QUPosium2024

Hosted by WPI-QUP

December 9 - 11, 2024 (Mon - Wed)
Epochal Tsukuba International Congress Center
Tsukuba, Japan

Wi-Fi

SSID: QUPosium2024

PW: QUP@2024

QUPosium2024

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December 9 - 11, 2024 (Mon - Wed)
Epochal Tsukuba International Congress Center
Tsukuba, Japan

Monday, 9 December

Morning

9:30 - 10:00 **Registration**

Wi-Fi

SSID: QUPosium2024

PW: QUP@2024

QUPosium Opening

10:00 Opening Remarks **Kazunori Hanagaki**
10:10 Symposium Information

Plenary Session

10:30 Overview of Dark Matter Direct Detection **Graciela Gelmini**

11:00 From heavy dark matter to Light dark matter: the journey that led to dark matter searches using quantum technology
Celine Boehm

11:30 Nuclear spin metrology for axion dark matter detection
Kazunori Nakayama

12:00 → 13:30 **Lunch**

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12:00-13:30

Lunch Time

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Monday, 9 December Afternoon

Wi-Fi

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Plenary Session

13:30 Diamond quantum sensor and light dark matter search
Norikazu Mizouchi

14:00 Pre-inflationary axions: quantum sensing and the search for QCD axion dark matter with mass below 1 microeV
Kent Irwin

14:30 Classical-Quantum Algorithms for Anomaly Detection
Masahito Yamazaki

15:00 → 15:30 **Coffee and Tea Break**

Plenary Session

15:30 Next generation haloscope searches for axion dark matter with mass above 1 microeV **Andrew Sonnenschein**

16:00 Is it really cold and quiet? How mundane backgrounds …
Matt Pyle

16:30 → 17:00 **Coffee and Tea Break**

Contributed Talks

17:00 → 18:00

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18:20-18:30

Group Photo

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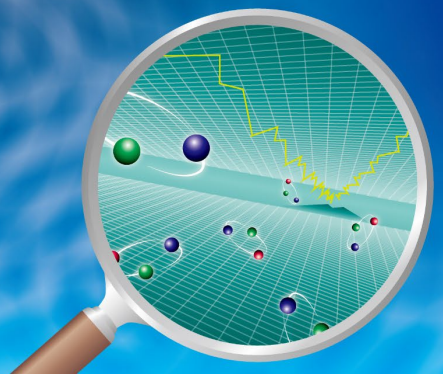
Tsukuba, Japan

18:30-20:00

Poster Session and Reception
(outside of this room)



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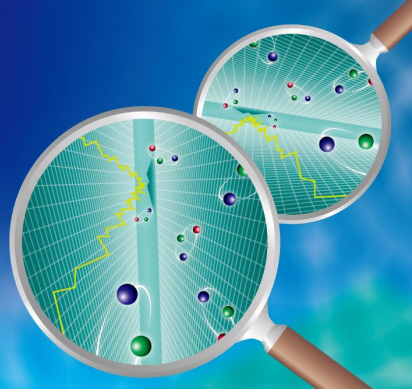

Tuesday, 10 December
Morning

Session will start at 9:30

Wi-Fi

SSID: QUPosium2024

PW: QUP@2024

Plenary Session

9:30 Large scale atom interferometry to explore fundamental physics
Oliver Buchmueller

10:00 → 10:30 **Coffee and Tea Break**

Plenary Session

10:30 New approaches in searches for new physics
Dmitry Budker

11:00 Quantum Sensors for New-physics Discoveries in the Laboratory and in Space
Marianna Safronova

11:30 Trapped-ion nuclear clocks for fundamental physics experiments
Atsushi Yamaguchi

12:00 → 13:30 **Lunch**

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12:00-13:30

Lunch Time

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Tuesday, 10 December Afternoon

Wi-Fi

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Plenary Session

13:30 Updates on the Search for Magnetic Monopoles within Returned Ryugu Samples — **Joseph Kirschvink**
14:00 Why gravity experiments in space so hard? — **Kiwamu Izumi**
14:30 Fundamental Physics in Space — **John Callas**

15:00 → 15:30 **Coffee and Tea Break**

Plenary Session

15:30 Precision and Quantum Measurement with Photons, Phonons and Spins to Search for New Physics — **Michael Tobar**
16:00 Quantum Detectors for particle physics — **Michael Doser**

16:30 → 17:00 **Coffee and Tea Break**

Contributed Talks

17:00 → 18:00

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Monday, 9 December
Afternoon

Contributed Talks

17:00 Study of high radiation tolerance detector with CIGS
Kosuke Itabashi

17:20 Opening a meV mass window for Axion-like particles with a microwave-laser-mixed stimulated resonant photon collider
Kensuke Homma

17:40 Observation of a VUV Signal from the Thorium-229 Isomer in a Crystal toward a Solid-State Nuclear Clock
Sayuri Takatori

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Banquet

19:00 → 21:00

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Banquet (for those who have pre-registered) 19:00-21:00 @Kisoji

https://maps.app.goo.gl/L3WRDBjYmvhmhx6c6

Shuttle Bus Service

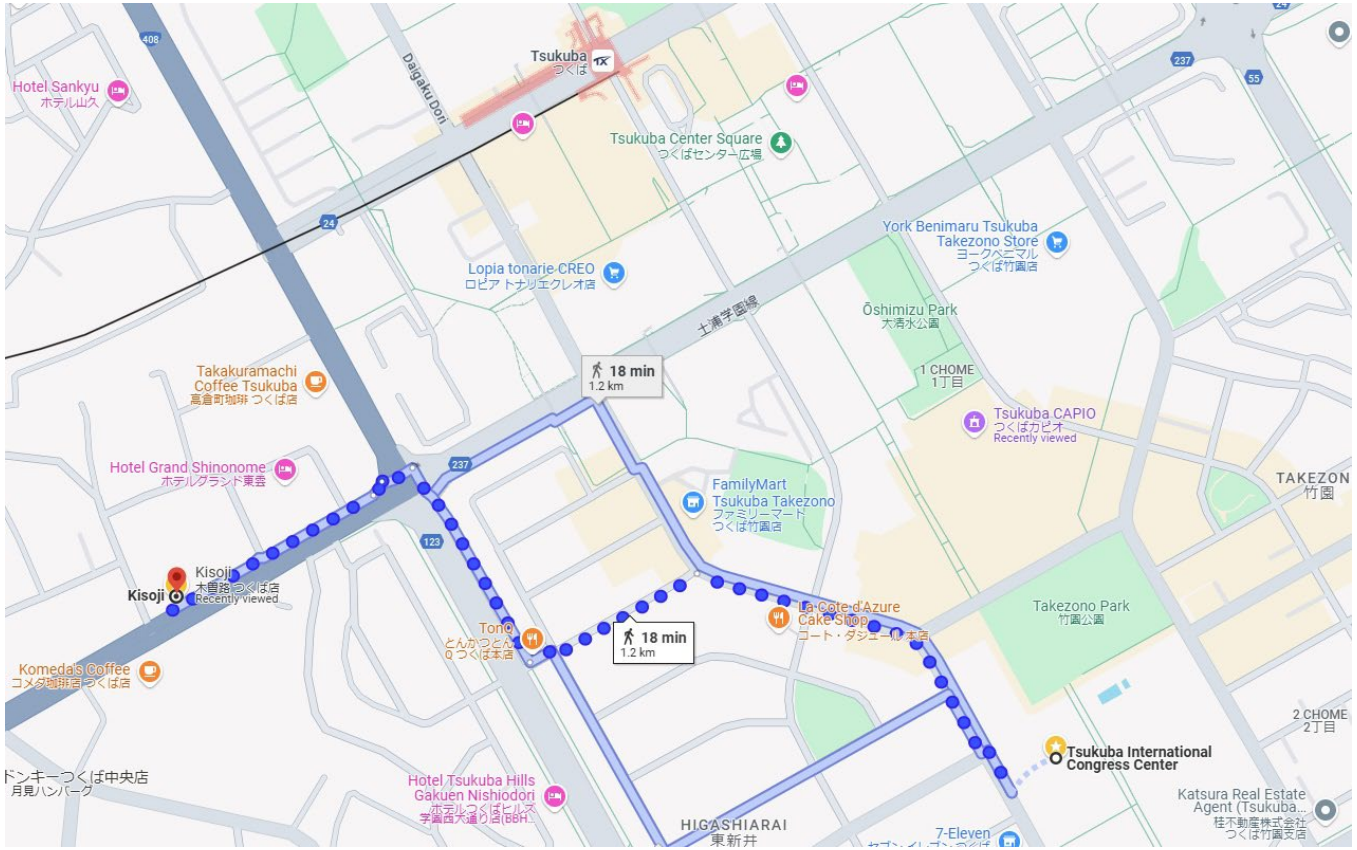
Those taking the bus should meet **at the main entrance** of this building at least five minutes before departure.

Departure Time

18:20 (25 people)

18:40 (25 people)

By walking,
It will take approximately **18 minutes**.



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Wednesday, 11 December Morning

Wi-Fi

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Plenary Session

9:00 Laser interferometric searches for signatures of dark matter and quantum gravity — **Yuta Michimura**

9:30 Probing the Frontier of Fundamental Physics: New Matter, New Forces, and New Laws — **David Kaplan**

10:00 → 10:30 **Coffee and Tea Break**

Plenary Session

10:30 Casimir force computation for emerging materials — **Hideo Iizuka**

11:00 Energy transport in Nanoscale Gaps between Planar Surfaces — **Pramod Reddy**

11:30 Entanglement-enhanced AC magnetometry in the presence of Markovian noises — **Yuichiro Matsuzaki**

12:00 → 13:30 **Lunch**

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12:00-13:30

Lunch Time

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Wednesday, 11 December Afternoon

★ QUP Colloquium ★

13:30 Spirit and Opportunity: An adventure of exploration and discovery on Mars — **John Callas**

15:00 → 15:30 **Coffee and Tea Break**

Plenary Session

15:30 Quantum electrical standards and its application to industry — **Nobu-Hisa Kaneko**

16:00 Optical Transition-Edge Sensors: From quantum computing to light dark matter search — **Kaori Hattori**

QUPosium Closing

16:30 — **Volodymyr Takhistov**

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Thursday, 12 December
Morning

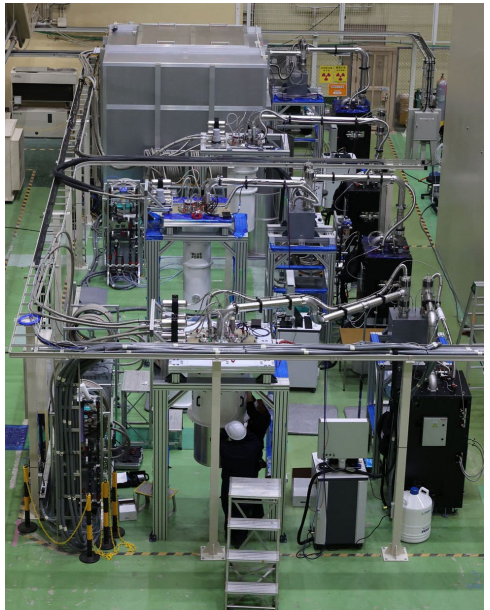
Post-symposium Tour

(for those who have pre-registered)

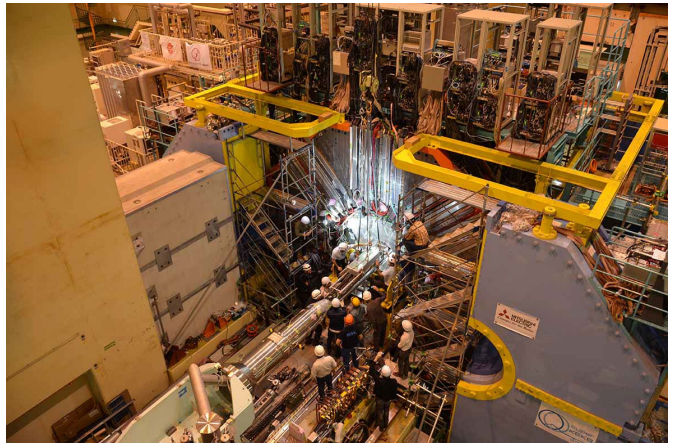
9:30

~~9:00~~ Bus starts at Epochal main entrance
10:00-11:30: KEK
(QUP, Belle II, Photon Factory)
12:00 Tsukuba station and Epochal

QUP cryo-facility



Belle II



Photon Factory