



First Circular

We cordially inform you that an international conference, “Nucleosynthesis and Evolution of Neutron Stars”, will be held from 27 to 30 January 2025 at Kyoto University, Japan. Everyone is welcome to attend it.

Scope of This Workshop

The primary focus of this workshop is on the various “evolutions” of neutron stars, exploring the intersection of astrophysics theory and observation, as well as the connections to fundamental microphysics, including nuclear physics.

The specific themes of the workshop will include the long-term thermal evolution of neutron stars, their evolution in binary star systems (e.g., X-ray bursts, neutron star mergers), the evolution of matter in the universe (e.g., nucleosynthesis), and various other aspects of cosmic/galactic evolution. Additionally, we will explore future research possibilities in astronomy, nuclear physics, and fundamental physics through the lens of neutron star studies.

Topics (Scientific Sessions)

- Stellar evolution, supernovae, and formation of compact objects
- X-ray and other astronomical observation
- High-energy astrophysics and cosmic rays
- Hydrostatic and explosive nucleosynthesis
- Nuclear physics in neutron stars: Equation of states (EoS), fusion reactions, and radioactive decay
- Neutron stars and fundamental physics
- Other related topics in nuclear astrophysics

Invited Speakers

- **Aya Bamba** (U. Tokyo, Japan) [Supernovae, Compact objects, High-energy astronomy](#)
- **Tobias Fischer** (U. Wrocław, Poland) [Supernovae, Neutron stars, Nuclear EoS](#)
- **Toshihiro Fujii** (Osaka Metropolitan U., Japan) [High-energy cosmic rays](#)
- **Yuki Fujimoto** (RIKEN, Japan) [Neutron stars, QCD](#)
- **Tatsuya Furuno** (Osaka U., Japan) [Experimental nuclear physics related to astrophysics](#)
- **Duncan Galloway** (Monash U., Australia) [X-ray binaries](#)
- **Xu-Guang Huang** (Fudan U., China/YITP, Kyoto U., Japan) [QCD](#)
- **Oliver Just** (GSI, Germany) [Compact-object binaries, Nuclear EoS, Neutrino](#)
- **Koutarou Kyutoku** (Chiba U., Japan) [Compact-object binaries, Nuclear EoS, Gravitational waves](#)
- **Yi Hua Lam** (IMP, CAS, China) [X-ray bursts, Nuclear-structure calculation \(shell model\)](#)
- **Ang Li** (Xiamen U., China) [Nuclear-structure calculation \(hyper nuclei\), Neutron stars](#)
- **Lucy McNeill** (RIKEN, Japan) [Stellar evolution, Supernovae](#)
- **Takayuki Miyagi** (U. Tsukuba, Japan) [Nuclear-structure calculation \(*ab initio*\)](#)
- **Nils Paar** (U. Zagreb, Croatia) [Nuclear-structure calculation \(density functional theory\)](#)
- **Hendrik Schatz** (MSU, USA) [\(TBC\) Nuclear astrophysics experiments in FRIB](#)
- **Kimiko Sekiguchi** (Science Tokyo, Japan) [Experimental nuclear physics \(three-body interaction\)](#)
- **Motoko Serino** (Aoyama Gakuin U., Japan) [X-ray bursts](#)
- **Daisuke Suzuki** (RIKEN, Japan) [Experimental nuclear physics in RIBF](#)
- **Yasutaka Taniguchi** (Fukuyama U., Japan) [Nuclear-theory calculation \(cluster structure\)](#)

Venue

[Maskawa Hall](#) (First floor of Maskawa Building for Education and Research), Kyoto University

Access

Kyoto locates on the Kansai area of Japan. One can easily access to Kyoto from Tokyo (Haneda or Narita Airports) via a high-speed train “Shinkansen” or from Kansai Airport via a express train “Haruka”. One can access to Kyoto University from Kyoto station via a city bus. The detailed information will be found on the website or the Google Map.

Abstract Submission

The workshop is composed of contributed talks and posters, as well as invited talks. The contributed talks and posters are selected based on the abstracts submitted. Those who would like to present their cutting-edge results should submit the abstract by **01 December 2024**. Note that only on-site participants can give presentations.

Accommodation

Participants are supposed to book their accommodation by themselves. There are many hotels in the city center of Kyoto since it is one of the most popular sightseeing places in Japan. We recommend the area around Kyoto Station and Shijo Area.

Fee (Tentative)

- JPY 1,000 (students) or 2,000 (others) for coffee break etc. (for all the on-site participants)
- JPY 4,000 for banquet (for those who join)

Both fees should be paid by cash at the reception desk. The banquet will be held on 27 January.

Important Dates

Related to Abstract Submission

Abstract submission deadline 01 December 2024

Program announcement mid-December 2024

Related to Registration

Registration deadline for in-person participation with the visa documents 01 December 2024

Registration deadline for in-person participation 08 January 2025

Registration deadline for online participation 25 January 2025

Organizers

- **Akira Dohi** (CPR & iTHEMS, RIKEN)
- **Eiji Kido** (ICRR, U. Tokyo)
- **Masakiyo Kitazawa** (YITP, Kyoto U.)
- **Tomoya Naito** (iTHEMS, RIKEN/Dept. Phys., U. Tokyo; Co-Chair)
- **Nobuya Nishimura** (CNS, U. Tokyo/RIKEN/NAOJ; Co-Chair)
- **Toru Tamagawa** (CPR & Nishina Center, RIKEN)
- **Hidetoshi Yamaguchi** (CNS, U. Tokyo)

This workshop is hosted by Yukawa Institute for Theoretical Physics (YITP), Kyoto University and sponsored by UKAKUREN.

Detailed Information and Contact

Please do not hesitate to contact us for any questions or requests.

- <https://indico.yukawa.kyoto-u.ac.jp/event/46/>
- xrb2025@ml.riken.jp