

Index

A

Activation energy	156, 161, 255, 259
Abrikosov flux	18,229
Average permittivity	61, 135, 244

B

Bent-core liquid crystals	19, 22, 273
Biaxial nematic phase	6, 22, 133
Blue phase	16, 228

C

Calamitic liquid crystals	5, 105
Cholesteric or chiral nematic (N^*) phase	13, 231
Chiral Smectic A ($Sm-A^*$) phase	14
Chiral Smectic C ($Sm-C^*$) phase	14, 231
Critical behavior	32, 111, 115, 143,178, 209
Critical amplitude	116, 140, 181,187, 210
Critical exponents	34, 92, 115, 145,181, 210, 218
Cybotactic clusters	30, 133, 207, 272, 280

D

Dielectric anisotropy	62, 135, 244
Dielectric spectroscopy measurement	62, 255, 274
Differential Scanning Calorimetry	54, 238

E

Elastic constant	64, 149
Electro-optical measurement	68, 287

F

Freedericksz transition	66
-------------------------	----

G

Ginzburg criterion	91, 171
--------------------	---------

H

Hockey stick-shaped liquid crystals	31, 105, 202, 231
Hexatic Smectic phase	10, 231

L

Layer spacing	9, 26
Liquid crystals	2
Liquid crystals mixture	32, 53, 105
Lyotropic liquid crystals	4

M

McMillan's theory for smectic A phase	75
Maier-Saupe theory	71
McMillan ratio	78, 85, 118, 190, 220

N

Nematic (N) phase	5
Nematic phase of bent-core liquid crystals	29

O

- Optical birefringence measurement 55, 107, 175, 207
Optical transmission method 57, 107, 207
Orientational order parameter 6, 73, 157

P

- Phase diagram 105, 174, 205, 239
Phase transition 33, 78, 86

R

- Rotational viscosity measurement 67, 152
Reduced temperature 88, 120, 179, 211
Refractive index 55, 108,
Relaxation time 64, 67, 152
Relaxation frequency 274

S

- Smectic (Sm) phase 7, 22
Smectic A (Sm-A) phase 8
Smectic C (Sm-C) phase 9
Spontaneous polarization 71, 249
Smectic phases of bent-core liquid crystals 22
Splay elastic constant 64, 149
Static permittivity measurement 60, 135, 244

T

- Thin prism technique 56, 108, 207
Texture observation 53, 203, 232
Tricritical point 78, 85, 118, 185, 213, 215
TGB phases 18, 229
Torsional bulk viscosity 71, 253

V

- Vuks, Chandrasekhar and Madhusudana model 112

X

- X-ray diffraction study 23

compounds, mixing bent-core molecules with calamitic ones have resulted recently in successful extension of the mesophases toward lower temperatures [9]. In search for novel mesomorphic architectures a new bell-shaped compound 5-(9-decenyloxy-carbonyl)-1,3-phenylene bis(4-nonyloxy biphenyl) carboxylate (I) has been synthesized. Phase sequences and phase transition temperatures were determined via the temperature variation of characteristic textures observed and recorded by a CCD camera attached to the microscope. Occasionally planar oriented sandwich cells with ITO electrodes were also used to check the electro-optical responses. Figure 2. Phase diagram for binary mixtures of rod-like and bell-shaped molecules. Smectic Phases of Bent-Core Molecules Phase. The Nematic Phase of Bent-Core Molecules. Anisotropic physical properties of liquid crystals. I Alignment and alignment transition of bent core nematics Omaila Elamain, Gurumurthy Hegde and Lachezar Komitov, Appl. Phys. Lett. III Optically isotropic state in bent core nematic mixtures with rod like molecules induced by dc electric field Omaila Elamain, Gurumurthy Hegde, Katalin Fodor-Csorba and Lachezar Komitov, submitted for publication to Journal of APL, under revision. The relationship between chemical structure and mesophase behavior known in calamitic liquid crystals cannot be applied to bent mesogens. The question arises how the BC compounds have to be constructed to be able to form nematic phase. For example, the question arises if this combination can lead to polymorphism variants with "banana phases" as well as mesophases typical for calamitic compounds (N, SmA, SmC) which could be realized in binary mixtures of bent-core and calamitic compounds.8,9 Note that recently a twin molecule was reported where a bent-core unit is linked with a terminal-polar calamitic. Competition of calamitic and bent-core moieties in the liquid-crystalline dimers 1a-c. It is interesting to compare the N-I transition temperatures of corresponding calamitic monomers 4a-b (see Table 1) and those of the dimers 1a-b. A basic question is whether by the combination of a bent-core unit and a calamitic unit also typical phases of these structure classes occur. Based on fingerprint textures of the bent-core nematic (BCN) LC, the diffraction angle could be adjusted by an external electric field and continuously changed [18,19]. In addition, this type of grating can form in planar cells without special treatment and shows significant potential applications for manipulating light such as diffraction optics, laser displays, beam shaping or steering, switchable holograms, and adaptive microdevices. 32. M. R. Dodge, R. G. Petschek, C. Rosenblatt, M. E. Neubert, and M. E. Walsh, "Light scattering investigation above the nematic-smectic-A phase transition in binary mixtures of calamitic and bent-core mesogens," Phys. Rev. E 68(3), 031703 (2003). [CrossRef] [PubMed].