

Abstract Submitted
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2D Smectic of a T-shaped Liquid Crystal Mesogen¹ D. CHEN, D.A. COLEMAN, C. ZHU, N. CHATTHAM, Department of Physics and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309-0390, USA, X. CHENG, C. TSCHERSKE, Institute of Organic Chemistry, Martin-Luther-University, D-06108, Halle, Germany, J.E. MACLENNAN, M.A. GLASER, N.A. CLARK, Department of Physics and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309-0390, USA — We report structural studies of a T-shaped mesogenic molecule. Upon cooling from the isotropic, the molecules first form a lamellar phase, with the molecular tails organized into sheets and the head groups isotropic in the plane of the lamellae. On further cooling, the head groups self-assemble into phases with 2D nematic and smectic order. The 2D smectic has only short-range positional correlations, with dislocations in the layering. The development of the 2D smectic reduces the long-range correlations of the fundamental lamellar structure, with the system evolving into a biaxial nematic with the T-shaped molecules ordered in three dimensions but with only short-range correlations.

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