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Science with SLOWRI

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High precision optical spectroscopy of radioactive ions played important roles in comprehensive studies of the ground state properties of nuclei. Such experiments have been carried out almost exclusively at conventional ISOL facilities where available nuclides were limited by the chemical properties of the elements and the life-time of the nuclei. A universal stopped and low-energy RI-beam facility (SLOWRI) is being installed at RIKEN RIBF. It will convert relativistic RI-beams from the inflight separator BigRIPS to low-energy, low-emittance, high-purity RI beams using two different gas catcher cells: RF-carpet gas cell for universal RI-beams using main beams from BigRIPS and PALIS gas cell for parasitic RI-beams using those nuclei abandoned in the 2nd focal plane slit of BigRIPS. The extracted RI-beams from the gas cells will be mass separated and merged into a single beam line leading to the experimental room where various devices such as a MRTOF mass spectrograph, ion traps and a collinear laser spectroscopy apparatus will be placed and users can always access the room. Many experiments and tuning the spectrometers can be conducted daily using the parasitic beam; the main beam will be required only when very rare isotopes are studied. Possible experiments will be discussed.