

INSTITUT D'ETUDES SCIENTIFIQUES DE CARGÈSE

Cargèse International School 2017

Microswimmers – From Single Particle Motion to Collective Behaviour

September 18 - 22, 2017

Web site

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Research Center Jülich, Allemagne

Autonomous microswimmers are a fascinating class of soft matter systems that exhibit an intriguing mechanics and dynamics on the level of individual swimmers and novel emergent collective behavior. Their study combines the biophysics of self-propulsion via motor proteins, artificial propulsion mechanisms, swimming strategies at low Reynolds numbers, the hydrodynamic interaction of swimmers, and the collective motion of large numbers of agents. This Summer School is aimed at students at the PhD level, but also at Master's students and postdocs, from all fields related to microswimmers, in particular physics, biology, chemistry, material sciences, and engineering. The school will provide a broad overview of the field, with an emphasis on interdisciplinary aspects.

Scientific topics

- statistical mechanics of non-equilibrium systems
- biological propulsion mechanisms
- navigation strategies
- active colloids
- nanomachines
- hydrodynamic interactions
- artificial propulsion mechanisms
- synchronization
- active nematics
- boundaries and external fields

Lectures

Andreas Bausch (TU Munich), Avraham Be'er (Ben-Gurion Univ. Negev), Frank Cichos (Univ. Leipzig), Pietro Cicutta (Univ. Cambridge), Eric Clément (UPMC-ESPCI Paris), Cécile Cottin-Bizonne (Univ. Lyon), Carine Douarche (Univ. Paris-Sud), Roseanne Ford (Univ. Pennsylvania), Gerhard Gompper (FZ Jülich), Jeffrey S. Guasto (Tufts Univ.) Stephan Herminghaus (MPI Göttingen), Christian Holm (Univ. Stuttgart), Gilgueng Hwang (Univ. Paris-Sud), Jean-Francois Joanny (Inst. Curie Paris), Anke Lindner (PMMH-ESPCI Paris), Vincent Martinez (Univ. Edinburgh), Ignacio Pagonabarraga (Univ. Barcelona), Timothy Pedley (Univ. Cambridge), Salima Rafai (Univ. Grenoble), Oliver Schmidt (IFW Dresden), Ayusman Sen (Pen. State Univ.), Julien Tailleur (Univ. Diderot-CNRS Paris).

Seminars

Clemens Bechinger (Univ. Stuttgart), Knut Drescher (MPI Marburg), Markus Engstler (Univ. Würzburg), Peer Fischer (MPI Stuttgart), Benjamin Kaupp (FZ Caesar Bonn), Hartmut Löwen (Univ. Düsseldorf), Rodrigo Soto (Univ. Chile Santiago), Holger Stark (TU Berlin), Giovanni Volpe (Univ. Gothenburg), Roland G. Winkler (FZ Jülich).

Scientific Committee

Clemens Bechinger (Univ. Stuttgart, DE), Eric Clément (PMMH ESPCI Paris, FR), Carine Douarche (LPS UPSud Orsay, FR), Gerhard Gompper (FZ Jülich, DE), Stephan Herminghaus (MPI Gottingen, DE), U. Benjamin Kaupp (FZ Caesar Bonn, DE), Anke Lindner (PMMH ESPCI Paris, FR), Hartmut Löwen (Univ. Düsseldorf, DE), Holger Stark (TU Berlin, DE), Roland G. Winkler (FZ Jülich, DE)

Organization Committee

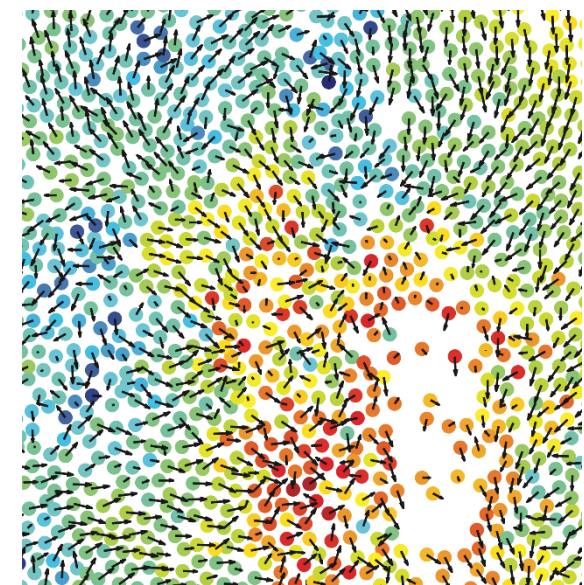
Gerhard Gompper (FZ Jülich, DE), Eric Clément (PMMH ESPCI Paris, FR), Carine Douarche (LPS UPSud Orsay, FR), Roland G. Winkler (FZ Jülich, DE)

Application and registration

Contact : microswimmers2017@espci.fr

Deadline Pre-Application : May 8th 2017

Registration Fees: 480€ for undergraduate and PhD students, 600€ otherwise (lunch and lodging included)



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