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The spatiotemporal dynamics of Rho-GEF-H1-Myosin reaction-diffusion system

In this presentation, I explore the spatiotemporal dynamics of the Rho-GEF-H1-Myosin signaling network through a reaction-diffusion model. I analyze temporal and spatial behaviors to uncover how feedback mechanisms and diffusion influence the system dynamics. By performing bifurcation and phase plane analyses, I identify stable, oscillatory, and bistable regimes. Numerical simulations reveal how spatial variations influence dynamic behaviors in these regimes, including providing insights into pattern formation.