

INDEX

- A**
- absorption peak 40
 - achiral 3, 6, 13, 48, 66, 67, 71, 77, 91, 174, 175, 189, 206, 210, 214, 223
 - activation energy 87, 88, 145, 145
 - AFLC 14, 145
 - AFLCD 14
 - alignment 14, 32, 33, 50, 68, 86, 97, 120
 - alkyl groups 14
 - anchoring effects 12
 - anisotropy 2, 16, 29, 30
 - anticlinic structure 10
 - antiferroelectric liquid crystal 10, 15, 16
 - aromatic core 57
 - arrhenius law 87
 - azimuthal
 - angles 3, 12
 - degeneracy 110
 - distribution 201
 - fluctuations 113
 - orientation 136
 - rotation 118
- B**
- bent-core system 67
 - bias field 140, 159
 - bilayer phase 3
 - bilayer smectic 3, 78
 - biphenyl benzoate core 15, 16, 19, 96, 214
 - biquadratic coupling 31, 32, 44, 116, 138
 - bistability 13, 33, 34
 - bond orientational order 4, 45, 50, 74, 107, 114, 103, 117, 218
 - bookshelf geometry 198
 - bragg angle 48, 51, 97
 - broken fan texture 102, 159
 - bulking of layers 14
- C**
- carboxylic group 135, 178
 - c-centred monoclinic 106
 - cell parameters 50, 80, 81, 106, 220
 - c-f bonds 16
 - chevron defect 207, 223
 - chiral 3, 6, 7, 10-16, 19, 20, 22-24, 27, 30, 32, 42, 45, 48, 60, 62, 65-67, 77, 78, 89, 94-98, 102, 105, 110, 122, 125-128, 130, 148, 150, 152, 153, 157, 159, 172, 173, 175, 178, 193, 201, 209, 210, 214, 215, 220
 - chiral centre 19
 - chiral chain 157
 - chiral compound 77, 89, 105
 - chiral dopant 20
 - chirality 6, 8, 13, 36, 135, 212
 - chiral lines 122
 - chiral phases 6, 45, 98
 - chiral smectic 6, 11, 23, 30, 60, 94, 148
 - cholesteric phase 3, 6
 - coefficient of biquadratic coupling 32
 - coexistence phase 99, 107, 109, 117, 122, 220
 - cole-cole
 - function 40, 68, 98, 132
 - model 39
 - plot 38, 39, 84, 137, 184, 185
 - collective relaxation 42, 113, 183
 - correlation length 50, 78, 79, 182, 183, 200, 203
 - critical frequency 37, 38, 43-45, 84-86, 113-117, 136-139, 162, 163, 168, 184-186, 218-220
 - crystal parameters 106
 - crystal phase 5, 10, 102
 - cylindrical symmetry 48

- D**
- debye model 37
 - debye type material 38
 - de vries type 4, 12, 14, 111, 123, 180, 181, 197, 201, 202, 206, 223
 - dielectric anisotropy 2, 16
 - dielectric cell 45, 50, 97, 136, 154
 - dielectric increment 37, 42-44, 68, 84-86, 89, 113-115, 136-138, 162-164, 168, 184-186, 217, 219, 220
 - dielectric permittivity 31, 36, 37, 40, 68, 82, 154, 159, 160, 176
 - dielectric relaxation 37, 58, 67, 82, 84, 112, 118, 122, 136, 159, 165, 183, 187
 - dielectric spectra 38, 41, 68, 83, 87, 88, 98, 114, 115, 132, 137, 154, 160, 161, 163, 164, 168, 183, 184
 - dielectric spectroscopy 36, 82, 218
 - differential scanning calorimetry 70, 192
 - dipole moment 36, 72, 77, 78, 100, 122, 156, 157, 178, 202, 203, 214, 215, 219, 222
 - dispersion curve 38, 39
- E**
- effective layer contraction 111, 123, 180
 - elastic constant 85, 116, 121, 139
 - electroclinic effect 12, 193, 199, 201, 207, 223
 - electro-optic 9, 13, 20, 21, 29, 32, 33, 52, 58, 66, 95-98, 120, 123, 130, 132, 133, 145, 146, 152-154, 166, 173, 175, 214, 221
 - enthalpy 70, 140, 141, 165, 186
- F**
- fan shaped texture 71, 101, 193
 - ferrielectric smey * phase 164
 - ferroelectric liquid crystal 7, 10, 13, 14, 16, 33, 34, 53, 131, 173, 175, 189, 214
 - FLC 7, 10, 13, 33, 34, 54, 55, 119, 120, 131, 143, 145, 147, 166, 174, 175, 189, 190, 202, 206, 207
 - FLCD 13
 - flip-flop mode 218
 - free energy 30-32, 44, 52, 116, 117, 138, 167
- G**
- generalised landau theory 162
 - geometry optimisation 77
 - ghost effect 14
 - GM 43, 44, 113-118, 136-140, 159-161, 165, 168, 183-186, 206, 217, 219, 223
 - goldstone mode 43, 57, 58, 113, 136, 140, 147, 159, 163, 165, 168, 183-187, 218-220
- H**
- hartee fock method 72, 134, 99, 156, 178
 - helical pitch 120, 121, 123, 139, 175
 - helical structure 6, 9, 10, 36, 101, 102, 159
 - heliectric 9, 54
 - herringbone structure 5, 66, 80, 81, 220
 - hexagonal phases 95-97, 106, 109, 117, 118, 120, 131 216
 - hexatic b 71, 75, 81, 91
 - hexatic smectic phases 4
 - homeotropic alignment 32
 - homogeneous alignment 32
 - host mixture 175, 189, 191
 - hysteresis 54, 55, 202, 207
- I**
- imaginary part of dielectric constants 38
 - impurities 68
 - induced polarization 36, 200-203
 - induced tilt 25, 204, 212
 - in-plane switching 14, 174
 - intermolecular distance 47, 51
 - intermolecular interaction 29, 37, 100, 123, 217, 218

isotropic transition 141, 144, 165, 166, 201

L

landau theory 30, 162, 201, 218
 langevin formula 203
 lattice parameters 106, 107
 layer contraction 12, 14, 111, 123, 180, 198
 layer normal 4, 10, 11, 56, 57, 66, 143, 188, 189
 layer spacing 3, 4, 47, 49, 51, 73, 76, 77, 102, 106, 109-111, 179-182, 194-198, 203, 207, 221, 223
 LCD 13, 32
 liquid crystal 2, 5-7, 9-11, 13-16, 20, 32-36, 45, 48, 50, 53, 56, 66, 85, 131, 136, 144, 173, 175, 189, 214, 223
 local herringbone packing 75
 Lorentzian 49, 50
 lyotropic liquid crystals 2

M

macroscopic helical structure 6
 macroscopic polarization 34, 36
 maxwell wagner mode 89, 113, 147, 218
 mean-field model 165, 186
 memory devices 13
 memory effects 202
 mesophase 2, 20, 46, 50, 66, 68
 mirror symmetry 6
 mixture 3, 20, 21, 48, 50, 51, 131, 173-176, 182, 189-207, 214, 216, 218, 223
 molecular structure 67, 72, 132, 145, 174, 191, 214
 monoclinic unit cell 106
 mono-domained sample 103
 monolayer smectic 3
 multi-component mixture 21

N

nematic phase 3, 6, 63, 196
 nFmR 19, 96, 215, 220, 222
 nonchiral 12

non-collective relaxation 42
 non-debye material 40

O

oligomethylene spacers 20, 131, 152, 153, 156, 164, 167, 174, 180, 187, 214, 217, 219-222
 optical textures 70, 98, 100, 120, 122, 135, 158, 175, 177
 optimised geometry 72, 99, 106, 134, 156, 157, 178
 optimised molecular length 49, 76, 79, 111, 156, 180, 215
 orientational order parameter 187
 orthoconic aflc 14
 orthogonal hexatic phase 66
 orthogonal phase 11, 139, 147, 168
 orthogonal smectic phases 65-67, 89, 96, 216
 orthorhombic unit cell 66, 80

P

paraelectric sma* phase 30, 176, 217
 phase transition 2, 30, 31, 34, 43, 52, 79, 81, 83, 85, 89, 110, 113, 132, 139, 140, 144, 147, 184, 186, 201, 219
 pitch 9, 116, 120, 121, 123, 139, 174, 175, 178, 193
 pseudo-hexagonal 103, 216, 220

Q

QXRD 51

R

relaxation frequency 58, 118, 162, 165, 185
 relaxation modes 43, 171, 206, 218
 relaxation time 37, 39, 40, 68
 response time 8, 13, 14, 29, 52, 53, 55-57, 118-120, 132, 142, 143, 146, 147, 154, 167, 168, 187, 188, 205-207, 222, 223

room temperature ferroelectric mixture
149
rotational viscosity 14, 29, 57, 58, 116,
118, 139, 143-146, 165, 166, 168,
187, 188, 222

S

SmA 3-5, 11-14, 30, 31, 42, 43, 47-50,
52, 66, 69-71, 73-75, 77, 79, 80, 82,
84-86, 89, 96, 98, 99, 101, 110-115,
117, 121-123, 131, 139, 140, 147,
174, 176, 177, 179-184, 186, 188,
190-206, 210, 216-219, 221, 223
SmB 4, 5, 66, 69-71, 75, 77-89, 93, 96,
101, 102, 131, 216, 218, 220
SmC 7-14, 30, 31, 33, 34, 36, 42-45,
47-50, 52, 54-56, 64, 85, 93, 96-99,
101, 102, 105, 107, 109-115, 117-
123, 127, 130, 131, 133-136, 139-
141, 143-148, 150, 153, 155, 156,
158-168, 175-184, 186, 188-198,
200-207, 211, 216-221, 223
smc* α 11
smc* β 11
smc* γ phase 54, 217
SmF* 5, 10, 45, 97-99, 101-115, 117-
123, 125, 131, 156, 216, 218, 220
SmG* 5, 97-99, 101-108, 110, 112,
114, 122, 216, 220
SmI* 5, 10, 45, 102, 103, 105, 107,
114, 125
SmJ* 97-99, 101-108, 110, 112, 114,
122, 131, 216, 220
SmX* 69-71, 73-83, 85-88, 155, 158-
164, 167, 168, 216, 217
soft mode 42, 43, 84, 85, 89, 113, 115,
136, 139, 140, 147, 159, 183-186,
218, 219
SSFLC 10, 33, 34, 120, 123, 147
SSFLCD 144
synchrotron x-ray 20, 29, 46, 73, 89,
102, 220

T

textures 35, 70, 71, 98, 100-102, 120,
122, 135, 158, 175, 177, 193
thermogram 70, 192
thermotropic 2

tilted hexagonal phase 117, 118
translational order 3, 76, 171

V

viewing angle 13, 14, 16

X

x-ray diffraction 20, 29, 46-48, 57, 73,
89, 102, 103, 220
x-ray tilt 111, 182, 189, 194, 199, 204
XRD 70

Z

zig-zag' defect 12