

## **LASER ION SOURCE DEVELOPMENT AT THE ISOL OFF-LINE TEST FACILITY OF RISP**

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A highly selective resonant ionization laser ion source (RILIS) based on Ti:Sapphire lasers has been tested in the ISOL facility of Rare Isotope Science Project (RISP)/IBS. In order to facilitate the work on development of ion sources and atomic ionization schemes, an off-line laboratory has been established. This laboratory is capable of providing extensive atomic spectroscopic data to study various laser ionization schemes, which is required for the improvement in ionization efficiency. As a milestone of extraction of rare isotopes produced through uranium fission, double magic nucleus of <sup>132</sup>Sn is our first target. In particular, two transitions as the first excitation step in a three step resonant ionization scheme for Sn are used together to excite the thermal populations of the two ground states <sup>3</sup>P<sub>0</sub> (286.3 nm) and <sup>3</sup>P<sub>1</sub> (300.9 nm) to improve the ionization efficiency. The optical transitions and the ionization scheme for Sn were tested using a reference cell and the Ti:Sapphire laser system was applied to the laser ion source. The ionized stable isotopes of Sn have been successfully extracted and separated via a mass-separator magnet system to study the performance of the RILIS setup. We present the recent results and the current status of the laser ion source development in the off-line test facility of RISP.