明治大学先端数理科学インスティテュート

MIMS現象数理カフェセミナー

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場所：中野キャンパス8階　談話室

Propagation Phenomena of Bistable Reaction-Diffusion Equations in Spatially Periodic Media

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Abstract: This paper is concerned with the existence and qualitative properties of pulsating fronts for spatially periodic reaction-diffusion equations with bistable nonlinearities. Such an equation arises in modeling a variety of physical and biological phenomena. We focus especially on the influence of the spatial period and, under various assumptions on the reaction terms, we show several existence results when the spatial period is small or large. We also characterize the sign of the front speeds and show the global exponential stability and uniqueness of pulsating fronts with nonzero speed. Furthermore, we give an example where there is no pulsating front with nonzero speed but some non-stationary waves appear. This is a joint work with François Hamel (Aix-Marseille University) and Xiao-Qiang Zhao (Memorial University of Newfoundland).

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