A highly-selective laser ion source based on multi-step resonant photo-ionization has been successfully commissioned at ORNL.

The laser ion source is used to effectively suppress isobaric contamination and provide pure beams of radioactive nuclei far from stability.

Beams of neutron-rich Ga isotopes were delivered to the Low-energy Radioactive Ion Beam Spectroscopy Station (LeRIBSS) with previously unattainable purity and intensity.

The β-decay of the very exotic isotope $^{86}$Ga, delivered to LeRIBSS at the rate of several ions per second, was studied for the first time. The observation of only a few atoms of $^{86}$Ga was reported earlier in fragmentation studies.

The laser ion source can extend the purity, intensity, and range of short-lived radioactive species available for research at ORNL.

Contact: Yuan Liu, 865-574-4761, liuy@ornl.gov
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