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Rigorous numerics for some pattern formation problems

This talk is about applications of recently developed techniques from rigorous computational dynamics to pattern formation phenomena. We discuss the differences and similarities in the analytic setup of three examples, namely radially symmetric spots in the Swift-Hohenberg model, transitions between hexagonal spots and stripe patterns, and phase separation in diblock copolymers. These examples, which entail both ODEs and PDEs, also showcase the interplay between rigorous numerical methods and asymptotic techniques.