

Current status of HANARO Neutron Beam Facility

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HANARO is the only large multipurpose reactor in Korea. It has been operated for 29 years since its initial criticality in February of 1995 and the cold neutron source was installed in 2009. Currently, 5 thermal neutron instruments and 8 cold neutron instruments are operational. Until 2013, the operation of HANARO was successful, with the reactor running for an average of more than 160 days per year. As a result, the number of annual users of neutron beam facilities reached 687 in 2013.

HANARO faced the first serious challenge in 2014 when the nation's nuclear regulator, the Nuclear Safety and Security Commission (NSSC), ordered KAERI to reinforce the outer walls of the reactor building in preparation for severe seismic events. The construction took more than 3 years, during which the fledgling user community had to find out ways to access foreign neutron science facilities.

Although the reactor is now officially back online since December 2017, the facility is now facing another unprecedented challenge in the form of a unique regulation. Since July 2018, NSSC requires research reactor operators to report virtually all unplanned shutdown events to the Commission before approved to restart. As a result, from mid-2014 to 2020, HANARO had operated only for less than two months. Although there is still the regulation that hinder normal operations, the reactor have operated for 73 days in 2021, 92 days in 2022 and 63 days in 2023 and 89 days have been operated so far in 2024. Discussions for the change of regulation began in 2023, and fortunately, the change of regulation was finally decided in September this year. Therefore, from next year, HANARO is expected to operate stably for more than 150 days a year

In this talk, the reactor and neutron beam instruments, user program, and future plans will be given.