

Abstract Submitted
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Demodulation of Electroconvective patterns in Nematic Liquid Crystals¹ GYANU ACHARYA, Kent State University, JOSHUA LADD, Colorado State University, J.T. GLEESON, Kent State University, IULIANA OPREA, GERHARD DANGELMAYR, Colorado State University — We present the results of pattern formation in electroconvection of liquid crystal 4-ethyl-2-fluoro-4'-[2-(trans-4-pentylclohexyl)-ethyl]biphenyl(I52) with planar alignment. The pattern was a function of three control parameters: applied ac voltage, driving frequency and electrical conductivity. Over certain range of conductivity, the initial transition (supercritical Hopf bifurcation) leads to right and left traveling zig and zag rolls. For the demodulation of images, Fourier transform (FT) of a time series of images were taken with the sampling rate greater than the Hopf frequency. To demodulate zig/zag rolls, the region around \mathbf{k}_n (the wave vector of a given mode) of interest at one quarter of the FT was taken setting all FTs zero. Taking the index of the maximum FT value at that region as the reference point, again this region was separated into four parts and redistributed at four corners. The absolute value of the inverse FT of the modified function gives the required envelope.

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