

Abstract Submitted
for the OSF05 Meeting of
The American Physical Society

On the range of interlayer interactions in smectic-C liquid crystals

MEHDI BAGHERI-HAMANEH, PHILIP TAYLOR, Case Western Reserve University — The origin of the long-range interlayer interactions responsible for the variety of phases exhibited by ferroelectric liquid crystals is discussed. It is shown that the anisotropy of the elastic constants that govern layer bending in smectic-*C* liquid crystals results in an effective long-range interaction between the smectic layers. The nature of this interaction is such as to favor a mutual alignment of the *c*-directors of the layers in either a parallel or antiparallel orientation. The effects of size of the sample, boundary conditions, and parameters such as layer compression modulus, and elastic constants, on the strength and distance-dependence of the interactions will be discussed.

Mehdi Bagheri-Hamaneh
Case Western Reserve University

Date submitted: 23 Sep 2005

Electronic form version 1.4