

Double zero degeneracy in the presence of 0:1:2 resonance

Takashi Sakamoto
Meiji University

We deal with a reaction-diffusion system with spatially nonlocal effect under Neumann boundary conditions. The system provides triply degenerate points for two spatially non-uniform modes and uniform one (zero mode). We focus our attention on the 0:1:2-mode interaction in the reaction-diffusion system. At the such degenerate point, the reduced equation on the center manifold is obtained. The normal form on the center manifold has double zero degeneracy (Bogdanov-Takens type degeneracy) as the secondary bifurcation point. We analyze the bifurcation structures around them. We also present the chaotic behavior numerically. These results are based on the joint works with Toshiyuki Ogawa.