STABILITY OF THE TRAVELING WAVE SOLUTION FOR A REACTION DIFFUSION SYSTEM WITH STRONG DECAY

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Abstract This talk is concerned with the spatial decaying estimates and spectral stability of traveling wave solution for an autocatalytic chemical reaction system with decay term $u_t = \delta u_{xx} - uv$, $v_t = v_{xx} + uv - Kv^q$, $q > 1$. By Centre Manifold Theorem, we get the algebraic decay rate of traveling wave solutions as $z \to -\infty$. By virtue of spectral analysis, energy estimate method, Evans function method and numerical analysis, we obtain the spectral stability of the traveling wave solution with noncritical speed in the exponentially weighted space. This work is cooperated with Yaping Wu.