



Contribution ID: 157

Type: **Poster Presentation**

A Resonant Ionization Laser Ion Source at ORNL

Tuesday, 12 May 2015 17:00 (0 minutes)

Multi-step resonance laser ionization has become an essential tool for the production of isobarically pure radioactive ion beams at the Isotope Separator On-Line (ISOL) facilities around the world. A resonant ionization laser ion source (RILIS) had been developed [1] for the former Holifield Radioactive Ion Beam Facility (HRIBF) of Oak Ridge National Laboratory (ORNL). The RILIS employs the widely-used hot-cavity ion source and all-solid-state Ti:Sapphire lasers. The laser system consists of three grating-tuned lasers and individual pump lasers, especially designed for stable and simple operation. The RILIS has been installed at the Injector for Radioactive Ion Species 2 [2], the second ISOL production platform at the former HRIBF, and has successfully provided beams of neutron-rich $^{78,83-86}\text{Ga}$ isotopes for beta decay studies [3]. The features, advantages, limitations, on-line implementation, and performance of the RILIS in off-line and on-line operations will be presented.

[1] Y. Liu, *Hyperfine Interact.* 227, 85 (2014).

[2] J. R. Beene, D. T. Dowling, C. J. Gross, R. C. Juras, Y. Liu, M. J. Meigs, A. J. Mendez II, W. Nazarewicz, J. W. Sinclair, D. W. Stracener, B. A. Tatum, *AIP Conference Proceedings* 1336, 576 (2011).

[3] Y. Liu, C. U. Jost, A. J. Mendez II, D. W. Stracener, C. L. Williams, C. J. Gross, R. K. Grzywacz, M. Madurga, K. Miernik, D. Miller, S. Padgett, S. V. Paulauskas, K. P. Rykaczewski, and M. Wolinska-Cichocka, *Nucl. Instr. and Meth. B* 298, 5 (2013).

Primary author: Dr LIU, Yuan (Oak Ridge National Laboratory)

Co-author: Dr STRACENER, Daniel W. (Oak Ridge National Laboratory)

Presenter: Dr LIU, Yuan (Oak Ridge National Laboratory)

Session Classification: Poster Session B