

INSTITUT D'ETUDES SCIENTIFIQUES DE CARGESE

Cargèse International Workshop 2018

Numerical Methods for Multiscale PDEs

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Web site

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This workshop is funded by the ANR project Moonrise, the Inria ANTIpODE team and the ENS-Rennes MUNIQ project, all essentially dealing with numerical methods for multi-scale PDES.

This meeting is organized by the Universities of Rennes and Toulouse and its aim is to bring together international experts and young researchers working on numerical methods for the resolution of multi-scale evolution problems involving stiff dissipations (phase transitions) or high oscillations. The target equations cover a broad spectrum: Schrödinger equations, kinetic equations with or without collisions (Boltzmann, Vlasov-Poisson or Vlasov-Maxwell type), but all including several small and large scales.

Recently, new numerical methods have been developed to bypass the difficulties induced by the presence of several scales. In particular, they avoid the huge computational cost of the standard methods in the stiff regime, while providing a consistent approximation of the limit problems.

However, some open problems still remain when dealing with complex and realistic models. The aim of this workshop is therefore to present emerging techniques.

Main topics will include

Numerical methods, multiscale PDEs, Hamiltonian systems, kinetic equations, Schrödinger equation

Eminent scientists in the field will animate the workshop. These include:

Assyr Abdulle (EPFL, CH), Mihai Bostan (Univ Aix-Marseille FR), Martin Campos Pinto (Univ Paris 6 FR), Fernando Casas, University of Jaume I ES), Annaïs Crestetto (Univ of Nantes FR), Bruno Despres (Univ Paris 6 FR), Giacomo Dimarco (Univ of Ferrara IT), Francis Filbet (Univ Toulouse 3 FR), Shi Jin (Univ of Wisconsin Madison US), Frédéric Lagoutière (Univ Claude Bernard Lyon 1, FR), Christian Lubich (Univ Tübingen DE), Maurizio Ottaviani (CEA Cadarache FR), Lorenzo Pareschi (Univ of Ferrara IT), Frédéric Rousset (Univ Paris-Sud FR), Giovanni Russo (Univ Catania IT), Nicolas Seguin (Univ of Rennes I FR), Katharina Schratz (Karlsruhe Inst of Technology DE), Yifa Tang (Chinese Academy of Sciences Beijing CH), Xiaofei Zhao, INRIA-Rennes FR)

Organization and Scientific Committee

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Web site

https://www.math.univ-toulouse.fr/~mhvignal/Cargese/Cargese_Worshop.html