

Abstract for an Invited Paper
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Rare Isotope Science¹

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The development of radioactive-beam facilities worldwide, such as those at ISOLDE, TRIUMF-ISAC, the NSCL, HBIBF, RIKEN, GANIL, GSI, etc., has provided a tremendous potential for nuclear science in general and specifically nuclear physics. The ability to produce record-intensity radioactive-ion beams both near and far from stability has enabled new avenues of research in nuclear structure, nuclear astrophysics, weak-interaction studies, material science, and applied physics. Combined with the development of production facilities, significant advancements in instrumentation have occurred that maximize sensitivity to the physics events of interest in the presence of, at times, very large radioactive backgrounds. An overview of the two main production techniques, ISOL and fast-fragmentation, will be given, together with some selected developments in spectrometers and detection systems. Some physics highlights that have resulted from these advancements will be outlined. Finally, recent results and future perspectives for nuclear physics studies at the TRIUMF-ISAC facility, currently the world's most powerful ISOL facility, will be presented, including plans for a 500 kW electron linac driver for photofission.

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