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## **RIALTO, the Resonant Ionization Laser Ion Source at ALTO**

RIALTO, the Resonant Ionization Laser Ion Source at the ALTO facility, uses a multi-step laser excitation process to produce pure ion beams through the resonance ionization technique.

The laser laboratory is equipped with three high-power Nd:YAG operating at 10 kHz and pumping three dye lasers; these lasers are coupled with BBO doubling units and one tripling unit; this laser system allows us to achieve two and three-step ionization schemes with a range of 200–850 nm.

Additionally, an atomic beam unit (ABU) is incorporated into the setup to determine optimal operational parameters for online operation with a radioactive beam. The ABU was used to determine the optimal operational parameters and laser ionization scheme for producing silver with a 3-step-3 color scheme. The upgraded RIALTO system enables the simultaneous production of two different element schemes, leading to the successful generation of stable Ga and Ag beams.

Furthermore, this work includes measurements of the laser ionization production of radioactive Ga and Ag, which are compared with the initial estimations, providing valuable insights.

### **Abstracts**

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