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Evolution of Power and Structure in an Electroconvective Transition MARCUS DAUM, ZRINKA GREGURIĆ FERENČEK, JOHN CRESSMAN, School of Physics, Astronomy, and Computational Sciences, George Mason University — Electroconvecting liquid crystals support a wide range of states which are characterized by the system's ability to create, support, and annihilate structure. Through the creation of electroconvective rolls and defects, the liquid crystal sample is able to absorb and dissipate more energy. By simultaneously acquiring optical and electrical data we are able to accurately compare structure of the sample and injected electrical power. Here we report on spatiotemporal interactions as we abruptly force the sample from an initial state to defect turbulence. By observing the power and the structure of the sample, we have identified qualitatively different transient behaviors based on initial structure within the sample. Using these characterizations, we are able to draw parallels between structural dynamics and large fluctuations in power.

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