COLLOQUE

Grande salle des séances
Institut de France
23, quai de Conti - 75006 Paris

2 AVRIL 2024 de 9h à 18h

MORPHODYNAMICS
OF LIVING SYSTEMS
PRESENTERATION

The study of biological phenomena is a vast and rapidly advancing research topic, at the crossroads of physics, mechanics, mathematics, computational science and, of course, biology and medicine. The development of this field of research is based on the enormous progress made recently in the acquisition of quantitative data in living cells and tissues, and on the introduction of new concepts concerning non-equilibrium systems. This field sheds new light on the morphodynamics of living systems across scales, ranging from cell function and movement to collective behavior, embryo and organ formation.

Through a number of highly interdisciplinary presentations, this meeting will showcase some of the recent and exciting advances.

9h00 - 9h15  Accueil et présentation du colloque
Antoine TRILLER, Secrétaire perpétuel de l’Académie des sciences
Thomas LECUIT, membre de l’Académie des sciences

9h15 - 9h50  Assessing the hydromechanical control of plant growth
Arezki BOUDAOU, LadHyX, CNRS, Ecole polytechnique, IP Paris

9h50 - 10h25  Spatial and temporal order in the developing Drosophila eye
Francis CORSON, CNRS, Laboratoire de Physique de l’ENS

10h25 - 10h55  Break

10h55 - 11h30  Geometry and topology questions in self-propelled particle systems
Pierre DEGOND, Institut de Mathématiques de Toulouse

11h30 - 12h05  Chiral Active Matter
Stephan GRILL, MPI-CBG Dresden

12h05 - 14h00  Lunch

14h00 - 14h35  Active matter models of collective cell migration
Edouard HANNEZO, Institute of Science and Technology Austria
14h35 - 15h10  Memory imprints during cell migration  Benoît LA DOUX, CNRS, “Cell Adhesion and Mechanics”- Institut Jacques Monod, Université Paris cité & CNRS

15h10 - 15h45  Developmental mechanisms shaping skin pattern variation in birds  Marie MANCEAU, Centre Interdisciplinaire de Recherche en Biologie, Collège de France

15h45 - 16h15  Break

16h15 - 16h50  The Biology of collective Bacterial predators: stakes for soil ecology  Tâm MIGNOT, CNRS, Laboratoire de Chimie Bactérienne

16h50 - 17h25  Stochastic dynamics of cell shape changes: the role of noise in morphogenesis  Ewa PALUCH, University of Cambridge, UK

17h25 - 18h00  Topological defects control morphogenesis of cellular tornadoes and bicephalous hydra  Daniel PIERCE, university of Geneva, Biochemistry Department

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