

CHiP Mini-workshop with Professor Masashi Hazumi (KEK)

The New World of Spin Zero

- New trends in particle cosmology

2025 March 13 (Thu) 10:00 - 17:00

National Central University, Department of Physics Room 209

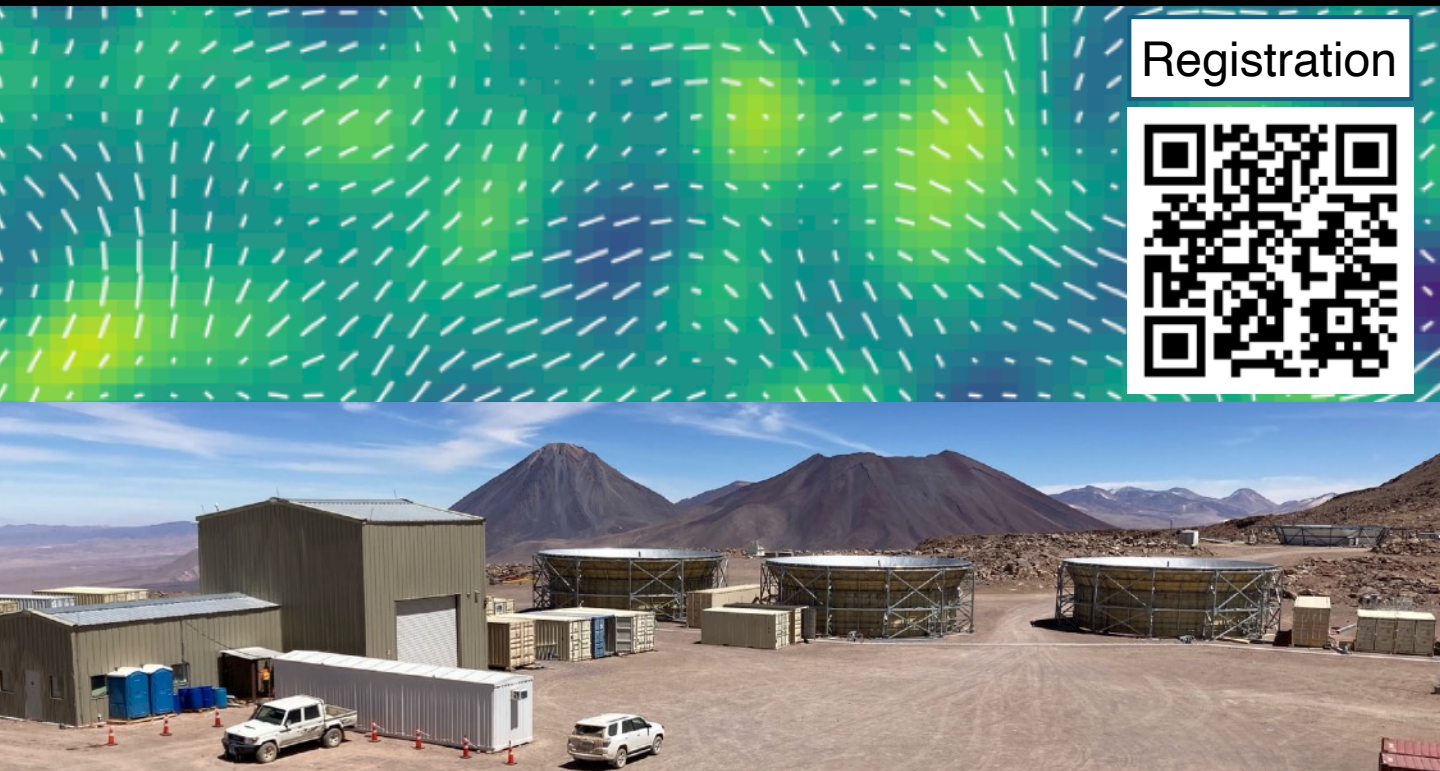
Topics

- Gravitational Waves
- Cosmic Microwave Background (CMB)
- Axion-like Dark Matter
- Quantum Metrology for Particle Cosmology

Invited Speakers

Masashi Hazumi (KEK),
Yuki Inoue (NCU),
King-Wang Ng (AS),
Henry Tsz-King Wong (AS),
Yuan-Hann Chang (AS),
Yung-Fu Chen (NCU)

Registration



Organizer: Yuki Inoue (NCU)

Contact: iyuki@ncu.edu.tw



CHiP
GRAVITATIONAL WAVE



CHiP Special Talk

Date: 2025 March 13 14:00 - 15:00

Place: National Central University, Department of Physics Room209

Title

The New World of Spin Zero

Speaker:

Prof. Masashi Hazumi (KEK)

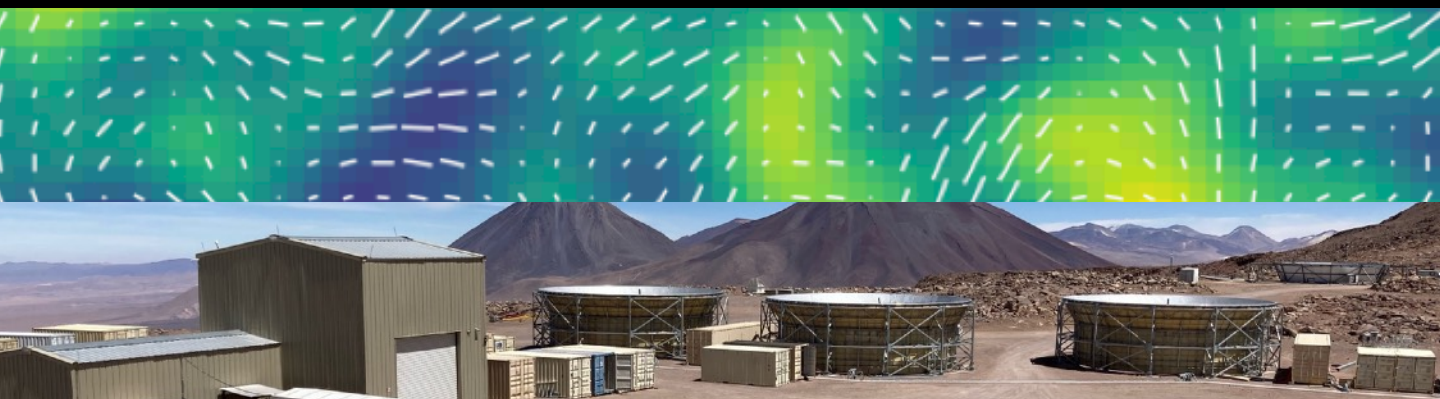


Abstract:

Particle cosmology is a discipline seeking a fundamental understanding of the Universe based on particle physics. Five mysteries drive our research today: cosmic inflation, baryon asymmetry, neutrino properties, dark matter, and dark energy.

Resolving any of the five mysteries will revolutionize our picture of the Universe. Numerous interesting theoretical hypotheses have been proposed to this end. Many require new scalar particles, such as inflatons, axions, supersymmetric particles, etc. They are, in a sense, an attempt to expand the role of the vacuum. Since we have not yet found such spin-zero particles, we shall invent new eyes to make an experimental or observational breakthrough.

In this seminar, I focus on research topics I have contributed, including observations of CMB polarization toward studying inflatons and light axion-like particle searches with novel methods using quantum sensing techniques.



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