SOME MOVING BOUNDARY PROBLEMS IN THE CONTINUUM THEORY OF NEMATIC LIQUID CRYSTALS

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Analytical solutions are considered for the equations of the continuum theory of nematic liquid crystals with small Ericksen number disturbed by the motion of thin plates. The resultant equations are a system of nonlinear partial differential equations to describe the spatial orientation of the director field in the one elastic constant approximation. Analytical bounding solutions based on maximum and minimum principles of differential equations are compared with Picard iterated solutions of a system of nonlinear integral equations. Moving boundary problems composed of ellipsoidal colloidal droplets which grow at the expense of a nematic phase are also discussed.