



KITP Conference: The Many Faces of Active Mechanics

(Oct 15-18, 2024)

Coordinators: Daphne Klotsa, M. Cristina Marchetti, Daniel Sussman, and Anton Souslov

Tuesday, Oct 15, 2024

Learning and locomotion

8:50am Mark Bowick (KITP)	Welcome[Video]
9:00am Vincenzo Vitelli (U Chicago)	Learning and active mechanics[Video][CC]
9:45am Corentin Coulais (U Amsterdam)	Adaptive locomotion of active solids[Video][CC]
10:30am	Morning Break
11:00am Gustavo During (PUC Chile)	From Active Actuation to Collective Motion: Exploring the Facets of a Simple Active Solid Mode[Video][CC]
11:45am Xiaoming Mao (Michigan)	Nonlinear dynamics of active solids through nonreciprocal mechanochemical feedback[Slides][Video][CC]
12:30pm	Lunch Break

Bacteria and active surfaces

2:00pm Oskar Hallatschek (UCB)	Microfluidic Island Biogeography[Video][CC]
2:45pm Guillaume Salbreux (Geneva)	Active surfaces and biological morphogenesis[Embargoed]
3:30pm	Afternoon Break
4:00pm Yilin Wu (CUHK)	Emergent mechanics in bacterial active solids[Video][CC]
4:45pm Poster presenters	Lightning talks[Video][CC]
5:30pm	SHUTTLE TO BWSCI

Wednesday, Oct 16, 2024

Tissues and cell layers

9:00am Luiza Angheluta (U Oslo)	Epithelial Tissue Fluidisation and Morphogenesis due to Topological Changes[Video][CC]
9:45am Helen Ansell (Emory)	Tunable rheology in models of dense cellular tissue[Slides][Video][CC]
10:30am	Morning Break
11:00am Fridtjof Brauns (KITP)	Active plastic flow in epithelial tissue[Video][CC]
11:45am Masaki Sano (SJTU)	Integer topological defects provide a new way to characterize and classify cell layers[Video][CC]
12:30pm	Lunch Break

Non-reciprocal systems and topological defects

2:00pm Yonit Maroudas-Sacks (TU Dresden)	Mechanics of Hydra regeneration and the role of topological defects[Slides][Video][CC]
2:45pm Etienne Fodor (Luxembourg)	Pulsating active matter: From liquids to solids[Video][CC]
3:30pm	Afternoon Break
4:00pm Saad Bhamla (Georgia Tech)	The Blob: Topologically Entangled Living Matter[Video][CC]
4:45pm Eva Kanso (USC)	Fish Schooling at Extreme Scales[Video][CC]
5:30pm	RECEPTION

SPECIAL EVENTS DINNER

7:30pm	SHUTTLE TO BWSCI
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Thursday, Oct 17, 2024

From cells to organisms

9:00am Ryo Hanai (YITP)	Quantum active solids: Photoinduced non-reciprocal magnetism[Slides][Video][CC]
9:45am Sarah Loos (Cambridge)	Non-reciprocal spin systems[Video][CC]
10:30am	Morning Break
11:00am Nikta Fakhri (MIT)	Excitable nonreciprocal living solids[Video][CC]
11:45am David Nelson (Harvard)	Defect emission and absorption on cones, and conical billiards[Video][CC]
12:30pm	Lunch Break

Soft non-equilibrium solids

2:00pm Peter Sollich (U of Goettingen)	Intermittency, avalanches and aging in extremely persistent active matter[Slides][Video][CC]
2:45pm Thomas Powers (Brown)	Flow in Active Gels[Video][CC]
3:30pm	Afternoon Break
4:00pm Helena Massana Cid (U Rome)	Multiple temperatures and melting of a colloidal active crystal[Video][CC]
4:45pm Aparna Baskaran (Brandeis U)	Vignettes of data driven approaches to the MT-Kinesin active fluid[Video][CC]
5:30pm	RECEPTION

6:00pm

SPECIAL EVENTS DINNER

7:30pm

SHUTTLE TO BWSCI

Friday, Oct 18, 2024

9:00am Julien Tailleur (MIT)

The active Young-Dupre equation [\[Video\]](#) [\[CC\]](#)

9:45am Evelyn Tang (Rice)

Robust emergent dynamics in topological stochastic systems [\[Slides\]](#) [\[Video\]](#) [\[CC\]](#)

10:30am

Morning Break

11:00am Mattia Serra (UCSD)

Morphogenesis-Mediated Morphogen Transport [\[Video\]](#) [\[CC\]](#)

11:45am Jorn Dunkel (MIT)

Spectral dynamics of active (living) materials [\[Video\]](#) [\[CC\]](#)

12:30pm

Lunch Break

2:00pm Rahul Chajwa (Stanford)

Flow and Self-Organization in the Biological Pump [\[Video\]](#) [\[CC\]](#)

2:45pm Jose Alvarado (Texas)

Control strategies in active and robotic matter [\[Slides\]](#) [\[Video\]](#) [\[CC\]](#)

3:30pm **CONFERENCE END SHUTTLE TO BWSCI *Also available to SB Airport and SB Airbus, Goleta location.(See Registration Desk BEFORE FRIDAY to sign up.)**