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The ISOLDE RILIS in 2018

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The Resonance Ionization Laser Ion Source (RILIS) at ISOLDE continued its status as the most frequently used ion source at the facility in 2018, providing laser-ionized beams of 14 elements over 20 experimental runs. Additional beams were provided during a dedicated target and ion source development period. Highlights from the 2018 on-line period will be presented.

Experimentally, the in-source spectroscopy programme continued with two experiments in the summer investigating neutron-rich bismuth isotopes and, for the first time, dysprosium isotopes. The RILIS infrastructure was used for a third spectroscopy experiment by providing laser light to perform electron photodetachment of negative ions with GANDALPH.

There were numerous technical developments throughout the year. In a continued effort to extend the applicability of solid-state lasers for on-line operation, alternative ionization schemes for copper and antimony were tested. Significant investment has been made in narrow-linewidth laser systems to extend the RILIS spectroscopic capabilities. A narrowband injection-seeded titanium-sapphire (Ti:Sa) laser was constructed, commissioned and successfully employed in the first two-photon ionization measurements at ISOLDE. Additionally, work on commissioning a pulsed-dye amplifier of continuous-wave laser light is underway.

Progress towards the construction of the new MEDICIS and Offline 2 laser laboratories will also be reported. Finally, an outlook to the planned activities during Long Shutdown 2 (LS2) will be given.

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