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Liquid crystalline behaviors of H-bonded dimer formed from the semi-phasmidic type carboxylic acid* SEUNG-YEON JEONG, SHIN-WOONG KANG, SATYENDRA KUMAR, Department of Physics, Kent State University, VEENA PRASAD, SANJAY VARSHNEY, Centre for Liquid Crystal Research, Bangalore, INDIA — Liquid crystalline properties of acid-functionalized semi-phasmidic azo-compound were characterized by DSC, polarizing optical microscopy, and electro-optical measurements. The results suggested that this unconventional mesogenic dimer has a non-typical effective “bend” angle where two monomers form the hydrogen bond. To confirm this we performed electro-optical experiments in the nematic phase with strong external electric and magnetic fields. Cells with different surface geometries and treatments we used. The results reveal a behavior that is very distinct from that expected of conventional linear mesogenic dimers formed by a hydrogen bonding. The results confirm negative values of dielectric and diamagnetic anisotropies. Our observations indicate that “bent-core-like” dimeric mesogens are formed through an unconventional inter-molecular association.
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