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**Langmuir films of chiral lipid molecules and Pattern Formation .**

PREM BASNET, ELIZABETH MANN, Dept. of Physics, Kent State University, Kent, OH 44242, SAHRAOUI CHAIEB, Department Mechanical Science and Engineering, Bioengineering and the Beckman Institute University of Illinois at Urbana-Champaign, Urbana IL, 6180 — Langmuir films of 1,2-bis(10,12 Tricosadiynoyl)-sn-Glycero-3-Phosphoethanolamine form spiral and target patterns when compressed between two movable barriers in a Langmuir trough above 30<sup>0</sup>C, up to the chain-melting transition at ~37<sup>0</sup>C. The critical pressure, at which spirals appear, increases with temperature. The patterns themselves also depend on temperature, with single-armed spirals with many defects forming near 30<sup>0</sup>C and defect-free target patterns at higher temperatures. The mechanism of spiral formation could be a competition among elasticity, chirality, and the boundary conditions at the core of the domains. Optical anisotropy and the growth rate of internal structures test this suggested mechanism. .

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