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A study of electric field response by liquid crystal molecular dynamics algorith JONES TSZ-KAI WAN, Department of Physics, The Chinese University of Hong Kong — The response to an electric field of a liquid crystal cell is studied by the newly developed liquid crystal molecular dynamics (LCMD) algorithm. In contrast to the conventional conjugate gradient (CG) approach, which can only simulate the initial and final configurations of a LC cell under an applied electric field, the LCMD scheme can simulate intermediate configuration of the LC molecules. In addition, the electric field distribution within the LC cell at each time step is calculated directly. In this work, three cases will be presented: (i) LC molecules with spatial variation of polar angle, (ii) LC molecules with spatial variation of azimuthal angle and (iii) LC cells with nano-scale patterned substrates. The optical properties of the intermediate LC cell will also be presented.

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