

# Active Matter and Non-equilibrium Statistical Physics

Session CXII

August 27 – September 21, 2018

**Organizers:** Gerhard Gompper (Forschungszentrum Jülich), M Cristina Marchetti (Syracuse University), Julien Tailleur (Université Paris Diderot/CNRS), Julia Yeomans (University of Oxford).

Overview: Active Materials extract energy from their surroundings at a single particle level and use this to do work. Active matter is becoming an increasingly exciting area of research because it is a testing ground for the ideas of non-equilibrium statistical physics, because of its relevance to the collective behaviour of living creatures, from cells to starlings, and because of its potential for the design of micromachines. At the school we look forward to lectures covering the latest developments in active matter physics and to many insightful discussions.

Website: <http://actimat.msc.univ-paris-diderot.fr>

<b>Lectures:</b>	M. Cates (U. Cambridge)	Active Field Theories
	E. Dufresne (ETH, Zurich)	Experimental Approaches to Active Systems
	E. Frey (LMU, Munich )	Self-organisation of Protein Patterns
	D. Frenkel (U. Cambridge)	Modeling of the Microscopic Origins of Active Transport
	R. Golestanian (Oxford U.)	Phoretic Active Matter
	M. Kardar (M.I.T.)	Fluctuation Forces in Non-Equilibrium Systems
	J. Kurchan (ESPCI) &	Glassy Dynamics in and out of Active Matter I
	L. Berthier (U. Montpellier)	Glassy Dynamics in and out of Active Matter II
	J.-F. Joanny(ESPCI)	Biological Tissues as Active Materials
	M. Shelley (NYU & Flatiron I.)	Fluid dynamics of swimming & active particles

Seminar speakers include Aparna Baskaran, Clemens Bechinger, Hugues Chaté, Leticia Cugliandolo, Olivier Dauchot, Suzanne Fielding, Yariv Kafri, Benoit Ladoux, Francesc Sagués, John Toner.

**Registration:** The online application can be found at <https://houches.univ-grenoble-alpes.fr/>. Applications must reach the School before April 1, 2018 in order to be considered by the selection committee. The full cost per participant, including housing, meals and the book of lecture notes is given on the website. We should be able to provide financial aid to a limited number of students. Further information can be found on the website. One can also contact the School at:

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**Location:** Les Houches is a village located in Chamonix valley in the French Alps. Established in 1951, the Physics School is situated at 1150 m above sea level in natural surroundings, with breathtaking views of the Mont-Blanc mountain range, conducive to reflection and discussion.