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**Daniel Phillips\*** ([phillips@math.purdue.edu](mailto:phillips@math.purdue.edu)), Department of Mathematics, Purdue University, 150 North University Street, West Lafayette, IN 47907. *Smectic Energies and Existence Results for Liquid Crystals.*

We examine the problem of minimizing the Chen-Lubensky liquid crystal energy. This is a Ginzburg-Landau type energy where the smectic layering is described by a complex valued order parameter. In the case that the energy has a smectic C ground state we show that anchoring conditions on the smectic layering at the boundary are needed in order for minimizers to exist. We further give examples of strong and weak anchoring conditions that suffice. (Received January 26, 2010)