

EIC Asia Workshop in Japan

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The Electron-Ion Collider (EIC) Asia Workshop was held at RIKEN Wako Campus on March 16–18, 2023. This was the second EIC Asia Workshop following the previous one held in Korea in 2022.

EIC⁽¹⁾ is the highest priority future project of American nuclear physics and the world's first polarized electron + polarized proton and nuclear collider to be built at Brookhaven National Laboratory. The EIC user group was established in 2016 and has over 1,300 participants from the U.S., Europe and Asia. The EIC Japan Group was established in Japan simultaneously and is also active in Japan.⁽²⁾

The EIC project has been authorized by the U.S. Department of Energy to transition into the execution phase of the project, and a technical design report is being prepared for the next phase of construction. The Japanese group is also participating in the design of the detector for the ePIC international collaboration experiment to be conducted at the first interaction point. Discussions on cooperation with other groups in Asia, particularly Korea and Taiwan, have been underway from the second half of 2022. Monthly Zoom meetings are also being held to deepen regional cooperation.

This workshop discussed cooperation in the Asian region regarding the development and construction of detectors and systems for the EIC project. Although many researchers from Asian countries are already cooperating in the EIC program, the goal is to deepen cooperation in the Asian region such that synergistic effects can be achieved and activities can be conducted on a larger scale with greater efficiency. Local participants from the management of the EIC program were invited from the U.S., and researchers cooperating with the EIC program in the Asian region gathered in a hybrid format with local and remote participation. We had approximately 30 local in-person participants, and 40 remote online participants.

On the morning of Thursday, March 16, we organized an open session with talks from the U.S. on the EIC project and science, detector and integration, and the ePIC experiment, in addition to perspectives on the EIC held by the Japanese high-energy nuclear physics community. In addition, an open seminar lecture for students and newcomers was held on the morning of Saturday, March 18.

In terms of Asian activities for the EIC, five regions: Japan, Korea, Taiwan, India, and Mainland China, reported on their current status and future perspectives.

As for cooperation in the Asian region, three subsystems that the Japanese group is contributing as part of its participation in the ePIC detector: the Zero-

Degree Calorimeter (ZDC), barrel detector using ACLGAD (Low-Gain Avalanche Detector) with excellent time and spatial resolution, and Fast Streaming DAQ system were discussed, along with plans for other detectors led by other Asian groups.

The workshop was hosted by RIKEN Nishina Center and CNS University of Tokyo A group photograph is shown in Fig. 1. Slides at the workshop are available at <https://indico2.riken.jp/event/4389/>.

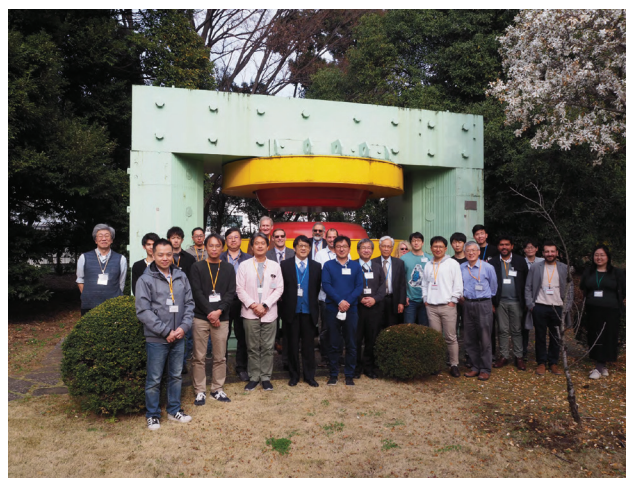


Fig. 1. Group photo of the EIC Asia Workshop in Japan.

The third EIC Asia Workshop was held in Taiwan in January 2024, and the fourth will be held in Mainland China in July 2024. We will continue to deepen regional cooperation on EIC project in the Asian region, and will also continue to expand and develop cooperation between the nuclear physics and high energy physics.

References

- 1) R. A. Khalek *et al.*, Nucl. Phys. A **1026**, 122447 (2022).
- 2) Y. Goto, T. Gunji, K. Shigaki, and S. Yano for the EIC-Japan Group, in this report.

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