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The ISOLDE RILIS in 2016, achievements, developments and future plans

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Highlights of the 2016 on-line period will be presented, together with the latest results from the continuous RILIS R&D undertaken at ISOLDE. Expanding RILIS capabilities increase the possibility for customized (experiment specific) operation.

The RILIS was requested for >75% of ISOLDE experiments in 2016. There have been a number highlights from the RILIS perspective. On the experimental side there have been two bismuth in-source spectroscopy experiments and by directing the RILIS lasers to GLM, a renewed campaign of electron affinity measurements at GANDALPH. On the ion beam production side, the RILIS mode of VADLIS operation was applied to selectively ionize magnesium for ISOLTRAP and operating with a reduced laser linewidth enabled both isomer selective ionization of indium for IDS and isotope selective ionization of beryllium for collections for n_TOF/SARAF.

There have also been a number of RILIS developments. The efficiency of the new RILIS tellurium ionization scheme was determined to be >18% at ISOLDE. New RILIS ionization schemes for radium were developed and applied twice for CRIS experiments. RILIS ionization of iron was demonstrated for the first time in collaboration with the ISOLTRAP MR-ToF MS team. Work on projects reported last year has continued, including the further application of an atomic beam unit (PISA) installed in the RILIS laser room for europium ionization scheme development and the re-establishing of 10 kHz ion beam micro-gating capabilities at ISOLDE.

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