

**PhD position in applied mathematics at Le Havre Normandie
University :**

**Spatial propagation for non-autonomous and non local
reaction-diffusion systems**

The aim of this PhD project is to study spatial propagation phenomena for reaction-diffusion systems with explicit time dependence and non local diffusion processes modelling biological invasions.

The study of biological invasions is an important and a major issue in complex systems in biology and population ecology. The recent developments in PDE analysis and in particular for reaction-diffusion equations and systems may allow to have a better understanding of such phenomena.

The objective of this PhD program is to study equations and systems of equations modelling spatial biological invasion. This will be achieved by using reaction-diffusion models incorporating both non local diffusion processes to handle to the spatial motion of the populations as well as an explicit temporal dependence to take of seasonality effects.

This study will be devoted to the study of generalized travelling wave solutions, asymptotic speed of spread (or spreading speed property) and of the description of the large time behaviour of the problems that will mainly consist in non local Fisher-KPP like equation and predator-prey interactions.

This PhD program will be accomplished at the Applied Mathematics laboratory of Le Havre, LMAH EA 3821 - FR CNRS 3335, at the University of Le Havre Normandie under the supervision of Arnaud Ducrot. This PhD project is funded by Normandie Region and will start in September 2019.

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