Agenda

Friday, July 26, 2024

2:30-9:00 PM	**Registration and hotel check-in**	

Saturday, July 27, 2024

8:00-8:30 AM	**Sign-in**	
8:30-8:45 AM	**Moderator: Lei Dai**	
	Welcome speech	Chenli Liu *Shenzhen Institute of Advanced Technology, CAS*
8:45-9:30 AM	**Session 1** **Moderator: Chao Tang (*Westlake University*)**	
	Keynote talk: 'Switches and Waves in Biology'	James Ferrell *Stanford University*
9:30-10:00 AM	**Talk:** 'Understanding and engineering cell biology in space and time with programmable reaction-diffusion systems'	Scott M. Coyle *University of Wisconsin-Madison*
10:00-10:20 AM	**Talk:** 'Synthetic circuits for multicellular spatial patterning'	Sheng Wang *California Institute of Technology*
10:20-10:50 AM	**Break + Group Photo**	
10:50-11:20 AM	**Session 2** **Moderator: Leihan Tang (*Westlake University*)**	
	Talk: 'Nonreciprocity enables large-scale mechanical spiral wave in bacterial living matter'	Yilin Wu *Chinese University of Hong Kong*
11:20-11:50 AM	**Talk:** 'Acquisition and usage of sensory information in E. coli chemotaxis'	Keita Kamino *Academia Sinica*
11:50-12:10 PM	**Talk:** 'Rules of self-organisation in organoids: dynamics and morphology'	Linjie Lu *University of Strasbourg*
12:10-1:30 PM	**Lunch**	
1:30-2:00 PM	**Session 3** **Moderator: Zhuojun Dai (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Talk: 'How do we discriminate a lethal, potentially pandemic-capable coronavirus from a 'common cold' coronavirus?'	Gerard Wong *The University of California, Los Angeles*
2:00-2:30 PM	**Talk:** 'From Cancer to Biofilms: Unveiling the Dance Between Cells and Materials'	Jinju (Vicky) Chen *Loughborough University*
2:30-3:00 PM	**Talk:** 'Activity, phase separation and nuclear architecture'	Gautam I. Menon *Ashoka University*
3:00-3:20 PM	**Talk:** 'Regulating biochemical dynamics through controlled phase-separated condensates'	Yuansheng Cao *Tsinghua University*
3:20-3:50 PM	**Break**	
3:50-4:20 PM	**Session 4** **Moderator: Xiao Yi (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Talk: 'Models, Lies and Fluctuating Selection'	Antony M. Dean *University of Minnesota*
4:20-4:50 PM	**Talk:** 'Construction of Solution Landscapes of Complex Biological Systems'	Lei Zhang *Peking University*
4:50-5:20 PM	**Talk:** 'ACC-seq reveals chromatin condensate that stabilize intermediate expression levels'	Yingqing Li *Tsinghua University*
5:20-5:40 PM	**Talk:** 'The cyanobacterial circadian clock couples to pulsatile processes using pulse amplitude modulation'	Chao Ye *University of Warwick*
5:40-8:00 PM	**Cocktail + Poster session**	

Sunday, July 28, 2024

8:25-9:10 AM	**Session 5** **Moderator: Ping Wei (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Keynote talk: 'Dynamical Systems Biology'	Luonan Chen *Shanghai Institute of Biochemistry and Cell Biology, CAS*

9:10-9:40 AM	**Talk:** 'Uncovering evolutionary and cellular dynamics from single-cell lineage trees'	Sahand Hormoz *Harvard Medical School*
9:40-10:10 AM	**Talk:** 'A theory of lineage-associated molecular similarity'	Allyson E. Sgro *Howard Hughes Medical Institute Janelia Campus*
10:10-10:30 AM	**Talk:** 'Enhanced Cellular Longevity Arising from Dynamic Perturbation'	Zhen Zhou *Interdisciplinary Research Center on Biology and Chemistry, CAS*
10:30-11:00 AM	**Break**	
11:00-11:30 AM	**Session 6** **Moderator: Lei Dai (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Talk: 'Designing Flexible Protein Structures and Sampling Conformational Distributions with a Unified Model'	Haiyan Liu *University of Science and Technology of China*
11:30-12:00 PM	**Talk:** 'A synthetic protein-level neural network in mammalian cells'	Zibo Chen *Westlake University*
12:00-12:20 PM	**Talk:** 'Quantitative Framework for Synthetic Modular Transcription Units Across Biological Kingdoms'	Ye Chen *Shenzhen Institute of Advanced Technology, CAS*
12:20-1:30 PM	**Lunch**	
1:30-6:00 PM	**Half-day Excursion**	

Monday, July 29, 2024

8:25-9:10 AM	**Session 7** **Moderator: Zheng Hu (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Keynote talk: 'AI and Aging'	Jing-Dong J. Han *Peking University*
9:10-9:40 AM	**Talk:** 'Statistical modelling of single cell transitions in RNA and DNA spaces'	Yuanhua Huang *Univeristy of Hong Kong*
9:40-10:00 AM	**Talk:** 'Exploring the noise filtering mechanism in early Drosophila embryogenesis'	Feng Liu *Hebei University of Technology*
10:00-10:20 AM	**Talk:** 'Learning Fate Choices and Cell Memory through Single-Cell Multi-Omic Lineage Tracing'	Shouwen Wang *Westlake University*
10:20-10:50 AM	**Break**	
10:50-11:20 AM	**Session 8** **Moderator: Wanze Chen (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Talk: 'Decoding single cell replicational age in scATAC-seq data'	Yi Zhang *Euler Technology*
11:20-11:50 AM	**Talk:** 'Deciphering tumor origin and evolution with single-cell lineage tracing'	Zheng Hu *Shenzhen Institute of Advanced Technology, CAS*
11:50-12:10 PM	**Talk:** 'Geometric Quantification of Cell Phenotype Transition Manifolds with Information Geometry'	Miao Huang *Institute of Theoretical Physics, CAS*
12:10-1:30 PM	**Lunch**	
1:30-2:00 PM	**Session 9** **Moderator: Zhiyuan Li (*Peking University*)**	
	Talk: 'Spatiotemporal dynamics of bacterial chemotaxis'	Junhua Yuan *University of Science and Technology of China*
2:00-2:30 PM	**Talk:** 'Quantitative ecology of host-associated microbiomes'	Lei Dai *Shenzhen Institute of Advanced Technology, CAS*
2:30-2:50 PM	**Talk:** 'Emergent behaviors in complex microbial ecosystems'	Jiliang Hu *Massachusetts Institute of Technology*
2:50-3:10 PM	**Talk:** 'Ecological succession and the competition-colonization trade-off in microbial communities'	Juan E. Keymer *Shenzhen X-Institute*
3:10-3:30 PM	**Talk:** 'Predicting microbiome compositions and keystone species through deep learning'	Xu-Wen Wang *Harvard Medical School*
3:30-4:00 PM	**Break**	
4:00-4:30 PM	**Session 10** **Moderator: Tong Si (*Shenzhen Institute of Advanced Technology, CAS*)**	
	Talk: 'Impact of Transcription Factor Dosage on Reprogramming Heterogeneity via scTF-seq'	Wanze Chen *Shenzhen Institute of Advanced Technology, CAS*
4:30-5:00 PM	**Talk:** 'Synthetic bacterial orthogonal replication systems enable accelerated evolution'	Rongzhen Tian *MRC Laboratory of Molecular Biology*
5:00-5:20 PM	**Talk:** 'Inference and Verification of Time-varying Gene Regulatory Networks'	Haijun Gong *Saint Louis University*
6:00 PM	**Closing Banquet** **Banquet talk**	James Ferrell *Stanford University*