

Coherent structures in reaction-diffusion systems

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- Reaction diffusion Modeling - Regularity. Equilibria. Hopf bifurcation. Turing bifurcation.
- Normal forms. Stuart-Landau and Ginzburg-Landau equations. Subcritical Turing bifurcation. Turing-Hopf bifurcation.
- Swift-Hohenberg amplitude equation. Singularly perturbed reaction diffusion systems.
- Localized patterns. Snaking bifurcation.
- Cross-diffusion modeling. Regularity. Cross-diffusion induced Turing bifurcation.
- Cross diffusion induced wave instability. Period doubling. Transition to spatio-temporal chaos.