Title: “On the spectral stability of traveling fronts for reaction Diffusion-degenerate equations.”

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Abstract

Motivated by biological applications (e.g. spatial ecology, bacterial aggregation), several reaction-diffusion models consider density-dependent diffusion coefficients which, in addition, are degenerate in one (or more) equilibrium points of the reaction. These degenerate diffusions describe, for example, the avoidance of crowded areas by individuals of certain biological populations. In this talk I present new results and techniques in the study of spectral stability of traveling fronts for reaction-diffusion equations with degenerate diffusion. I will explain the two main ideas to control, on one hand, the essential spectrum and, on the other hand, the point spectrum of the linearized operator around the wave. Both techniques are designed to overcome the degeneracy of the diffusion at the end point.

This is joint work with J. Francisco Leyva.