

# International Workshop on Stochastic Thermodynamics and Active Matters 随机热力学与活性物质国际会议

15-16 August, 2016 / Room 212, Building D, Institute of Physics, CAS Beijing  
2016年8月15-16日 / 中国科学院物理研究所 D 楼 212 会议室

## *Organizers:*

Leihan Tang 汤雷翰 (CSRC),  
Fangfu Ye 叶方富 (IoP-CAS),  
Julia Yeomans (Oxford),  
Haijun Zhou 周海军 (ITP-CAS)

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Beijing Computational Science Research Center 北京计算科学研究中心

## PROGRAM

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**15th August Monday**

08:50–09:00

Opening remarks

Session A Chair: Julia Yeomans

09:00–09:40

**Chao Tang 汤超**: The strategy of bacteria -- Optimal growth when facing multiple choices of food

09:40–10:20

**Xiaqing Shi 施夏清**: Collective behavior and phases for self-propelled rod-like particles

10:20–10:50

Coffee break

Session B Chair: Hyungyu Park

10:50–11:30

**Jaedong Noh**: Efficiency of a Brownian heat engine model

11:30–11:50

**Yosuke Fukai 深井洋佑**: Kardar-Parisi-Zhang interfaces with curved initial conditions — what exists "between" the universality subclasses?

11:50–12:10

**Shouwen Wang 王寿文**: Entropy production of nano systems with timescale separation

Session C Chair: Leihan Tang

14:00–14:40

**Hong Qian 钱紘**: A Theory of Active Matters — Dynamics, Emergent energetics, Nonequilibrium thermodynamics, and What is "active"?

14:40–15:20

**Massimiliano Esposito**: Thermodynamics for small devices: From fluctuation relations to stochastic efficiencies

15:20–15:40

**Airi Kato 加藤爱理**: Collective motion of reciprocating self-propelled colloidal rollers

15:40–16:10

Coffee break

Session D Chair: Massimiliano Esposito

16:10–16:50

**Takahiro Sagawa**: Maxwell's demon in biochemical signal transduction

16:50–17:10

**Ruoshi Yuan 袁若石**: Beyond Ito vs Stratonovich -- Canonical stochastic integration bridging determinism and stochasticity

17:10–17:30

**Arnold Mathijssen**: Upstream swimming in microbiological flows

17:30–17:50

**Henry Charlesworth**: Threat Avoidance by Active Particles

18:00

Workshop reception diner

**16th August, Tuesday**

Session E Chair: Jaedong Noh

09:00–09:40

**Julia Yeomans:** Surprises in Droplet Bouncing

09:40–10:20

**Mitya Pushkin:** Non-Gaussian, yet diffusive: The origins of diffusive tracer mixing in suspensions of swimmers

10:20–10:40

**Hongri Gu 顾红日:** Design and application from single to swarm microrobots

10:40–11:00

Coffee break

Section F Chair: Xiaqing Shi

11:00–11:40

**Hepeng Zhang 张何朋:** Bimetallic microswimmers speed up in confining channels

11:40–12:00

**Marko Mravljak:** Structures of binary colloidal mixtures in emulsion droplets

12:00–12:20

**Yi Man:** A model for elastic filaments bundling

Section G Chair: Fangfu Ye

14:00–14:40

**Jay Tang:** Dynamic pattern evolution of a bacterial swarm

14:40–15:20

**Kun Zhao:** Psl and second messengers in regulating bacterial surface behavior during early *P. aeruginosa* biofilm development

15:20–15:40

**Hui Li:** Mapping intracellular diffusion distribution using single quantum dot tracking: Compartmentalized diffusion defined by endoplasmic reticulum

15:40–16:10

Coffee break

Section H Chair: Haijun Zhou

16:10–16:50

**Corey O'Hern:** Glassy dynamics of the bacterial cytoplasm

16:50–17:30

**Fangfu Ye 叶方富:** Pattern formation on lipid membranes and protein-membrane interactions