

First Joint Meeting Brazil Italy of Mathematics

Special Session: Name of the session

Rio de Janeiro, August 29 - September 02, 2016

Title: Spreading speed for reaction-diffusion equations in non-homogeneous media

Authors: Henri Berestycki

Abstract: In this talk I report on joint work with Grgoire Nadin. I will present general results about the spreading speed for Fisher-KPP type reaction-diffusion equations. We consider initial data with compact support and the (directional) spreading speed is roughly the velocity at which level sets move in every direction. This speed is known in the homogeneous and periodic cases. The general non-homogeneous framework, when the equation depends on space and time variables, is quite involved. I will show that this speed is linked to new notions of generalized eigenvalues of linear elliptic (non-homogenous) operators in unbounded domains. This allows us to derive general bounds and to determine the spreading speed for several new frameworks.