



# High Energy Physics in the Quantum Era

## Monday, 2 December 2024

session: session - Kobayashi Hall (10:05 - 12:00)

-Conveners: Shoji HASHIMOTO

time	[id] title	presenter
10:05	[27] opening	ASAI, Shoji
10:15	[1] Introduction to RIKEN iTHEMS	ISO, Satoshi
10:30	[2] Ready for it? Quantum Utility in High Energy Physics	LAMM, Hank
11:15	[3] Simulating SU(3) YM theory in the large Nc limit	BAUER, Christian

session: session - Kobayashi Hall (14:00 - 15:30)

-Conveners: Ryuichiro KITANO

time	[id] title	presenter
14:00	[4] quantum simulations for high energy physics (tentative)	DRAPER, Patrick
14:45	[5] Non-Linear Modifications of Quantum Mechanics	KAPLAN, David E.

session: session - Kobayashi Hall (16:00 - 17:20)

-Conveners: Christian Bauer

time	[id] title	presenter
16:00	[20] Calculating mass spectrum of composite states in the Hamiltonian formalism	ITOU, Etsuko
16:20	[19] Monte Carlo studies of quantum time-evolution based on the real-time path integral	NISHIMURA, Jun
16:40	[26] Quantum simulation of chiral phase transition in SU(2) model	GUO, Xingyu
17:00	[21] Axion-Like Particle Search in Birefringent Cavity	SHIKANO, Yutaka

# Tuesday, 3 December 2024

## session: session - Kobayashi Hall (09:00 - 10:30)

-Conveners: Masahito Yamazaki

time	[id] title	presenter
09:00	[7] Conformal field theories on $S^2 \times R$ : condensed matter regulators and conformal perturbation theory	RYCHKOV, Slava
09:45	[11] Resurgence and Non-perturbative Physics	DUNNE, Gerald

## session: session - Kobayashi Hall (10:45 - 12:10)

-Conveners: Patrick Draper

time	[id] title	presenter
10:45	[6] Wormhole teleportation and the SYK model	LYKKEN, Joseph
11:30	[18] Semiclassical methods for CFT data: scaling dimension of heavy operators	BERSINI, Jahmall Matteo
11:50	[25] Improved quantum algorithm for calculating eigenvalues of differential operators and its application to estimating the decay rate of the perturbation distribution tail in stochastic inflation	MIYAMOTO, Koichi

## session: session - Kobayashi Hall (14:00 - 15:30)

-Conveners: Dorota Grabowska

time	[id] title	presenter
14:00	[8] From algorithms to applications: potential roles of quantum computing	MITARAI, Kosuke
14:45	[9] Progress on Hamiltonian-based calculations for gauge theories	STRYKER, Jesse

## session: session - Kobayashi Hall (16:00 - 16:45)

-Conveners: Koji Terashi

time	[id] title	presenter
16:00	[13] Lattice QED in 2D: computing the static potential with trapped-ion devices	RINALDI, Enrico

# Wednesday, 4 December 2024

## session: session - Kobayashi Hall (09:00 - 10:30)

-Conveners: Hank Lamm

time	[id] title	presenter
09:00	[12] Quantum Applications to Machine Learning, Simulation and Sensing Experiments at UTokyo ICEPP	TERASHI, Koji
09:45	[16] Dark matter searches using superconducting qubits	CHEN, Shion

## session: session - Kobayashi Hall (11:00 - 12:00)

-Conveners: Jesse Stryker

time	[id] title	presenter
11:00	[23] Imaginary Hamiltonian variational ansatz for QED and combinatorial optimization problems	WANG, Xiaoyang
11:20	[22] Quantum algorithm for statistical quantities in Burgers turbulence	UCHIDA, Fumio
11:40	[24] Parity Violation on Bell Tests and the Potential New Paradigm Beyond Quantum Field Theory	DU, Yong

## session: session - Kobayashi Hall (14:00 - 15:40)

-Conveners: Masazumi Honda

time	[id] title	presenter
14:00	[15] Quantum computational science for quantum many-body systems in condensed matter physics	YUNOKI, Seiji
14:45	[10] Many Body Physics in Superconducting Devices	WARRINGTON, Neill
15:30	[17] closing	HASHIMOTO, Shoji