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A dynamical approach for liquid crystal simulations JONES WAN, Department of Physics, The Chinese University of Hong Kong — A novel, efficient simulation scheme is proposed to determine the liquid crystal configurations under complex physical environments. In this simulation scheme, the liquid crystal elastic energy, the electrostatic interaction, and the surface anchoring effect are calculated by a dynamical approach, which is analogous to molecular dynamics simulation. As a result, various techniques established for molecular dynamics are readily adopted to the proposed scheme. We demonstrate the new method by calculating the director field of a liquid crystal under the effects of an external electric field and patchy pattens.

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