

Abstract Submitted
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Rotation in magnetic fields yielding near-single crystal quality lamellar mesophases¹ PAWEL MAJEWSKI, CHINEDUM OSUJI, Yale University — We present a novel method to obtain spatially ordered lamellar surfactant mesophases with the use of magnetic fields. The alignment is obtained by continuous rotation of the sample in the presence of the field while cooling through the disorder-order transition of the system. This facile approach allows one to overcome the degeneracy that is inherent in the alignment of these materials by a uniaxial field due to the lack of interfacial curvature combined with the negative diamagnetic anisotropy of the mesophase. We report on the influence of the field intensity, sample cooling rate and the rotation speed on the degree of alignment of a model non-ionic lyotropic system. Further, we demonstrate the use of the aligned mesophase as a template for the synthesis of nanomaterials with long-range order.

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