Turing Patterns in a Reaction-Diffusion System

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Abstract: We have further investigated Turing patterns in a reaction-diffusion system by theoretical analysis and numerical simulations. Simple Turing patterns and complex superlattice structures are observed. We find that the shape and type of Turing patterns depend on dynamical parameters and external periodic forcing, and is independent of effective diffusivity rate σ in the Lengyel-Epstein model. Our numerical results provide additional insight into understanding the mechanism of development of Turing patterns and predicting new pattern formations.

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