

Opening Session

Concepts of Quantum and Spacetime

March 9 – 12, 2026 @ KEK, Tsukuba, Japan

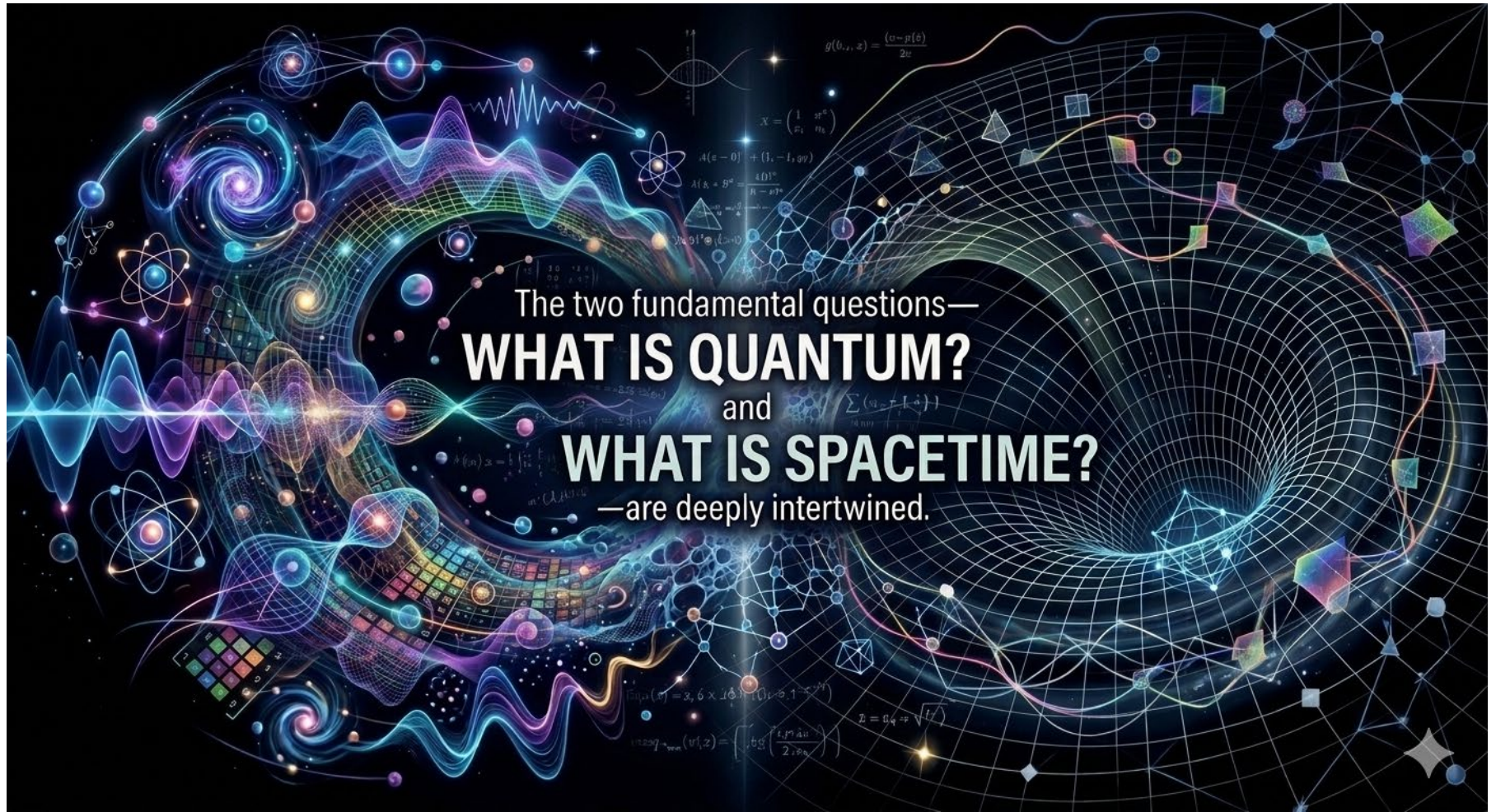
Yuki Yokokura (KEK/iTHEMS)
(on behalf of organizers)

Workshop jointly organized
by KEK Theory Center and RIKEN iTHEMS



iTHEMS

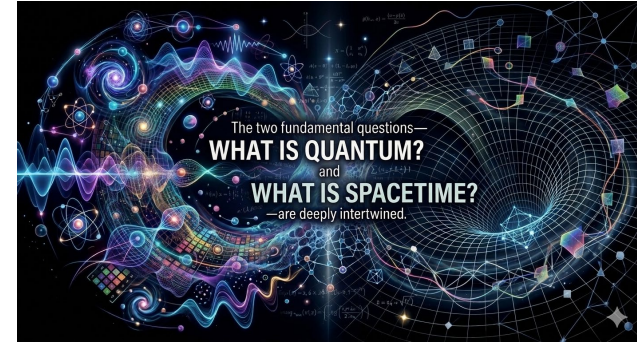
Motivation for this workshop



[Gemini-generated image]

Motivation for this workshop

- The two fundamental questions, **“What is quantum?”** and **“What is spacetime?”**, are deeply intertwined.



- Formulation and interpretation of quantum theory depend on our conceptions of time and space.
- Taking into account the quantum character of nature should force us to revise our understanding of spacetime.
- These are related to how to quantize classical spacetime and how (semi-)classical descriptions of spacetime emerge from quantum theory.
- If the entire matter-spacetime system is a kind of quantum many-body system, thermodynamics/statistical mechanics should play a key role.

- This workshop discusses **“How can quantum theory and spacetime be understood in a consistent manner?”** from a fundamental and broad perspective.

⇒ Let's share various ideas with open minds and engage in lively discussions to find directions guiding quantum theory over the next 100 years!

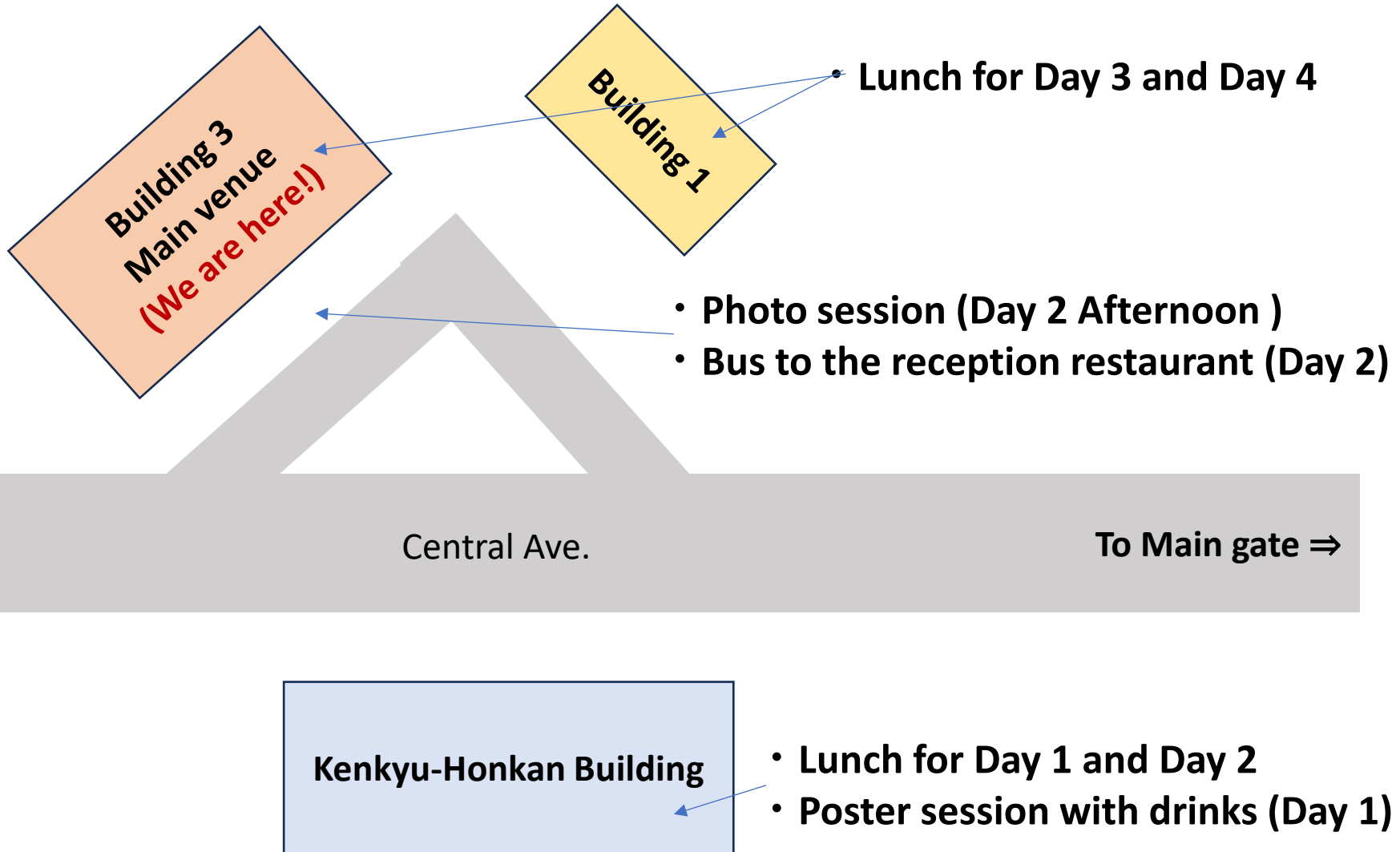
Invited speakers

- **Ginestra Bianconi** (Queen Mary University of London)
- **Marios Christodoulou** (Institute for Quantum Optics and Quantum Information)
- **Bob Coecke** (Wolfson College, Oxford University) [online]
- **Fay Dowker** (Imperial College London) [online]
- **Laurent Freidel** (Perimeter Institute)
- **Philipp Höhn** (OIST)
- **Hidetoshi Katori** (University of Tokyo) [only 2nd-day afternoon]
- **Adrian Kent** (University of Cambridge)
- **Akira Matsumura** (Kyushu University)
- **Shunji Matsuura** (RIKEN)
- **Djordje Minic** (Virginia Tech) [online]
- **Takayuki Miyadera** (Meiji Gakuin University)
- **Daniele Oriti** (Complutense University of Madrid)
- **Tamiaki Yoneya** (University of Tokyo)

Information (1 / 3)

- **Wi-fi access:** eduroam or keyaki { Go to <https://www.kek.jp/> and put event name: CQS2026 event password: cqs20260309
- **To speakers,** upload slide to KEK-Cloud by 8:00 AM on the day of your talk.
- **Poster session (Day1):** Set posters at Kenkyu-Honkan building in lunch time.
- **Group photo (Day 2):** Let's take photo together after the third talk on Day 2.
- **Reception (Day 2):** The bus departs from the front of Building 3 at 6:10 PM, going to the restaurant.
 - The dinner will start around 7:00 PM.
 - The return buses go to three locations: KEK, Urban hotel, Tsukuba station.
- **Panel discussion (Day 4):** Suggest topics/questions in the Google Form.

Information (2/3)



Information (3/3)

- **Shuttle bus for Urban Hotel**

- March 9

- 9 : 15 Hotel -> KEK (Building 3)

- 19 : 30 KEK (Kenkyu-Honkan Building) -> Hotel

- March 10

- 9 : 40 Hotel -> KEK (Building 3)

- March 11

- 9 : 40 Hotel -> KEK (Building 3)

- March 12

- 18 : 00 KEK (Building 3)-> Hotel

(You can walk between KEK and hotel; it will be about 20-30 min.)

- **Code of Conduct:** Read “Code of Conduct” on our webpage.

Our Team

- Organizers

- Yuta Hamada (KEK)
- Puttarak Jai-akson (RIKEN)
- Christy Kelly (RIKEN)
- Amaury Micheli (RIKEN)
- Kyohei Mukaida (KEK)
- Wei-Hsiang Shao (RIKEN)
- Yutaka Shikano (University of Tsukuba)
- Yuko Urakawa (KEK)
- Yuki Yokokura (Chair, KEK/RIKEN)

- Secretaries (KEK):

Tomoko Numata, Yuko Ohno, Maki Ohishi (main)

Finally

Ask various questions during talks.

Discuss many things during coffee breaks and lunch time.

Make your friends.

Enjoy our workshop!

