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Multistable dynamics in electroconvecting liquid crystals ZRINKA GREGURIC FERENCEK, JOHN CRESSMAN, George Mason University — Nonlinear driven system can exhibit a diverse range of dynamics, from highly ordered to chaotic. These systems are ubiquitous, from atmospheric phenomena to brain function. Here we study such dynamics in electroconvecting liquid crystals. There applied electric fields create structured roll-like patterns that support the creation, evolution, and annihilation of defects in the rolls. By using a time scale separation algorithm based on diffusion map delay coordinates we have been able to identify a small number of multistable dynamics in this system. We utilize perturbations to control or steer the system between these different dynamics. We will discuss how this method of identification and interaction can be utilized to better interact with a wide range of dynamic systems.

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