



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)


Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/4729>

Title:	Imine-based highly polar achiral unsymmetrical four-ring bent shaped liquid crystals: Design, synthesis and characterization
Authors:	Jain, Varsha (/jspui/browse?type=author&value=Jain%2C+Varsha) Mohiuddin, Golam (/jspui/browse?type=author&value=Mohiuddin%2C+Golam) Jain, Ajay (/jspui/browse?type=author&value=Jain%2C+Ajay) Gupta, Santosh Prasad (/jspui/browse?type=author&value=Gupta%2C+Santosh+Prasad) Pal, Santanu Kumar (/jspui/browse?type=author&value=Pal%2C+Santanu+Kumar)
Keywords:	Bent-core liquid crystals Polar Nematic phase
Issue Date:	2022
Publisher:	Elsevier
Citation:	Journal of Molecular Structure, 1267(1), 133496
Abstract:	Herein, we have designed and synthesized a new homologous series of polar achiral bent-shaped compounds incorporating two imines and one ester linkage in the molecular framework. It has been observed that a stable and significantly longer range of nematic phase was achieved for compound A5. The homologue A6 exhibited only nematic cybotactic and smectic A mesophase. The intermediate homologue A7 and A8 displayed nematic cybotactic as well as smectic A and an unknown smectic X phase. Compounds A10 to A14, bearing the longer alkyl chains, showed the ordered smectic A and smectic X phase. In the case of smectic A and smectic X phase limits, the number of correlated units (ξ /dSAXS) was found to be around 20, while in the case of nematics, it ranged from 1-3. However, this value has been recorded up to nine correlated units in the case of cybotactic nematic ordering. All of these materials have a significantly high dipole moment of around ~10 Debye computed via Density Functional Theory calculations, which is essential for high dielectric materials and furthermore can stabilize the highly anticipated ferroelectric nematic phase.
Description:	Only IISERM authors are available in the record
URI:	https://doi.org/10.1016/j.molstruc.2022.133496 (https://doi.org/10.1016/j.molstruc.2022.133496) http://hdl.handle.net/123456789/4729 (http://hdl.handle.net/123456789/4729)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need To Add...Full Text_ PDF..pdf (/jspui/bitstream/123456789/4729/1/Need%20To%20Add%e2%80%a6Full%20Text_ PDF..pdf)		15.36 kB	Adobe PDF	View/Open (/jspui/bitstream/123456789/4729/1/Need%20To%20Add%e2%80%a6Full%20Text_ PDF..pdf)

Show full item record (</jspui/handle/123456789/4729?mode=full>)

 (</jspui/handle/123456789/4729/statistics>)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.