

Abstract Submitted
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Globally Coupled Ginzburg Landau Equations for Electroconvection in Nematic Liquid Crystals¹ IULIANA OPREA, GERHARD DAN-
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CO 80523 — For certain materials, the electrohydrodynamic instability leading to
convection in nematic liquid crystals is a Hopf bifurcation with four critical wave
numbers. As a consequence, the linearized problem admits solutions in the form
of two pairs of oblique counterpropagating travelling rolls. To describe this insta-
bility in a weakly nonlinear analysis, a system of four globally coupled Ginzburg
Landau equations is introduced, whose coefficients can be computed from the weak
electrolyte model of Kramer and Treiber. Some aspects of the solution behaviour
of this system are discussed and related to recent experiments conducted at Kent
State University for the nematic I52.

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