Dr. Vincent Calvez

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I have been working on mathematical models for biology since my undergraduate studies. I did my PhD under the supervision of Benoît Perthame in Paris about models and analysis for collective motion of cells. I studied concentration waves of bacteria in a micro-channel by means of a mesoscopic model. More recently, I moved to theoretical eco-evolutionary biology, e.g. dispersal evolution, propagation of invasive species, and evolution of ageing. I am the principal investigator of the ERC starting grant project MESOPROBIO.

Curriculum Vitae

2016 EMS Prize

2015 Habilitation à Diriger des Recherches (HDR), ENS de Lyon

2014 CNRS Bronze medal

2009 Member of the project team Inria NUMED at ENS de Lyon

2008 CNRS Young Researcher at ENS de Lyon (France)

2007 PhD in Mathematics, Univ. of Paris 6 and ENS (France)

2001 Interdisciplinary program in math and biology, Ecole Normale

Supérieure (ENS), Paris (France)

Title: Mesoscopic models for propagation in biology

Abstract: I will review recent results of modeling and analysis of biological invasions by means of kinetic transport equations and reaction-diffusion equations. I will focus on two cases studies for which it is crucial to disentangle the structure of the wave in order to describe correctly the propagation. This leads to new and challenging mathematical problems, including wave acceleration.

The first case study is about traveling waves of chemotactic bacteria. The second case study is about the evolution of dispersion during a population range expansion.