

## **Probabilistic Methods in PDEs and SPDEs**

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### **Abstract**

Asymptotic properties of semi-linear partial differential equations, such as explosion in finite time and existence of solutions defined globally in time, is a current and very active field of research in Mathematics. Moreover, existence and regularity results of solutions of stochastic partial differential equations perturbed by Gaussian noises more general than Brownian motion has been intensively studied in recent years. Probabilistic methods have been shown to be a powerful tool to understand these properties, both in PDEs and SPDEs, including reaction-diffusion equations with non-autonomous generators, or generators of anomalous diffusions and systems of semi-linear PDEs and SPDEs. The aim of this session is to report several recent developments in these fields, where the probabilistic methods are crucial.

### **Conferences:**

*Blow up of fractional reaction-diffusion systems with and without convection terms*

Aroldo Pérez Pérez (Universidad Juárez Autónoma de Tabasco, MX)

*Survival of semilinear equations related to certain measure-valued Markov branching processes*

Ekaterina Todorova Kolkovska, CIMAT, Mexico

*Pointwise eigenfunction estimates and mean  $L_p$ -norm blowup of a system of semilinear SPDEs with symmetric Lévy generators*

Eugenio Guerrero (Universidad del Caribe, MX)

*Large time behavior of semilinear SPDEs driven by a Brownian Motion*

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