Séminaires EDP de l'ERC ReaDi

Equations de réaction-diffusion, propogation et modélisation

Henri Berestycki

Les membres du projet ERC ReaDi sont heureux d'annoncer le lancement de la deuxième saison du cycle de séminaires autour des Equations aux Dérivées Partielles qui se tiendront à l'Ecole des Hautes Etudes en Sciences Sociales à commencer du 26 Janvier.

Retrouvez toutes les informations sur le séminaire : http://readi-project.weebly.com/pde-seminar.html (Attention : certaines dates ont été modifiées).

Treizième séance : **jeudi 12 mai à 14h00**
Salle 466, EHESS, 190-198 avenue de France, 75013 - Paris

Scott Armstrong, *CEREMADE Université Paris-Dauphine*

Titre : **A quantitative theory of stochastic homogenization**

Résumé : Stochastic homogenization involves the study of solutions of partial differential equations with random coefficients, which are assumed to satisfy a "mixing" condition, for instance, an independence assumption of some sort. One typically wants information about the behavior of the solutions on very large scales, so that the ("microscopic") length scale of the correlations of the random field is comparatively small. In the asymptotic limit, one expects to see that the solutions behave like those of a constant-coefficient, deterministic equation. In this talk, we consider uniformly elliptic equations in divergence form, which has applications to the study of diffusions in random environments and effective properties of composite materials. Our interest is in obtaining quantitative results (e.g., error estimates in homogenization) and to understand the solutions on every length scale down to the microscopic scales. In joint work with Tuomo Kuusi and Jean-Christophe Mourrat, we introduce a new method for analyzing this problem, based on a higher-order regularity theory for equations with random coefficients, which, by a bootstrap argument, accelerates the exponent representing the scaling of the error the all the way to the optimal exponent given by the scaling of the central limit theorem.

Organisateurs : Andrea Tellini et Alessandro Zilio

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