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Modeling spreading of liquid crystal drops LINDA CUMMINGS, TE-SHENG LIN, LOU KONDIC, New Jersey Institute of Technology — A series of experiments involving spreading of nematic liquid crystal drops on solid substrates[1] have uncovered a surprisingly rich variety of behavior. The drops can either be arrested in their spreading, spread stably, or destabilize with or without spreading. We propose a relatively simple model which includes elastic contribution to the free energy as well as the finite anchoring energy due to the preferred orientation of the director field at the liquid/gas and liquid/solid interfaces. We find that the main features of the experiments, including spreading and instability regimes, can be in qualitative manner described by the proposed model.

[1]Poulard and Cazabat, Langmuir, 6270, vol. 21 (2005)

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