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Field-induced stress response of nematics encapsulated in microsized volumes

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Abstract

The peculiarities in the dynamics of the director reorientation in confined nematic liquid crystals (LCs) under the influence of a strong electric field \mathbf{E} have been investigated theoretically based on the hydrodynamic theory including the director motion with appropriate boundary and initial conditions. Analysis of the numerical results for the turn-on process, when a strong electric field \mathbf{E} is suddenly applied in the positive sense, provides an evidence for the appearance of the spatially periodic patterns in confined LC film.

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