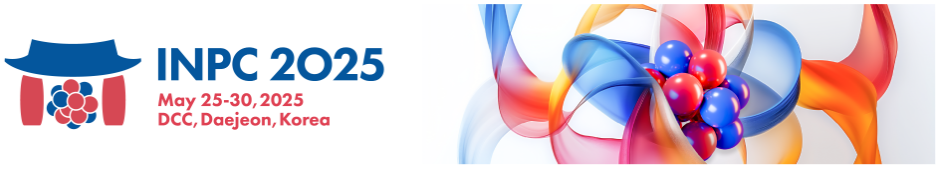

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High-Purity, High-Precision Experimental Beamline (HIPPE) Project at RAON

Nuclear masses and decay properties of radioactive isotopes (RIs) that are far from stable are crucial for studying the fundamental properties of nuclei. In particular, high-precision measurements, such as the study of fundamental interactions, require a highly controlled environment. The purity and quality of the beam have paramount of importance due to the nature of these measurements. Experimental instruments and facilities for such studies exist worldwide, especially at ISOL-based facilities.
The High-Purity, high-Precision Experimental beamline project (HIPPE) was initiated at RAON in collaboration with the Institute for Rare Isotope Science (IRIS) IBS, the Center for Exotic Nuclear Studies (CENS) IBS, the Center for Underground Physics (CUP) IBS, and Seoul National University. The beamline aims to provide a pure, low-energy RI beam with low emittance and minimal energy dispersion for precision measurement instruments like the decay station and Penning trap. The existing multi-reflection time-of-flight mass spectrograph (MRTOF-MS) will be utilized for ISOL beam purification. The beamline is designed with multiple electrostatic ion optical devices to guide and focus the beam as required by these instruments. The project is in the prototype manufacturing phase. The status of the beamline, including ion transport simulations and technical design, will be presented.

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