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25 Years of Radioactive Beams at TRIUMF[1]

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It has been 25 years since the first radioactive beams were produced at TRIUMF, Canada's National Laboratory for Particle and Nuclear Physics. These first beams, ^{37,38}K and ^{25}Na, were produced using the innovative TISOL (Test Isotope Separator On-Line) prototype facility and started the path to the present ISAC (Isotope Separator and ACcelerator) facility, considered one of the best accelerated radioactive beam facilities in the world today, and the new ARIEL (Advanced Rare IsotopE Laboratory) facility, presently under construction. It is time to acknowledge the role TISOL played in opening this path, and explore some of its achievements during its years of operation. TISOL enabled experiments measuring the decay of very short-lived isotopes, including information needed for energy production in novae, an atom trap to measure neutrino momenta from beta decay, a key experiment in understanding the production of carbon and oxygen in the Universe, and other studies. This presentation will give a short history of TISOL, aspects of its original technical characteristics and a summary of its scientific achievements.

[1]Work done in collaboration with Corina Andreoiu, Simon Fraser University; John Behr, Lothar Buchmann, Marik Dombsky, and Peter Jackson, TRIUMF.