but did not speak at: Correspondence and programme re 22 Freiburger Arbeitstagung Flussigkristalle, 31 Mar 1993-2 Apr 1993; Notes taken at the European Conference on Liquid Crystals Science and Technology at Flims, Switzerland, 7-12 Mar 1993; Delegate list for the British Liquid Crystal Society Annual Meeting held at the University of Southampton, 24-26 Mar 1997; Programme and delegate list for the British Liquid Crystal Society Annual Meeting held at Fitzwilliam College, Cambridge, 7 Apr 2003. 1 file	1993-2003
U DLCR/4/1/44	File: Lecture 'Liquid Crystal Polymers - Structure and Dynamics' File contains overheads for a lecture given by Gray as a Research Co-ordinator for Merck Ltd [lecture given to Merck Ltd personnel?] 1 file	Mar 1993
U DLCR/4/1/45	File: Lecture 'Liquid Crystals - Materials & device development over the years' File contains overheads used during a lecture given by Gray for Merck Ltd. Given at Sharp Laboratories of Europe Ltd, Oxford. 1 file	10 Jun 1993
U DLCR/4/1/46	File: Lecture 'Liquid Crystals and their Applications' Overheads used by Gray for Merck Ltd during a lecture given at RSC Aberdeen 1 file	19 Jul 1993
U DLCR/4/1/47	File: 15th International Liquid Crystal Conference, Budapest File contains a preliminary programme relating to the 15th International Liquid Crystal Conference held at Pesti Vigado Concert Hall, Budapest, by the Research Institute for Solid State Physics, 3-8 Jul 1994. Gray is listed as conducting a pre-conference tutorial course titled 'Synthesis of liquid crystals, connection between molecular structures and phases.' 1 file	Jul 1994

- U DLCR/4/1/48 File: The Engineering Academy of Japan 7 Jul 1995-
1 Mar 1997
File contains: Correspondence between Gray and Dr Hiroaki Yanagida, Director of the Japan Society for the Promotion of Science and Dr Hiroshi Sakurai, Director of The Engineering Academy of Japan.
Correspondence relates to an invitation to Gray to give a lecture at the Academy in Tokyo on the 17 Nov 1995 and also to arrangements for the same, note that reference is made to the receipt of the Kyoto Prize by Gray, 7 Jul 1995-26 Oct 1995; Correspondence between Gray and Dr Hiroshi Sakurai re the printing of the text of the lecture and discussion session, 7 Dec 1995-29 Apr 1996; Lecture overheads, Nov 1995; Print out of the lecture, Nov 1995; Text of the lecture in Japanese, Nov 1995; Printed copy of the lecture and discussion, Apr 1996; Print of an article by G.W. Gray, M. Hird, D. Lacey and K.J. Toyne titled 'The Synthesis and Properties of Some Novel Ferroelectrical Materials - Hosts and Dopants' (1989). Note that this lecture was given whilst Professor Gray was in Japan to receive the Kyoto Prize in Kyoto and was working as a research consultant for Merck Lt, Poole Dorset. File also contains a membership list for the Engineering Academy of Japan showing that Gray was a foreign associate member in 1997.
1 file
- U DLCR/4/1/49 File: The Cyril Hilsum Symposium 27 Dec 1995-
13 Dec 1996
File contains correspondence, notes, draft and final version papers to have been delivered by Gray at a symposium held at University of Surrey to mark Professor Hilsum's 70th birthday on 29 May 1996. Note that Gray was to give a paper on 'Liquid Crystal Materials The Beginning and Where we are Today' but was unable to attend for personal family reasons. The paper was later published by The Institute of Materials under the instigation of Professor M.J. Kelly.
1 file
- U DLCR/4/1/50 File: Lecture 'The Facilitating Role of Chemistry in Liquid Crystal Technology' 1 Feb 1996-
30 Oct 1996
File contains overhead slides, manuscript lecture notes and correspondence between Gray and P.J. Butler, Dean of the Faculty of Science at the University of Birmingham, and Mr Ruffle, the Senior Registrar of the faculty, relating to a Faculty Lecture given by Gray on 22 Oct 1996. Note that Gray refers to himself as a Research Co-ordinator at Merck Ltd and also Chairman of the Advisory Board of the new Southampton Liquid Crystal Institute.
1 file

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| U DLCR/4/1/51 | <p>File: Japan-UK Joint Symposium, Tokyo 1998
File contains papers relating to the involvement of Gray with the Japan-UK Joint Symposium - The New Partnership Between Universities and Industries in the 21st Century held at the Japan Academy, Tokyo, 20-22 Apr 1998. File includes the following papers: Abstract of discussions held 21 Apr 1998, note that a programme of the day is enclosed; Correspondence between Gray and various persons re arrangements and themes; Overheads, notes and text of address given by Gray; Wallet containing tickets re places visited by Gray whilst in Tokyo; Bundle of business cards re persons met by Gray whilst on the visit; Programme, menu and place setting re dinner attended by Gray at The British Council held 22 Apr 1998; Biographical Notes re participants; Outline programme for the whole symposium; Annotated programme; Welcome message given to participants; List of candidates of Japanese participants in the group discussions; List of topics for group discussion proposed by UK side; Notes made by Gray during discussions; Journal cutting used by Gray in his address.
1 file</p> | 22 Mar 1996-
30 Apr 1998 |
| U DLCR/4/1/52 | <p>File: Third International Display Workshop
File contains correspondence between Gray and Dr Hideaki Kawakami, Dr S. Naemura and S. Kobayashi regarding the Third International Display Workshop held 27-29 Nov 1996 in Kobe. Note that Gray was invited and accepted to give a paper at the workshop.
1 file</p> | 16 Aug 1996-
25 Dec 1996 |
| U DLCR/4/1/53 | <p>File: Inaugural Meeting of the Southampton Liquid Crystal Institute
File contains OHP slides used by Gray whilst delivering a talk titled 'The World of Liquid Crystals'
1 file</p> | 9 Jan 1997 |
| U DLCR/4/1/54 | <p>File: Russian Liquid Crystal Society Meeting, St Petersburg
File contains papers relating to the attendance of Gray at the 11th session of the Liquid Crystal Society 'Sodruzhestvo' held at Petergoff, St Petersburg, Russia, 21-24 May 1997. Gray gave a speech to the memory of the society's founder Professor Victor Titov. File contains the following papers: Correspondence; Draft and final programmes; Biographical notes relating to Professor Victor Titov; Report on the conference prepared by Gray [for his employers Merck UK Ltd?]; Summary of expense incurred.</p> | 21 Feb 1997-
21 Jul 1997 |

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 file

- U DLCR/4/1/55 File: Lecture in Honour of J. William Doane 6 Jun 1997
File contains text and overheads for a Liquid Crystal Plenary Lecture titled 'Liquid Crystals - Thoughts on Some Recent Developments' given by Gray on 6 Jun 1997 in honour of J. William Doane, Director Emeritus of the Liquid Crystal Institute, Kent State University. Lecture given to mark the retirement of Doane?
1 file
- U DLCR/4/1/56 File: Conference 'Discs and Columns in Liquid Crystals' in Honour of Professor Klaus Praefcke, Berlin 6 Mar 1998-
2 Jul 1998
File contains papers relating to the attendance of Gray at a conference to mark the retirement of Professor Klaus Praefcke, Professor of Organic Chemistry at the Technische Universitat Berlin, held at the Chemistry Department of the Technische Universitat Berlin on 25 Jun 1998. Gray gave an address titled 'The Research Contributions to Science of Professor Klaus Praefcke. File contains the following papers: Invitation detailing programme and signed by the speakers and Professor Klaus [not including Gray]; Correspondence between Gray and Dr Feodor Oestreicher regarding arrangements for the conference; Short article written by Gray reporting on the conference; Text of Gray's lecture; Overheads and original slides of Gray's lecture; Conference brochure.
1 file
- U DLCR/4/1/57 File: 19th International Liquid Crystal Conference, Edinburgh 2002 1999-2002
File kept by Gray relating to the organisation of the conference held 4 Jul 2002. Includes material re bid to host conference, participants, finances and sponsorship, programme, circulars and publicity, Organising Committee meetings, chairman's report. Note that Gray was the Chairman of the Organising Committee and this was the last conference he was involved with organising.
1 bundle (7 subfiles)
- U DLCR/4/1/58 File: 3rd Workshop of the International School of Liquid Crystals, Erice, Sicily May 1999
File contains papers relating to the attendance of Gray at the 3rd Workshop of the International School of Liquid Crystals, Erice, Sicily, held in honour of the 60th birthday of G.R. Lockhurst at the Ettore Majorana International Centre for Scientific Culture, 6-9 May 1999. Gray gave the keynote address. File contains the following papers: Poster re the meeting; Colour photographs of Gray and other participants taken during his visit to Erice; 3 versions of the programme; Meeting brochure.

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 file

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| U DLCR/4/1/59 | Notebook: Geoffrey Luckhurst 60th Birthday Symposium, Sicily
Manuscript lecture notes made by Gray relating to a lecture he gave at the symposium held at the International Centre for Scientific Culture, Ettore Majorana, Sicily, to commemorate the birthday of Luckhurst
1 item | 6-9 May 1999 |
| U DLCR/4/1/60 | File: Lecture 'LC R&D - History, Current Topics and a Forecast'
File contains notes relating to a lecture given by Gray at Southampton Liquid Crystal Institute at the University of Southampton. Also includes reprint of the talk published in Mol. Cryst. Liq. Cryst., 2000 vol.346
1 file | 2000 |
| U DLCR/4/1/61 | File: Lecture in Honour of Professor Frank M. Leslie FRS
File contains text and correspondence relating to lecture given by Gray in honour of Professor Frank M. Leslie FRS during a Mourning Session given during the ILCS Conference in Sendai on 26 Jul 2000. Also includes an order of service for a service of thanksgiving for Professor Leslie at the University of Strathclyde held on 21 Jun 2000 and attended by Gray.
1 file | 21 Jun 2000-
5 Mar 2001 |
| U DLCR/4/1/62 | List of Participants: 18th International Liquid Crystal Conference 2000
Bound typescript list of participants attending the conference held at the Sendai International Centre, Sendai, Japan, 24-29 Jul 2000, kept by Gray
1 item | 24 Jul 2000 |
| U DLCR/4/1/63 | File: International Conference on Discotic Liquid Crystals 2002
File contains correspondence between Gray and conference organiser S. Chandrasekhar regarding arrangements for Gray's attendance as a session chair and speaker. Also includes, programme, abstracts, notes taken by Gray during the conference and lecture notes for Gray's talk. Conference held at the International Centre for Theoretical Physics Trieste, Italy 25-29 Nov 2002
1 file | 19 Jan 2002-
5 Oct 2002 |

U DLCR/4/1/64	<p>File: 9th International Conference on Ferroelectric Liquid Crystals, Dublin</p> <p>File contains papers relating to the attendance of Gray at the 9th International Conference on Ferroelectric Liquid Crystals held at Trinity College, Dublin, 24-29 Aug 2003. Gray opened the conference and chaired the first session. File contains the following papers: Conference programme annotated by Gray; Text of the opening address given by Gray; Correspondence between Gray and Jagdish K. Vij who was responsible for organising the conference; Printed book of abstracts re papers given at the conference, annotated by Gray.</p> <p>1 file</p>	8 Aug 2003- 12 Jan 2004
U DLCR/4/1/65	<p>File: Royal Society Scientific Discussion Meeting - New Directions in Liquid Crystal Science 2005</p> <p>File contains correspondence between Gray, John Goodby and various persons regarding organisation of the meeting to be held 5-6 Dec 2005. Includes programme, abstracts and participant list, notes relating to conference closing remarks made by Gray.</p> <p>1 file</p>	20 Jul 2005- 12 Apr 2006
U DLCR/4/2	<p>Conferences, Lectures and Presentations: John W. Goodby</p> <p>Contains files and material compiled by Goodby relating to his attendance at and participation in conferences, lectures and presentations</p> <p>2 items</p>	1999-2014
U DLCR/4/2/1	<p>File: 19th International Liquid Crystal Conference, Edinburgh 2002</p> <p>File kept by Goodby relating to the organisation of the conference. Includes material re bid to host conference, participants, finances and sponsorship, programme, circulars and publicity, Organising Committee meetings. Note that Goodby was a member of the Organising Committee.</p> <p>1 file</p>	1999-2002
U DLCR/4/2/2	<p>File: Lecture titled 'Liquid Crystals - Nature's Sensory Science'</p> <p>Electronic document relating to a public lecture given by Professor John Goodby and 'Stephen' at the European Liquid Crystals Conference held in Manchester</p> <p>Item cannot be produced in the searchroom, however, a surrogate image can be provided on request.</p>	7 Sep 2015

U DLCR/5	Awards, Nominations and Honours Files and material relating to awards, nominations and honours received by the Liquid Crystal Research Group at the University of Hull Chemistry Department and its individual members 2 subseries	1979-2014
U DLCR/5/1	Awards, Nominations and Honours: George W. Gray Files of correspondence, lecture notes and slides, miscellaneous papers and a shield relating to awards, nominations and honours received by Professor George W. Gray for his work in the area of liquid crystal research 15 items	1979-2007
U DLCR/5/1/1	Shield: Queens Award for Technology Wooden shield with crest bearing date 1979. Presented to the University of Hull's Chemistry Department in 1979 for the work being done in the area of liquid crystals research. 1 item	1979
U DLCR/5/1/2	File: The Clifford Paterson Lecture 1985 - 'Liquid crystals: an arena for research and industrial collaboration among chemists, physicists and engineers' File contains typescript copy of lecture given by Gray and reprint of the same taken from the Proceedings of the Royal Society of London, also overhead slides and figures 1 file	Jul 1985
U DLCR/5/1/3	File: Honorary Degree, University of Hull File contains memorandum from John Goodby to Professor Townshend proposing Gray for the award of an honorary degree, biographical information re Gray, nomination form submitted by Goodby and text of the oration given by Goodby at the degree ceremony. Note that Gray was received an Honorary Doctorate from Hull in 1991. 1 file	16 Jun 1990- 13 Jul 1991

U DLCR/5/1/4	<p>File: Royal Institution Lecture 'Liquid Crystals - From Laboratory Curiosity to Multi-million Pound Business'</p> <p>File contains papers relating to a lecture given by Gray on 19 Nov 1993 at the Royal Institution of Great Britain as part of their Friday Evening Discourses series. Papers include correspondence with various persons re invitation and arrangements for the lecture and for shipping of equipment, notes re guests to be invited, printed practical notes for lecturers at the Friday Evening Discourses, printed booklet 'Advice to Lecturers: An anthology taken from the writings of Michael Faraday & Lawrence Bragg' published by the Royal Institution of Great Britain.</p> <p>1 file</p>	20 Jan 1993- 2 Nov 1993
U DLCR/5/1/5	<p>File: DERA Fellowship Award</p> <p>File contains correspondence between Gray and various persons and relates to the award of a DERA Fellowship for life to Gray, which award was presented at a ceremony held 26 Oct 1999</p> <p>1 file</p>	24 Mar 1993- 25 Aug 2000
U DLCR/5/1/6	<p>File: Jan Rajchman Prize</p> <p>File contains copy letter and biographical information sent from Gray to Ron Johnson regarding Gray's nomination to receive the Jan Rajchman Prize</p> <p>1 file</p>	31 Aug 1994
U DLCR/5/1/7	<p>File: Japan Society for the Promotion of Science Membership</p> <p>File contains correspondence between Gray and Dr Hiroaki Yanagida, Director of the Japan Society for the Promotion of Science. Correspondence relates to the opening of the new office of the society in London on 30 May at the Science Museum, and an invitation to Gray to become a member of the society. Note that this connection with Dr Yanagida led to Gray being invited to give a lecture at The Engineering Academy of Japan in Tokyo on 17 Nov 1995.</p> <p>1 file</p>	4 May 1995- 5 Jun 1995
U DLCR/5/1/8	<p>File: Kyoto Prize</p> <p>File contains correspondence regarding the award of the Kyoto Prize to Gray in 1995 and a lunch held by the University of Hull to mark the honour.</p> <p>1 file</p>	23 Jun 1995- 5 Dec 1995

- U DLCR/5/1/9 File: International Society for Information Display (SID) Awards 1996 10 Feb 1996-8 Oct 1996
File contains correspondence between Gray, Ken Warner and John A van Raalte regarding the attendance of Gray at the awards ceremony held 13-14 May 1996 at the Hyatt Regency Hotel in San Diego. Note that Gray received the Karl Ferdinand Braun Prize at the awards ceremony for 'contributions to the understanding of liquid crystal materials and the creation of stable compounds for use in LCDs'. Also includes notes and memorandum on award winners.
1 file
- U DLCR/5/1/10 File: G.W. Gray 70th Birthday Symposium Capri 23 May 1996-5 Sep 1996
File contains correspondence between John Goodby, Professor S.T. Lagerwall, Dr Eugenio Amendola and Aileen Partanen, draft programmes and schedules re arrangements for a symposium held 11-15 Sep 1996 at the Hotel Palatium, Capri. The symposium was held in honour of Gray on the subject 'Liquid Crystals - Present, Past and Future'. Note that Gray gave the opening talk titled 'Reminiscences from a life with liquid crystals. File also contains text and slides relating to lectures given by the following persons during the conference: Hans Gruler, Fluid Self-Organized Machines; P.E. Cladis, The Reentrant Nematic and the Compounds of Gray; Hans-Rainer Trebin, Defects in Liquid Crystals and Cosmology; F. Simoni, Nonlinear Optics in Liquid Crystals - Basic Ideas and Perspectives; Brigitte Pech, Jacques-Emile Proust, Yves Bouligand and Jean Pierre-Benoit, Tensioactivity and Supramolecular Organisation of the Palmitoyl Prodrug of Timolol; Y. Bouligand, Remarks on the Geometry of Micelles, Bilayers and Cell Membranes; Jean Billard, Some Remarks on the Evolution of Research into the Structures of Mesogens and Mesophases; L.M. Blinov, On the Way to Polar Achiral Liquid Crystals; F. Rustichelli, Structure of Organized Organic Mono and Multilayer Films.
1 file
- U DLCR/5/1/11 File: Japan Prize Jan 1997-Feb 1997
File contains a letter inviting nominations for the 14th Japan Prize in 1998 and a nomination form completed by J.W. Goodby proposing Gray as a nominee. Also contains correspondence between Gray and Professor D.A. Dunmar regarding Gray's potential nomination and the suggested nomination of Finkelmann.

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 file

- | | | |
|---------------|---|-----------------------------|
| U DLCR/5/1/12 | File: Opening of the George Gray Laboratories, University of Hull
File contains correspondence, draft programmes and attendance lists re a ceremony in Middleton Hall on 11 Feb 1999 to mark the official opening of newly refurbished chemistry labs and their rededication as the 'George Gray Laboratories'
1 file | 13 Jan 1999-
10 Feb 1999 |
| U DLCR/5/1/13 | File: Honorary Membership of the Royal Irish Academy
File contains a letter from the University of Dublin to John Goodby, Head of the Department of Chemistry at the University of Hull relating to the proposal of Gray as an Honorary Member of the Royal Irish Academy by Goodby, also contains a completed proposal form, a short printed biography of Gray, a manuscript draft biography of Gray, and a photocopy of an extract relating to Gray taken from a published source. File also contains notes and overhead slides used by Gray during a lecture give by him to mark his election to the Academy.
1 file | 15 Jun 2000-2001 |
| U DLCR/5/1/14 | File: Nobel Prize
File contains copy letters sent to the Nobel Committee by John Goodby proposing George Gray and others for the Nobel Prize in Chemistry in 2002, 2003, 2004, 2005. A short justification for the nomination is attached to each letter. Note that a justification for a 2010 application is present without the corresponding letter. Also contains letter from Gray to John Goodby enclosing a list of Gray's publications in 1994.
1 file | 11 Jan 1994-
27 Jan 2010 |
| U DLCR/5/1/15 | File: Dedication of the Gray Lab, Hull Collegiate School
File contains correspondence between Gray and Stephen Pearce as head of the science faculty at Hull Collegiate School regarding the dedication of a new lab as the 'Gray Lab' in honour of Gray's scientific contributions and links to Hull
1 file | 29 Jun 2006-
14 Jan 2007 |
| U DLCR/5/1/16 | File: Finnish Technology Award Foundation - Millennium Technology Prize
File contains email correspondence between John Goodby and Helen Gleeson suggesting that they nominated George Gray for the 2004 award | 19 Aug 2003 |

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 file

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|-------------------|--|----------------|
| U DLCR/5/2 | Awards, Nominations and Honours: John W. Goodby
Files of material relating to awards, nominations and honours received by Professor John W. Goodby for his work in the area of liquid crystal research
1 file | 2014 |
|
U DLCR/5/2/1 |
File: AkzoNobel UK Science Award 2014
File contains electronic documents and two digital recordings of interviews re winning of the AkzoNobel UK Science Award 2014 by Professor John Goodby, and presentation at Royal Society meeting held at Burlington House, London, on 5 May 2014
Item cannot be produced in the searchroom, however, a surrogate image can be provided on request
1 file |
5 May 2014 |

U DLCR/6	Research Library	1936-1992
	Books kept and used by members of the Liquid Crystal Research Group, University of Hull. U DLCR/6/1/1-21 are from the research library of George W. Gray. 21 items	
U DLCR/6/1	Book: Structure and Molecular Forces in (a) Pure Liquids and (b) Solutions - A General Discussion Held by The Faraday Society (Gurney and Jackson, Sep 1936), hardback, first page marked 'GW Gray' 1 volume	1936
U DLCR/6/2	Book: H.B. Watson, Modern Theories of Organic Chemistry, Second Edition (Oxford University Press, 1941), hardback 1 volume	1941
U DLCR/6/3	Book: H. Middleton, Systematic Qualitative Organic Analysis, Second Edition (Edward Arnold & Co, 1943), hardback, first page marked 'GW Gray. Chemistry Dept, UC Hull, Sept 1952' 1 volume	1943
U DLCR/6/4	Book: George Willard Wheland, The Theory of Resonance and its Application to Organic Chemistry (John Wiley & Sons Inc, 1945), hardback 1 volume	1945
U DLCR/6/5	Book: Frederick George Mann, Bernard Charles Saunders, Practical Organic Chemistry, Third Edition (Longmans, Green & Co., 1952), hardback, first page marked 'GW Gray Chemistry Department University College, Hull. September 1952' 1 volume	1952
U DLCR/6/6	Book: C.A. Coulson, Valence (Oxford at the Clarendon Press, 1952), hardback 1 volume	1952
U DLCR/6/7	Book: P.B.D. de la Mare, J.H. Ridd, Aromatic Substitution Nitration and Halogenation (Butterworths Scientific Publications, 1959), hardback, first page marked 'GW Gray. Chem. Dept. Hull University. Nov. 1962.' 1 volume	1959

U DLCR/6/8	Book: Peter Sykes, A Guidebook to Mechanisms in Organic Chemistry (Longmans, 1962), paperback, inside cover marked 'G.W. Gray Hull University June 1962' 1 volume	1962
U DLCR/6/9	Book: John D. Roberts, Marjorie C. Caserio, Basic Principles of Organic Chemistry (California Institute of Technology, 1965), hardback, enclosed is a page of notes made by Professor Gray, also note that the first page is signed 'GW Gray' 1 volume	1965
U DLCR/6/10	Book: Kenneth D. Kopple, peptides and Amino Acids (W.A. Benjamin Inc, 1966), paperback, first page marked 'George Gray' 1 volume	1966
U DLCR/6/11	Book: Ronald C. Denney, Named Organic Reactions (Butterworths, 1969), paperback 1 volume	1969
U DLCR/6/12	Book: A Specialist Periodical Report. Amino-acids, Peptides, and Proteins - Volume 1: A Review of the Literature Published During 1968 (The Chemical Society, 1969), hardback 1 volume	1969
U DLCR/6/13	Book: A Specialist Periodical Report. Amino-acids, Peptides, and Proteins - Volume 2: A Review of the Literature Published During 1969 (The Chemical Society, 1970), hardback 1 volume	1970
U DLCR/6/14	Book: R.W. Alder, R. Baker, J.M. Brown, Mechanisms in Organic Chemistry (Wiley_Interscience, 1971), paperback 1 volume	1971
U DLCR/6/15	Book: F. Wild, Characterisation of Organic Compounds (Cambridge University Press, 1974), hardback, stamped 'Department of Chemistry University College Hull' 1 volume	1974

- U DLCR/6/16 Book: Stanley H. Pine, James B. Hendrickson, Donald J. Cram, George S. Hammond, Organic Chemistry, Fourth Edition (McGraw-Hill Hogakusha Ltd, 1980), paperback 1 volume 1980
- U DLCR/6/17 Book: Electrical and Magnetic Properties of Low-Dimensional Solids - Proceedings of A Royal Society Discussion Meeting Held on 31 May and 1 June 1984, Organized and Edited by R.J. Gillespie and P. Day (The Royal Society, 1985), hardback 1 volume 1985
- U DLCR/6/18 Book: I.L. Finar, Organic Chemistry Volume 1, The Fundamental Principles, Sixth Edition (Longman Scientific & Technical, 1986), paperback, first page marked 'GW Gray 1987' 1 volume 1986
- U DLCR/6/19 Book: P. Bamfield (ed.), Fine Chemicals for the Electronics Industry: The Proceedings of a Symposium organised by the Fine Chemicals and Medicinals Group of the Industrial Division of The Royal Society of Chemistry, Special Publication No.60 (The Royal Society of Chemistry, 1986), paperback, inside cover marked 'GW Gray' 1 volume 1986
- U DLCR/6/20 Book: The Influence of Organometallic Chemistry on Organic Synthesis: Present and Future - Proceedings of A Royal Society Discussion Meeting Held on 24 and 25 February 1988, Organized and Edited by M.L.H. Green and S.G. Davies (The Royal Society, 1988), hardback, first page stamped 'Prof. G.W. Gray, FRS R and D Admin' 1 volume 1988
- U DLCR/6/21 Book: R.F. Kempa, D.J. Waddington (eds.), Bringing Chemistry to Life - Proceedings of the Eleventh International Conference on Chemical Education (The Royal Society of Chemistry, 1992), paperback 1 volume 1992

U DLCR/7	Correspondence Files	1980s-2000s
	Correspondence files of various members of the Liquid Crystal Research Group, University of Hull. Includes correspondence files of George W. Gray. 6 files	
U DLCR/7/1	File: Correspondence between George W. Gray and various persons re various matters Correspondence relates to various matters including: Gray to Professor Cyril Hilsum re comments on an article about the history of liquid crystals at RSRE and University of Hull (and copy of said article), c.2000s; Lesley Valentine to Gray re John Wiley & Sons Limited publication, 20 Jul 1987; 'Peter' at RSRE to Gray re 'Ferroelectricity in Smectics', 1 Oct 1986; V. Shibaev to Gray re St Petersburg award ceremony photographs, c.1980s-1990s. 1 file (4 pieces)	c.1980s-2000s
U DLCR/7/2	File: Correspondence between George W. Gray and Peter Raynes re Merck Patents Contains letter from Peter Raynes to Gray suggesting he might want to have a look at 7 patents applied for by Merck Ltd. Includes enclosure of the said patents. 1 file (8 pieces)	15 Feb 1990
U DLCR/7/3	File: Correspondence between George W. Gray and John W. Goodby re research applications and grants for University of Hull File contains correspondence relating to the following: SERC grant for macrocyclic work 1993; Link Asymmetric Synthesis Programme 1991; Case studentship supported by Merck 1995; Halcrest studentship 1995; Leverhulme grant 1997. 1 file (5 pieces)	9 Jan 1991- 24 Jul 1997
U DLCR/7/4	File: Correspondence between George W. Gray and various persons re consultancy File contains correspondence regarding requests that Gray participate in the following consultations: SERC Materials Commission grant applications, 1993; Government White Paper 'Realising our Potential: A Strategy for Science, Engineering and Technology', 1993; Technology Foresight Programme arising from the Government White Paper 'Realising our Potential...', 1993; Ministry of Development General Secretariat for Research and Technology research grant applications in Athens, 2001. 1 file (4 pieces)	1993-2001

U DLCR/7/5	<p>File: Correspondence between George W. Gray and John W. Goodby re various matters</p> <p>Correspondence relates to various matters including: Future employment options for Goodby, 16 Jun 1996-25 Jul 1996; Stephen Kelly, 12 Nov 1993-3 Feb 1994</p> <p>Closed for 30 years at the request of the depositor</p> <p>1 file (2 pieces)</p>	12 Nov 1993- 25 Jul 1996
U DLCR/7/6	<p>File: Correspondence between George W. Gray and John W. Goodby re various matters</p> <p>Correspondence relates to various matters including: Potential filming of interview with Gray and Goodby for Vega Science Trust video, 14 Nov 2002-3 Dec 2002; Letter for newsletter Chemistry in Britain re debate over LCD versus LED, 10 Sep 1999; Article in British Liquid Crystal Society newsletter re Goodby winning the first 'George Gray Medal' including a photocopy of the medal, 19 Sep 1996; Research Assessment Exercise at University of Hull involving Gray and Goodby and editing of Taylor & Francis textbook, 29 Feb 1996.</p> <p>1 file (4 pieces)</p>	12 Nov 1993- 3 Dec 2002

U DLCR/8	Photographs and Slides	1970s-2000s
	Photographs and slides relating to the Liquid Crystal Research Group at the University of Hull Chemistry Department. Includes photographs and slides of staff members and images and diagrams of liquid crystal materials used during presentations and lectures. 16 files	
U DLCR/8/1	File: Personal Slides George W. Gray Colour slides of photographs taken by and featuring Gray. Includes slides showing Gray in the lab, with colleagues and family, and at various events, conferences, awards ceremonies and dinners. 1 file (31 slides)	1970s-2000s
U DLCR/8/2	File: Lecture Slides George W. Gray Colour and black and white slides showing diagrams, figures and colour photographs of liquid crystals microscopy. Used by Gray when teaching and giving lectures and presentations. Slides in no discernible order. 1 file (140 slides)	1970s-2000s
U DLCR/8/3	File: Lecture Slides George W. Gray Colour and black and white slides showing diagrams, figures and colour photographs of liquid crystals microscopy. Used by Gray when teaching and giving lectures and presentations. Slides in no discernible order. 1 file (140 slides)	1970s-2000s
U DLCR/8/4	File: Lecture Slides George W. Gray Colour and black and white slides showing diagrams, figures and colour photographs of liquid crystals microscopy. Used by Gray when teaching and giving lectures and presentations. Slides in no discernible order. Includes manuscript list of slides and notes re the same in Gray's writing. 1 file (80 slides)	1970s-2000s

U DLCR/8/5	File: Photographs George W. Gray Colour photographs of Gray at various events and places. Gray with wife Marjory and his daughters Veronica, Elizabeth and Caroline on the day he received his CBE medal; Shibaev, Ult Savia and Gray during an unknown conference; Gray outside the Glen Grant Distillery during the 1993 MC1 Conference; Gray with Harry Coles and Glogarova; Gray in pub with colleagues; Gray in his garden at home. 1 file (10 photographs)	1970s-2000s
U DLCR/8/6	File: Photographs George W. Gray Colour and black and white portraits of Gray. Contains: publicity shot of Gray in the lab at University of Hull in 1979; Professional portrait of Gray for biographical pieces in journals and published works. 1 file (2 photographs)	1970s-2000s
U DLCR/8/7	File: Photographs George W. Gray Colour photographs used as figures in a publication. Shows diagrams and microscopy demonstrating liquid crystal transitions. 1 file (4 photographs)	c.1986
U DLCR/8/8	File: Photographs George W. Gray Colour and black and white photographs taken during the presentation of the Queens Award for Technology to the University of Hull's chemistry department in recognition of the research into liquid crystal materials. Gray shown at the event with various persons including Charlie Barker (organic chemistry lecturer at the University of Hull), Norman B. Chapman, John Curton, Cyril Hilsum, Peter Raynes, Gray, Ben Sturgeon, Martin Pelett, civic representatives from Hull City Council. Also shown is the Queens Award certificate signed by James Callahan and a publicity shot of Gray in the lab. 1 file (9 photographs)	29 May 1979
U DLCR/8/9	File: Photographs George W. Gray Colour photographs showing lyotropic mesomorphism of alkyl esters under microscope, sent to Gray in context of his work as editor of Liquid Crystals Journal 1 file (2 photographs)	c.1990s

U DLCR/8/10	File: Photographs George W. Gray Colour photographs taken on the occasion of the presentation of honorary University of Hull Doctorate to Gray and another. Gray shown with John W. Goodby (provided oration on behalf of Gray) and two other men in academic dress on City Hall balcony. Also includes formal portrait of Gray in DSc academic dress. 1 file (2 photographs)	1991
U DLCR/8/11	File: Photographs George W. Gray Colour photographs recording results of different treatments of various liquid crystal materials 1 file (9 pieces)	Mar 1991- Nov 1991
U DLCR/8/12	File: Photographs George W. Gray Colour photographs taken at various events during the period in which Gray was associated with Merck Industrial Chemicals. Gray shown at UK award banquet held in London organized by Merck for Gray following his receipt of the Kyoto Prize, colleagues shown preparing information boards about Merck's work, various products using LCD technology shown. 1 file (24 photographs)	1995
U DLCR/8/13	File: Photographs George W. Gray Colour photographs taken during 1995 Kyoto Prize presentation ceremony at the Aichi Institute of Technology, Yakusa, Toyota City, Japan. Gray shown receiving the Kyoto Prize and sat during the awards ceremony. Taken by Gray's wife Marjory. 1 file (5 photographs)	1995
U DLCR/8/14	File: Photographs George W. Gray Colour photographs taken during the Freederickzs Medal ceremony at St Petersburg. Gray shown receiving flowers and a medal, giving a speech, sitting with colleagues inc. Dmitri Freedricksz, Professor Victor Tsvetkov, Prof V. Shibaev. 1 file (3 photographs)	1996

- U DLCR/8/15 File: Photographs George W. Gray 1997-2002
Colour photographs of Gray taken at various conferences and meetings. Shows Gray's wife Marjory and Jesse Brown (wife of Professor Glen Brown) at the opening of new labs at Kent State University in 1997; Gray, Geoffrey Luckhurst, Klaus Praefcke, Wilfgang Hasser and Scharowsky at the Berlin Praefcke Revival meeting in 1998; Gray, Mike Hird, Deitrich Deamus, Atsuo Fukuda and S. Kobayashi singing karaoke at Sendai in 2000; Gray at the International Liquid Crystals conference in Edinburgh 2002; Gray and Shibaev at the European Liquid Crystals conference in Crete.
1 file (7 photographs)
- U DLCR/8/16 File: Photographs George W. Gray 2000
Colour photographs taken during a visit made by Gray to the Institute of Advanced Material Study at Kyushu University, Japan. Gray shown with various persons met whilst at the Institute. Includes a letter dated 9 Sep 2000 from 'Akira' (a Professor at the Institute) to Gray detailing persons shown in the photographs.
1 file (6 photographs)

U DLCR/9	Photomicrographic Artwork	1990s-2000s
	<p>Artwork created using photomicrograph images of liquid crystals edited in Adobe Photoshop, by John W. Goodby and others, 1990s-2000s. Note that these items were received in frames but that these were removed for preservation reasons. Photographs of the items in their original framing were taken at the time of deposit. 8 items</p>	
U DLCR/9/1	<p>Photomicrographic Artwork Cover of Chemical Communications, the Journal of The Royal Society of Chemistry, No.19, 7 Oct 1998. Cover features artwork created using photomicrograph images of Liquid Crystals. 1 item</p>	1998
U DLCR/9/2	<p>Photomicrographic Artwork Cover of Chemical & Engineering News: Chemistry Highlights 2003, 22 Dec 2003. Cover features artwork created using photomicrograph images of Liquid Crystals. 1 item</p>	2003
U DLCR/9/3	<p>Photomicrographic Artwork Cover of Chemistry The European Journal, 1, 9, 2003. Cover features artwork created using photomicrograph images of Liquid Crystals. 1 item</p>	2003
U DLCR/9/4	<p>Photomicrographic Artwork Cover of Journal of Materials Chemistry, Volume 15 Number 1, 7 Jan 2005 (15th anniversary edition). Cover features artwork created using photomicrograph images of Liquid Crystals. 1 item</p>	2005
U DLCR/9/5	<p>Photomicrographic Artwork Cover of Chemical Communications, the Journal of The Royal Society of Chemistry, No.26, 14 Jul 2005. Cover features artwork created using photomicrograph images of Liquid Crystals. 1 item</p>	2005
U DLCR/9/6	<p>Photomicrographic Artwork Titled 'Antiflowers' Artwork print titled 'Antiflowers' created using photomicrograph images of Liquid Crystals edited in Adobe Photoshop, by John W. Goodby</p>	c.2000s

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
1 item

U DLCR/9/7 Photomicrographic Artwork Titled 'Maxine's
Flowers' c.2000s

Artwork print titled 'Maxine's Flowers' created
using photomicrograph images of Liquid Crystals
edited in Adobe Photoshop, by John W. Goodby
1 item

U DLCR/9/8 Photomicrographic Artwork Titled 'Contacts' c.2000s

Artwork print titled 'Contacts' created using
photomicrograph images of Liquid Crystals edited
in Adobe Photoshop, by John W. Goodby
1 item

U DLCR/10

Objects

1950s-1990s

Objects associated with the Liquid Crystal Research Group, University of Hull, given as part of the archive. These have been divided into two subseries comprising of lab equipment [U DLCR/10/1] and sample technology using liquid crystals [U DLCR/10/2].

Items in this series cannot be produced in the searchroom, however, surrogate images are provided below.

2 subseries

U DLCR/10/1

Lab Equipment

1950s-1990s

Lab equipment used by George Gray and his team at Chemistry Department of the University of Hull. Includes microscopes used by George Gray and his team, associated heat stands and optical bench pieces, chemical samples from George Gray's early research.

Items in this series cannot be produced in the searchroom, however, surrogate images are provided below.

6 items

U DLCR/10/1/1

Chemical Samples

c.1950s



Glass dessicator jar containing chemical samples in glass tubes with cork stoppers with labels in the handwriting of George W. Gray
1 item

U DLCR/10/1/2

Chemical Samples

c.1950s



Glass dessicator jar containing chemical samples in glass tubes with cork stoppers with labels in the handwriting of George W. Gray
1 item

U DLCR/10/1/3



Microscope (Goode Troughton & Sons Ltd)
Belonging to George W. Gray and used whilst working on liquid crystal research at the University of Hull. Note that this microscope was used prior to the big liquid crystal discoveries of the 1970s. Includes microscope with positions for polarized light, light source with power supply and powered hot stage with plate.
1 box

c.1950s

U DLCR/10/1/4



Microscope (Nikon)
Belonging to George W. Gray and John W. Goodby and used by the group whilst undertaking research into liquid crystals at the University of Hull. Note that the significant liquid crystal discoveries of the 1970s and 1980s were made using this microscope, and that students who then went on to join the group learnt microscopy using it. Includes microscope with spare body and filters in separate box, lightsource, camera with attachment and cable and light exposure meter.
1 box

c.1970s

U DLCR/10/1/5



Microscope (Zeiss)
Belonging to John W. Goodby and used whilst undertaking research into liquid crystals at Bell Laboratories, the University of Hull and the University of York. Note that later discoveries from the 1990s were made using this microscope. Includes polarizing light microscope with attached eyepieces and beam splitter, Glarex tube attachment with power pack, power supply for microscope, camera and exposure meter, travelling measure in three parts.
1 box

c.1980s-1990s

U DLCR/10/1/6



Optical Bench Pieces
Used by George W. Gray during demonstrations of his research into liquid crystals
1 box

c.1980s-1990s

U DLCR/10/2 Sample Technology Using Liquid Crystal c.1980s-1990s
Materials

Samples of commercial products using liquid crystal materials produced by RPR Dublin, California, and given to the Liquid Crystal Research Group at the University of Hull Chemistry Department for use during demonstrations

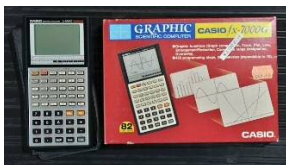
Items in this series cannot be produced in the searchroom, however, surrogate images are provided below.

8 items

U DLCR/10/2/1

Casio fx-7000G Graphic Scientific Computer
In cardboard packaging
1 item

c.1980s-1990s



U DLCR/10/2/2

EL-5804 Sharp Elsimate
In cardboard packaging
1 item

c.1980s-1990s



U DLCR/10/2/3

PR-21 Nintendo Game and Watch
Widescreen, in cardboard packaging
1 item

c.1980s-1990s



U DLCR/10/2/4

R-12A Calculatrice Regle [calculator ruler]
In cardboard packaging
1 item

c.1980s-1990s



U DLCR/10/2/5



Casio PQ-7 Alarm Clock/Timer/Stopwatch
In leather pouch
1 item

c.1980s-1990s

U DLCR/10/2/6



Desk Set Thermometer
Designer edition.
1 item

c.1980s-1990s

U DLCR/10/2/7



Packaging: Sharp Elsimate, EL-670
Empty cardboard packaging
1 item

c.1980s-1990s

U DLCR/10/2/8



Packaging: Sharp IQ-7000 Electronic Organizer
Empty cardboard packaging
1 item

c.1980s-1990s

U DLCR/10/2/9



Macintosh PowerBook and AC Adapter
First laptop used by the LC group at Hull. Used for demonstration purposes to show application of LCD to technology during lab demonstrations and prospective student open days. Screen uses a Supertwisted Nematic Liquid Crystal Display, invented by Professor E.P. Raynes FRS and Colin Waters who was a student of G.W. Gray. Their work developed out of Gray's discovery of cyanobiphenyls. The laptop was also used to store images of cyano biphenyls to illustrate further research undertaken at Hull during demonstrations and open days.
1 item

c.1992

- U DLCR/11** **Film Material: Liquid Crystals** **c.1970-2015**
Film material recording footage and explanatory slides illustrating the research findings of the Liquid Crystal Research Group, University of Hull Chemistry Department. Material is mostly in 16mm film format although there is also one VHS tape and one Betamax tape.
Items in this series have been digitized and will be made available in mp4 format and not the original format.
11 items
- U DLCR/11/1 Film Reel: It's the 4th State that Matters 1977
Content: Title slides and footage.
Filmed by: Dr D Coates, Dr G.W. Gray, Mr A.T. Rendell of the Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 6:59 mins.
Information recorded on film canister label:
University of Hull, Liquid Crystals, Film 3, Master, A26807
Access File Title: liquid_crystals
1 item
- U DLCR/11/2 Film Reel: Smectic Pieces c.1970s
Content: Footage no titles, 3 separate pieces of footage [title slides to be inserted at later point? Possibly slides on U DLCR/11/4]
Filmed by: The Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 2:51 mins
Information recorded on film canister label:
University of Hull, Smectic Pieces, SA-SB, SB-SE, I-SAB, Original, 7360
Access File Title: L70
1 item

- U DLCR/11/3 Film Reel: Liquid Crystal Transitions, Part 1 Basic Types c.1970s
Content: Titles and footage
Filmed by: The Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 3:25 mins
Information recorded on film canister label: Liquid Crystal Transitions, Part 1 Basic Types (Master) L6682
Access File Title:
liquid_crystal_transitions_pt1_master
1 item
- U DLCR/11/4 Film Reel: Phase Transitions in Liquid Crystals 1973
Content: Titles no footage, titles explaining phase transitions in liquid crystals, space between slides [for footage to be inserted at later point? Possibly footage on U DLCR/11/2]
Filmed by: The Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 4:20 mins.
Information recorded on film canister label: M.O.N. 'My World Section', L1007, 7381 test print for guide purposes only
Access File Title: crystallization_B_roll
1 item
- U DLCR/11/5 Film Reel: Chemistry Crystals Basic Types c.1970s
Content:
Filmed by: The Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 3:25 mins
Information recorded on film canister label: University of Hull, 'Chemistry Crystals' first film basic types (no droplets), original, L2647, I-7389 Col. Rev. Pt
U DLCR/11/1/5 and U DLCR/11/1/6 appear to be exact copies of U DLCR/11/1/3. Therefore no digitised scans have been created for U DLCR/11/1/5 and U DLCR/11/1/6. Please request U DLCR/11/1/3 if you wish to access this material
1 item

- U DLCR/11/6 Film Reel: Part 1 Basic Types c.1970s
Content:
Filmed by: of the Liquid Crystal Research Group,
University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 3:25 mins
Information recorded on film canister label: 'Part 1
Basic Types', run at silent speed, Prof. Gray,
Chemistry Department, Hull University, Master
**U DLCR/11/1/5 and U DLCR/11/1/6 appear to be
exact copies of U DLCR/11/1/3. Therefore no
digitised scans have been created for U
DLCR/11/1/5 and U DLCR/11/1/6. Please
request U DLCR/11/1/3 if you wish to access
this material**
1 item
- U DLCR/11/7 Film Reel: Liquid Crystal Transitions, Part 2 Basic 1975
Types
Content: Titles and footage
Filmed by: Dr D Coates, Dr G.W. Gray and Mr
A.T. Rendell of the Liquid Crystal Research
Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 6:56 mins
Information recorded on film canister label:
'Chemistry Crystallisation', cut master for printing,
Ekta L80. Also on label 'Film 2 Smetics (orig)',
L4334
**Access File Title:
liquid_crystal_transitions_pt2**
1 item
- U DLCR/11/8 Film Reel: Crystallization L5415 18 Jun 1973
Content: Titles and footage
Filmed by: The Liquid Crystal Research Group,
University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 1:34 mins
Information recorded on film canister label: 'Liquid
Crystals', Master, D/P Mute Master, S/P Leader
Master [note that the original label was lost during
the digitisation process]
Access File Title: crystallization_A_roll
1 item

- U DLCR/11/9 Video: Liquid Crystal Transitions Part 1 - Basic Types 1974
Content: Titles and footage.
Filmed by: Dr D. Coates, Dr G.W. Gray, Mr A.T. Rendell of the Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 5:23 mins
Information recorded on video label: 'Liquid Crystal Transitions', duration 5 minutes, Audio Visual Centre University of Hull, T/K Copy, Sony Beta Dynamicron L-250
Access File Title: Liquid Crystal Transitions
1 item
- U DLCR/11/10 Video: Phase Transitions in Liquid Crystals c.1970s
Content: Titles and footage
Filmed by: John Goodby and M. Hird of the Liquid Crystal Research Group, University of Hull Chemistry Department.
University of Hull Audio Visual Centre production.
Duration: 11.16 mins
Information recorded on video label: N/A
Access File Title: Phase Transitions in Liquid Crystals
1 item
- U DLCR/11/11 DVD: Lecture titled 'Liquid Crystals - Nature's Sensory Science' 7 Sep 2015
Content: Film footage shown at the start of public lecture titled 'Liquid Crystals - Nature's Sensory Science', lecture given at the European Liquid Crystals Conference held in Manchester by Professor John Goodby and 'Stephen', footage shows liquid crystal phase transitions set to 'Albatross' by Fleetwood Mac
Filmed by: European Liquid Crystals Conference Committee (DVD created by 'Stephen')
Duration: Unknown
Information recorded on DVD case: N/A
This item is closed whilst we investigate creation of an access copy. If you require access, please contact archives@hull.ac.uk.
1 item

U DLCR/12	Oral History Recordings	2014-2015
U DLCR/12/1	<p>Recordings of interviews with various persons associated with the Liquid Crystal Research Group, University of Hull Chemistry Department. The recordings were made as part of a project to catalogue and promote this collection. Recordings of interviews with the following persons: Dr Mike Hird; Professor John W. Goodby.</p> <p>Items in this series are currently closed whilst we investigate creation of access copies. If you require access, please contact archives@hull.ac.uk.</p> <p>2 items</p>	18 Nov 2014
U DLCR/12/2	<p>Oral History Recording: Professor John W. Goodby</p> <p>Interviewee: Professor John W. Goodby, research student, lecturer in chemistry, and successor to George W. Gray as leader of the Liquid Crystals Research Group at Hull</p> <p>Interview location: Recorded on 8 Oct 2015 at 10.40am, Hull History Centre, Worship Street, Hull</p> <p>Interviewer: Claire Weatherall as project archivist.</p> <p>Content: Reminiscences of time spent working in the Liquid Crystals Research Group at Hull</p> <p>Length of interview: 38:01 minutes</p> <p>Item is currently closed whilst we investigate creation of an access copy.</p> <p>1 item</p>	8 Oct 2015

U DLCR/13 Personal and Biographical 1929-2015

Personal and biographical papers and compiled files relating to individual members of the Liquid Crystal Research Group, University of Hull. Contains subseries relating to the following persons: Sir Brynmor Jones; George W. Gray.
2 subseries

U DLCR/13/1 Personal and Biographical: Sir Bynmor Jones 1929-1942

Personal and biographical papers and compiled files relating to Jones. Note that Jones worked for Sheffield University before joining the chemistry department at the University of Hull. His interest in the area of liquid crystals research formed the basis for the formation of the Liquid Crystals Research Group at Hull under George W. Gray.
1 file

U DLCR/13/1/1 File: Sir Brynmor Jones 1929-1942

File compiled by George W. Gray containing reprints of publications by Jones on the subject of liquid crystals and the 1942 PhD thesis of Yvonne Mary Way on the subject 'The preparation and properties of the 4-hydroxy-2-naphthoic acids'. Note that Wray's thesis was written at the University of Sheffield under the supervision of Jones and formed the basis for his establishment of research into liquid crystals at Hull which led to the appointment of Gray by Jones at Hull.
1 file (8 pieces)

U DLCR/13/2 Personal and Biographical: George W. Gray 1990s-2000s

Personal and biographical papers and compiled files relating to Gray. Note that Gray was the first head of the Liquid Crystals Research Group at the University of Hull.
3 files

Hull History Centre: Liquid Crystals & Advanced Materials Research Group, University of Hull
U DLCR/13/2/1 File: George W. Gray Publicity Material c.1990s

File compiled by John W. Goodby containing the following: Catalogue of liquid crystal materials produced by BDH Chemicals, catalogue published by Merck Ltd. Includes an introduction to the area of liquid crystals which includes a brief history of the significance of George W. Gray and the University of Hull to the area, c.1990s; Newsletter article 'George Gray awarded CBE' (Liquid Crystals Today Vol.1, No.3, Nov 1991); Newsletter article 'British Liquid Crystal Society' relating to first Sturgeon Memorial Lecture given by George W. Gray at the society's annual conference (Liquid Crystals Today Vol.2 No.2, 1992); Newsletter article 'Professor Frank Leslie FRS 1997 G.W. Gray Medal Winner' (Newsletter of the British Liquid Crystal Society, Dec 1997); Press Cutting '1000 Makers of The Twentieth Century', feature in the Sunday Times listing George Gray as one of the 1000 and giving a short article relating to his work on liquid crystals and the development of LCD, c.2000; Insight 2013 George Gray and the Remarkable tale of the LCD (University of Hull, 2013).

1 file (6 pieces)

U DLCR/13/2/2 File: George W. Gray Biographical Material 2001

File compiled by John W. Goodby containing the following: List of publications, c.1990s; Biographical notes written for the 'K.F.B. Prize', c.1995; Biographical notes c.2001; Curriculum Vitae dated 1996 with update dated 2001.

1 file (4 pieces)

U DLCR/13/2/3 File: George W. Gray In Memorium 2013-2015

File compiled by John W. Goodby containing the following: Notes written by Goodby for a eulogy given the funeral of George W. Gray, 2013; Journal issue dedicated to the memory of George W. Gray - International Journal of Science and Technology, Vol.40, no.7, Jul 2013, includes obituary written by John Goodby and 3 photographs of Professor Gray; Journal issue dedicated to celebrating the life of George W. Gray - Liquid Crystals, Vol.42, nos.5-6, May/June 2015.

1 file (3 pieces)