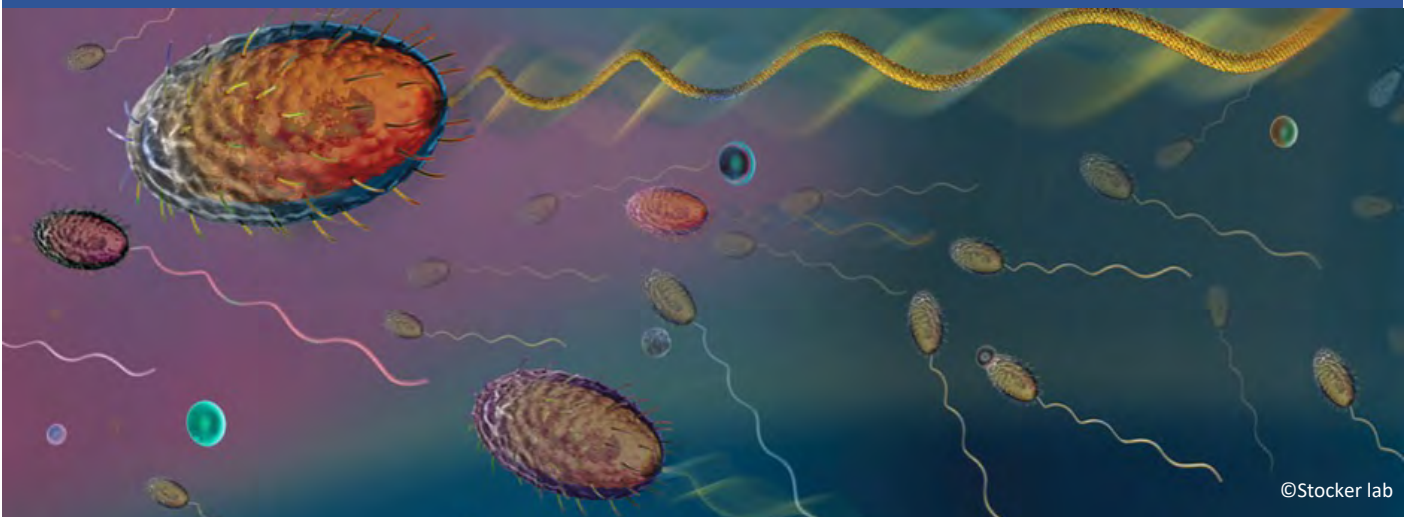


International Workshop

PHYSICS OF MICROBIAL MOTILITY

November 2-4, 2022, ESPCI Paris, France



Program & List of Posters



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Timetable

Wednesday Nov. 2

11:00–13:45	Registration		
13:50–14:00	Welcome remarks Lindner & Gompper		
14:00–14:30	IS	Daniel Tam TU Delft, The Netherlands	Experimental characterization of the dynamics of motile suspensions
14:30–14:50	CT	Reza Shaebani Saarland University, Germany	Optimal search strategies of active random searchers in crowded environments
14:50–15:10	CT	Jonasz Słomka ETH Zürich, Switzerland	Pushing the boundaries of cell tracking
15:10–15:30	CT	Knut Drescher Basel University, Switzerland	Physiological differentiation during bacterial swarm development
15:30–16:00	Coffee		
16:00–16:20	CT	Silvia Espada Burriel MPI Terrestrial Microbiology, Marburg, Germany	Density fluctuations in bacterial binary mixtures
16:20–16:40	CT	Thomas Kjørboe Technical University Denmark	Foraging trade-offs in flagellates, and the role of flagella in foraging
16:40–17:00	CT	Raphaël Jeanneret ENS Paris, France	Phototaxis of the dominant marine pico-eukaryote <i>Micromonas</i> sp.: from population to single cell
17:00–17:20	CT	Jerko Rosko University of Warwick, UK	Evidence for rotary-motor powered gliding motility in a filamentous cyanobacterium
17:30–19:30	Poster session with fingerfood & drinks		

Thursday Nov. 3

09:00-09:30	IS	Kirsty Wan University of Exeter, UK	On the origins of ciliary metachronism
09:30-09:50	CT	Alberto Dinelli Université Paris Cité, Paris	Self-organization of bacterial mixtures interacting via quorum-sensing
09:50-10:10	CT	Maria Tătulea-Codrean University of Cambridge, UK	Bacterial Olympics: Multiflagellarity allows bacteria to maintain constant motility across cell size
10:10-10:30	CT	Pietro Cicuta University of Cambridge, UK	Motile cilia waves: creating and responding to flow
10:30-11:00	Coffee		
11:00-11:30	IS	Ingmar Riedel-Kruse University of Arizona, USA	Synthetic adhesion logic, self-assembly of bacterial swarms, and multicellular tiling patterns
11:30-11:50	CT	Antoine Deblais University of Amsterdam, The Netherlands	Chromatographic Separation of Active Polymer-like Worm Mixtures by Contour Length and Activity
11:50-12:10	CT	Yves Emery LyncéeTec, Switzerland	Digital Holographic Microscopy 4D tracking – and much more
12:10-12:30	CT	Isabelle Eisenmann LPENS, Paris, France	Collective photoprotection through light-induced phase separation in a phototactic micro-algae
12:30-14:00	Lunch		
14:00-14:30	IS	Teresa López León ESPCI, Paris, France	Motility in anisotropic media
14:30-14:50	CT	Steffen Lange TU Dresden, Germany	Sperm chemotaxis in marine species is optimal for physiological flow rates according to the theory of filament surfing
14:50-15:10	CT	Giacomo Frangipane La Sapienza University, Rome, Italy	Interplay between phototaxis and photokinesis in light-driven E. coli
15:10-15:30	CT	Eric Grelet Université de Bordeaux, France	Bacterial micro-swimmers in colloidal liquid crystals
15:30–16:00	Coffee		
16:00-16:20	CT	Jason Lewis Lund University, Sweden	Active turbulence in bacterial suspensions under the effect of an external chemical gradient
16:20-16:40	CT	Eric Clément ESPCI, Paris, France	Emergence and scaling of collective flow patterns in active bacteria suspensions
16:40-17:00	CT	Eric Climent Université de Toulouse, France	Gyrotactic plankton cells in turbulence: the effects of motility, shape and fluid inertia
17:00-17:20	CT	Avraham Be'er Ben Gurion University, Israel	Mixed-species bacterial swarms – an interplay of mixing and segregation across scales
18:00-22:00	Conference Dinner		

Friday Nov. 4

09:00–09:30	IS	Mike Shelley Flatiron Institute, New York, USA	Self-organization and flow in living cells
09:30–09:50:20	CT	Markus Engstler University of Würzburg, Germany	Evolution of microswimmer designs in distinct micro-environments
09:50–10:10	CT	Cecile Cottin-Bizonne ILM, University Lyon, France	Driven motion in complex environment
10:10–10:30	CT	Helene de Maleprade Sorbonne Université, Paris, France	Light control of bioconvective dynamics
10:30–11:00	Coffee		
11:00–11:30	IS	Lisa Fauci Tulane University, New Orleans, USA	Explorations of motile helices at the microscale
11:30–11:50	CT	Jens Elgeti Forschungszentrum Jülich, Germany	Swimming by Axonemal Beating
11:50–12:10	CT	Dmitry Fedosov Forschungszentrum Jülich, Germany	Behavior of microswimmers under confinement
12:10–12:30	CT	Francesco Pedaci CNRS Montpellier, France	Dynamic stiffening of the flagellar hook
12:30–14:00	Lunch		
14:00–14:30	IS	Philippe Bastin Institut Pasteur, Paris, France	Motility from within: molecular trafficking in the trypanosome flagellum
14:30–14:50	CT	Blaise Delmotte LadHyX, Paris, France	Understanding and modeling the intriguing motion of the diatom chain <i>B. Paxillifer</i>
14:50–15:10	CT	Roberto Di Leonardo La Sapienza University, Rome, Italy	Programming micro-motility with light
15:10–15:30	CT	Anke Lindner ESPCI, Paris, France	Bacteria transport close to surfaces: from rheotaxis to upstream contamination
15:30–15:45	Closing remarks Lindner & Gompper		
15:45	End of workshop & departure		

P01: High Throughput Single Cell Bacterial Imaging

M. Kals, *Synoptics, UK*

P02: Collective Dynamics in A Dense Suspension of Self-Propelling Pseudomonas Aeruginosa Bacteria

J. Roberts, *Utrecht University, The Netherlands*

P03: Optimal swimming strategy in confinement

T. Pietrangeli, *ILM, Lyon*

P04: Screening for genetic determinants of Vibrio cholerae biofilm architecture

E. Jiménez Siebert, *University of Basel, Basel, Switzerland*

P05: Glassy dynamics in bacterial monolayers

M. Maliet, *CNRS/Sorbonne Université, Paris, France*

P06: Evolution of microswimmer designs in distinct micro- environments

N. Jamshidi, *University of Würzburg, Germany*

P07: Escape jumps in flagellates

F. Miano, *DTU Aqua, Denmark*

P08: Suppression of bacterial rheotaxis in wavy channels

W. Schmidt, *Universitat Bayreuth, Germany*

P09: Amoeboid Cell Migration under Lateral and Vertical Confinement

Z. Sadjadi, *Saarland University, Saarbrücken, Germany*

P10: Torque output and dynamics of the bacterial flagellar motor in Campylobacterota

W.H. Hoffmann, *Univ. Montpellier, France.*

P11: Bacteria propulsion and interactions in thin biofilms

B. Zhang, *Forschungszentrum Jülich, Germany*

P12: Anomalous bacterial transport in confined geometries

P. Zhang, *ESPCI Paris, France*

P13: Tracking of passive E. coli inside collective motion

B. Pérez, *ESPCI, Paris, France*

P14: Viscoelastic properties of Chlamydomonas R. flagella

L. Zorrilla, *University of the Balearic Islands, Esporles, Spain*

P15: Bacterial exploration in confined environment

R. Baillou, *ESPCI-PSL, France*

P16: Spatio-temporal dynamics of the proton motive force on single bacteria cells

A. Biquet Bisquert, *Université de Montpellier, France*

P17: Chemotaxis in marine protists: The role of dimethylated sulfur compounds (DMSCs) in predation

M. Zanoli, *University of the Balearic Islands, Esporles, Spain*

P18: Frustrated run and tumble of swimming E-coli bacteria in nematic liquid crystals

M. Goral, *ESPCI, Paris, France*

P19: Microswimmers in viscosity gradients

S. Ziegler, *Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany*

P20: Emergent structures in binary mixtures under flow

G. Di Dio, *Max Plank Institute for terrestrial microbiology, Marburg, Germany*

P21: Cell motility: A particle-based mesoscopic modeling approach

A. K. Dasanna, *Saarland University, Saarbrücken, Germany*

P22: Characterizing collective motion transition for suspensions of pusher microswimmers

I. El Korde, *Lund University, Lund, Sweden*

P23: microArgos: a novel approach to long-term cell tracking

R. Foffi, *ETH Zürich, Zürich, Switzerland*

P24: Motile cilia induce velocity and diffusion within the Periciliary Layer

E. Causa, *University of Cambridge, Cambridge, United Kingdom*

P25: Viscotaxis of Swimming Sperm Cells

S. Anand, *Forschungszentrum Jülich, Germany*

P26: Bio-hybrid microshuttels remotely controlled by light

O. S. Bagal, *Sapienza University of Rome, Rome, Italy*

P27: Automatic 4D tracking of swimming microorganisms using digital holographic microscopy

P. Nienąłowski, *ETH Zurich, Zurich, Switzerland*

P28: Large variability in the motility of spiroplasmas in media of different viscosities

A. Vilquin, *CNRS/U. Bordeaux, Talence, France*

P29: A study of bacteria entrapment using multiparticle collision dynamics

P. Martin, *Technische Universität Berlin, Berlin, Germany*

P30: Oxygen mediated algae-bacteria interaction controlled with light

F. Joulaeian, *Sapienza University of Rome, Rome, Italy*

P31: Neutral swimmer moves upstream

T. Ohmura, *University of Basel, Basel, Switzerland*

P32: Excitable gait control in a sperm-like marine quadriflagellate

A. K. Boggan, *University of Exeter, United Kingdom*

P33: Multiscale analysis of colony expansion in a run-reverse motile bacteria

M. Deforet, *Sorbonne Université, Paris, France*

P34: Elastohydrodynamic origins of viscosity-related flagellar beat transitions in sperm

S. Veeraragavan, *Monash University, Victoria, Australia*

P35: Interacting particles in an activity landscape

A. Wysocki, *Saarland University, Saarbrücken, Germany*

P36: Collective effects in auto-chemorepulsive particles : band formation and search strategies

H. Meyer, *Saarland University, Saarbrücken, Germany*

P37: Run and Tumble is not good enough: Bacterial motility in tight porous confinement

C. Lohrmann, *University of Stuttgart, Stuttgart, Germany*

P38: Locomotion of Active Polymerlike Worms in Porous Media

R. Sinaasappel, *University of Amsterdam, Amsterdam, The Netherlands.*

P39: Changing bacterial swimmers' locomotion strategy under flow conditions

V. Muraveva, *University of Potsdam, Potsdam, Germany*

P40: Active particles in optical fields

G. Jacucci, *École Normale Supérieure, Paris, France*

P41: Rectification and confinement of photokinetic bacteria in an optical feedback loop

H. Massana-Cid, *Sapienza Università di Roma, Rome, Italy.*

P42: Clustering dynamics of passive particles induced by swimming bacteria

J. Bouvard, *LadHyX/CNRS, Palaiseau, France*

P43: Implications on Aquatic Environments of Active-Passive Particles' interaction

S. Castillo Vila, *University of the Balearic Islands, Esporles, Spain*

P44: Flows induced by a capsule of microalgae

T. Laroussi, *LadHyx, Palaiseau, France*