Contribution ID: **683** Type: **Keynote Talk (Invitation Only)**

Status of the RAON Facility

Monday, 26 May 2025 09:45 (45 minutes)

The construction of the RAON (Rare isotope Accelerator complex for ON-line experiments) facility commenced in 2011 as part of the Rare Isotope Science Project (RISP). RAON is designed to produce stable and rare isotope beams for fundamental scientific research and application purposes.

The facility comprises two primary systems: an ISOL (Isotope Separation On-Line) system powered by a 70 MeV proton cyclotron and an IF (In-Flight Fragmentation) system driven by a heavy-ion superconducting linear accelerator. The low-energy section of the superconducting linac, SCL3, has been completed and commissioned. SCL3 also functions as a post-accelerator for ISOL beams. The high-energy section of the superconducting linac, SCL2, is under development and is designed to accelerate heavy ions to energies of up to 200 MeV/u.

The first phase of RISP, completed in 2022, included the construction of SCL3, cryoplant systems, the ISOL system with its cyclotron, supporting infrastructure, buildings, and seven experimental systems. Beam commissioning of SCL3 was conducted by accelerating Argon beams to 2.5 MeV/u using 22 QWR modules and subsequently to 18 MeV/u using 32 HWR modules. Argon beams were delivered to the KoBRA (Korea Broad Acceptance Recoil Spectrometer and Apparatus) experimental system for its commissioning.

The ISOL system was commissioned by bombarding a SiC target with proton beams, producing and identifying radioactive isotopes such as Na and Al. Subsequently, Na-25 was accelerated to 16 MeV/u and transported to KoBRA. Using a LaC2 target, the ISOL system generated and identified radioactive isotopes of Cs and Ba. The Collinear Laser Spectroscopy system (CLaSsy) was commissioned with Na-21 and Na-22 ISOL beams. Additionally, the NDPS (Nuclear Data Production System) and the MR-TOF (Multi-Reflection Time-of-Flight) Mass Measurement System are undergoing commissioning.

The first PAC meeting for domestic users in Korea was held in March 2024, marking the start of user services and operations in the summer of 2024. This presentation will provide an overview of the current status of the RAON facility and its experimental systems.

Primary author: HONG, Seung-Woo (Institute for Rare Isotope Science, IBS)

Presenter: HONG, Seung-Woo (Institute for Rare Isotope Science, IBS)

Session Classification: Keynote Session

Track Classification: New Facilities and Instrumentation