

Kavli ITS Young Scholars Forum 2023

Introduction

This forum aims at providing a platform for young researchers working in various theoretical disciplines (including high-energy physics, condensed matter physics, and quantum information and quantum computation) to interact and share their thoughts.

Date and place

Date: February 13-17, 2023

Place: S406, Teaching Building, UCAS Zhong-Guan-Cun Campus

Zoom link: 949-559-7503 (password: Forum2023)

<https://us06web.zoom.us/j/9495597503?pwd=cmR0WitKOEVRNHB1cnR2cVUxakNKZz09>

Invited speakers

CHEN Kun (Flatiron Institute)

CHEN Yiming (Princeton University)

FANG Di (University of California, Berkeley)

GENG Hao (Harvard University)

GUO Haoyu (Harvard University)

JIANG Yikun (Cornell University)

LIU Shang (University of California, Santa Barbara)

LIU Yuan (Massachusetts Institute of Technology)

LUO Zhu-Xi (University of California, Santa Barbara)

NIE Laimei (Purdue University)

SHI Bowen (University of California, San Diego)

SONG Xue-Yang (Massachusetts Institute of Technology)

SUN Xiao-Qi (University of Illinois Urbana-Champaign)

SUN Zimo (Princeton University)

TANG Ping (Tohoku University)

WANG Dong-Gang (University of Cambridge)

WANG Tianheng (Institute of Theoretical Physics, Chinese Academy of Sciences)

XIN Yuan (Yale University)

ZHANG Jian-Hao (Pennsylvania State University)

ZHOU Siyi (Kobe University)

ZOU Liujun (Perimeter Institute for Theoretical Physics)

Brief schedule

Date	Time	Session
Feb. 13 Monday	9:00- 9:15	Opening & Introduction of KITS
	9:15- 11:30	GENG Hao, NIE Laimei, LUO Zhu-Xi
	11:30- 13:00	Lunch
	13:30- 15:00	CHEN Yiming, WANG Tianheng
	15:00- 15:30	Break
	15:30- 16:15	WANG Donggang
Feb. 14 Tuesday	9:00- 11:15	ZOU Liujun, JIANG Yikun, FANG Di
	11:15- 11:30	Group photo
	11:30- 13:00	Lunch discussions
	17:30	Banquet
Feb. 15 Wednesday	9:00- 11:15	SONG Xue-Yang, SUN Zimo, SHI Bowen
	11:30- 13:00	Lunch
	13:30- 15:00	ZHOU Siyi, TANG Ping
	15:00- 15:30	Break

	15:30-17:00	LIU Shang, ZHANG Jian-Hao
Feb. 16 Thursday	9:00-10:30	LIU Yuan, CHEN Kun
	11:30-13:00	Lunch
Feb. 17 Friday	9:00-11:15	SUN Xiao-Qi, GUO Haoyu, XIN Yuan
	11:30-13:00	Lunch

Detailed Schedule

Time	Chair	Speaker	Title
Feb. 13, Monday			
9:00	ZHANG Long	ZHANG Fu-Chun	Opening & Introduction of KITS
9:15		GENG Hao	Recent progress in quantum gravity (online)
10:00		NIE Laimei	Quantum dynamics and non-equilibrium physics through the lens of quantum information (online)
10:45		LUO Zhu- Xi	Generating Kitaev spin liquid from a stochastic measurement-only circuit (online)
11:30	Lunch		
13:30	WANG Huajia	CHEN Yiming	Quantifying global symmetry violations in quantum gravity (on-site)
14:15		WANG Tianheng	Binary dynamics from worldline QFT for scalar-QED (on-site)
15:00	Break		
15:30	WANG Huajia	WANG Donggang	Bootstrap our way towards inflationary new physics (on-site)
Feb. 14, Tuesday			
9:00	PENG Cheng	ZOU Liujun	A minimalist's approach to the physics of emergence (online)
9:45		JIANG Yikun	Focusing bounds for CFT correlators and the S-matrix (online)
10:30		FANG Di	Quantum dynamics simulation and its application to Hamiltonian learning (online)
11:15	Group photo		

11:30	ZHANG Fu-Chun	Lunch discussions	
17:30	Banquet		
Feb. 15, Wednesday			
9:00	ZHU Zheng	SONG Xue-Yang	Gaplessness from symmetry in Dirac materials in periodic magnetic field and twisted cuprates (online)
9:45		SUN Zimo	Majorana scars as group singlets (online)
10:30		SHI Bowen	Entanglement bootstrap: immersion and recycling qubits (on-site)
11:30	Lunch		
13:30	GU Bo	ZHOU Siyi	Superheavy dark matter production from symmetry restoration first-order phase transition during inflation (online)
14:15		TANG Ping	"Ferron" excitations in ferroelectrics and polarization caloritronics (online)
15:00	Break		
15:30	MATSUO Mamoru	LIU Shang	Mixed state entanglement measures in topological orders (on-site)
16:15		ZHANG Jian-Hao	Mixed-state topological phases with average symmetries (on-site)
Feb. 16, Thursday			
9:00	JIANG Shenghan	LIU Yuan	Efficient, scalable, and robust quantum algorithms for quantum chemistry (online)
9:45		CHEN Kun	TBA (online)
11:30	Lunch		
Feb. 17, Friday			

9:00	HUANG Biao	SUN Xiao- Qi	Entanglement features of random neural network quantum states (online)
9:45		GUO Haoyu	Resonant side-jump thermal Hall effect of phonons (online)
10:30		XIN Yuan	Bootstrapping the gap of quantum many-body systems (on-site)
11:30	Lunch		