Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Liquid crystals alignments on heterogeneous surfaces JONES TSZ-KAI WAN, OPHELIA TSUI, PING SHENG, HOI-SING KWOK, The Hong Kong University of Science and Technology — The effects of a nonuniform surface on the director field of a nematic liquid crystal (LC) is studied by computer simulations. The nonuniform surface is made by mixing a homeotropic anchoring domain and a planar anchoring domain with different area fractions. For each area fraction, a dimensionless parameter is derived to simultaneously study the geometric and the material effects on the director field. In the limit of weak anchoring, the average pretilt angle can be expressed analytically in terms of the area fractions of the anchoring domains. When in the strong anchoring limit the average pretilt angle varies with the area fractions almost linearly and is independent of the geometric and material parameters. The results are confirmed by computer simulations.

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Date submitted: 01 Dec 2004 Electronic form version 1.4