

Workshop on

“Aggregation-Diffusion PDEs: Variational Principles, Nonlocality and Systems”

Anacapri, 10-14 July, 2017



Scientific Topic: This workshop is aimed at advancing the research in the field of Partial Differential Equations (PDEs) of evolution type. They constitute the basic language in which most of the laws in physics or engineering can be written and one of the most important mathematical modelling tools in life and socio-economical sciences. The main focus of this workshop lays in the key role played by ‘*non-locality*’ in several applications. Illustrative examples are swarming dynamics in life sciences, Levy processes in mathematical finance, synchronization phenomena in quantum physics, emergent behavior in social sciences (for example in the movement of crowds or in the formation of opinions in a community), and granular media in engineering. The mathematical analysis of PDEs is contributing to the advances in this framework with deep and modern theories, often at the interface with calculus of variations, geometric analysis, and probability. This workshop tries to touch most of them, with a special focus on multi-scale modelling, collective behavior phenomena, multi-species modelling, and energy/entropy driven structures, with particular attention on the design of numerical schemes and their simulation in the applications.

Invited speakers

A. Arnold (TU-Wien, Austria)
 J. Bedrossian (Univ. Maryland, USA)
 S. Bobkov (Univ. Minnesota, USA)
 M. Bonforte (UAM, Spain)
 M. Burger (Univ. Münster, Germany)
 D. Bourne (Univ. Dundee, UK)
 J. A. Cañizo (Univ. Birmingham, UK)
 E. Carlen (Rutgers Univ., USA)
 M. Carvalho (Univ. Lisbon, Portugal)
 M. Cicalese (Univ. Munich, Germany)
 K. Craig (UCSB, USA)
 A. Einav (Univ. Cambridge, UK)
 S. Fagioli (Univ. dell'Aquila, ITALY)
 A. Figalli (ETH Zurich, Switzerland)
 F. Feo (Univ. “Parthenope”, ITALY)
 G. Grillo (Pol. Milano, Italy)
 M. Iacobelli (Univ. Cambridge, UK)
 S. Lisini (Univ. Pavia, Italy)
 F. Maggi (ICTP, Italy)
 P. Marcati (Univ. dell'Aquila)
 E. Mainini (Univ. Genova, Italy)
 S. Odintsov (ICREA, Spain)
 F. Quirós (UAM, Spain)
 M. D. Rosini (Univ. M. Curie-Sklodowska, Poland)
 L. Scardia (Univ. Bath, UK)
 A. Stevens (Univ. Münster, Germany)
 G. Toscani (Univ. Pavia, Italy)
 S. Ulusoy (Am. Univ. Ras Al Kh., U.A. Emirates)

Conference Centre

The talks will take place at the Centro Multimediale “Mario Cacace” of the Comune di Anacapri.

Organizers

J. A. Carrillo, Imperial College London, UK
 M. Di Francesco, Università dell'Aquila, Italy
 S. Capozziello, Università “Federico II”, Italy
 M. De Laurentis, University of Frankfurt, Germany
 B. Volzone, Università “Parthenope”, Italy

Website

<http://wwwf.imperial.ac.uk/~jcarrill/Capri/anacapri2.html>



Comune di Anacapri



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