

# Séminaire EDP de l'ERC ReaDi

*Equations de réaction-diffusion, propagation et modélisation*  
Henri Berestycki

Les membres de l'ERC ReaDi sont heureux d'annoncer la deuxième saison du séminaire "Equations aux Dérivées Partielles" qui se tiendront à l'École des Hautes Etudes en Sciences Sociales, à compter du mardi 26 Janvier. Retrouvez toutes les informations sur le séminaire : <http://readi-project.weebly.com/pde-seminar.html>. Vous trouverez ci-dessous une liste d'intervenants ayant déjà confirmé leur participation.

- **Filippo Santambrogio**, Laboratoire de Mathématiques d'Orsay, Université Paris-Sud, Orsay
- **Gregory Faye**, Institut de Mathématiques de Toulouse
- **Émeric Bouin**, Ceremade, Université Paris-Dauphine
- **Laurent Desvillettes**, Université Paris Diderot
- **Pierre Cardaliaguet**, Ceremade, Université Paris-Dauphine
- **Michael Goldman**, Université Paris Diderot, LJLL
- **Thomas Giletti**, Institut Elie Cartan de Lorraine
- **Danielle Hilhorst**, Laboratoire de Mathématiques d'Orsay, Université Paris-Sud, Orsay
- **Vincent Millot**, Université Paris Diderot, LJLL
- **Nikolai Nadirashvili**, Université d'Aix-Marseille 1 - LATP
- **Yannick Sire**, Department of Mathematics, John Hopkins University, Baltimore, Maryland

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Première séance : **mardi 26 janvier à 11h**  
Salle 466, EHESS, 190-198 avenue de France, 75013 - Paris

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**Filippo Santambrogio**, *Laboratoire de Mathématiques d'Orsay, Université Paris-Sud, Orsay*

Title: **Variational Mean Field Games**

Abstract: I will give a brief introduction to the the emerging topic of Mean Field Games, introduced by J-M Lasry and P-L Lions some years ago as a model for the equilibrium of a population of agents each selecting his own optimal paths, according to a criterion which involves the density of the other agents, in the form of a congestion charge. This gives rise to a coupled system of PDEs, a continuity equation where the density moves according to the gradient of a value function, and a Hamilton-Jacobi equation solved by the value function, where the density also appears. I will mainly deal with the case where this equilibrium problem may be seen as optimality conditions of a convex variational problem, and give the main results in this framework. In particular, I will present some easy but recent regularity results, as well as the connection with optimal transport theory (in particular the dynamical formulation given by J-D Benamou and Y Brenier for numerical purposes). At the end of the talk I will present an interesting variant, where the congestion cost is replaced by a capacity constraint.

Organisateurs : Andrea Tellini et Alessandro Zilio



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