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The impact of the development of the Resonance Ionization Laser Ion Source (RILIS) on nuclear astrophysics at ISOLDE.

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2010 marks the 25th anniversary of the first measurement of the half-life of 130Cd at ISOLDE (1985) and the 15th anniversary of the first measurement of the decay of neutron-rich Ag isotopes (1995) ionized via Resonance Ionization Laser Ion Source (RILIS). Since that time, the nuclear decay properties of neutron-rich nuclei lying in and near the proposed path of the astrophysical r-process have been determined at ISOLDE. Elements studied using the selectivity achieved with the RILIS include Mn, Ag, Cd, In, Sn, and Sb The influence of these data on nuclear structure models will be considered, along with the impact of these measurements on the development of ideas about how and where the r-process takes place will be described. In particular, parallel developments in astronomical observations of ultra-metal-poor halo stars have combined with the nuclear physics measurements to lead to the conclusion that the formations of elements in the A = 130 mass peak and beyond seems to be a "robust primary process"that is most likely to occur in core-collapse type II supernovae.

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