

Abstract Submitted
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Calculation of isotope yield rates for radioactive isotope beam production FATIMA GARCIA, CORINA ANDREOIU, Simon Fraser University, PETER KUNZ, AURELIA LAXDAL, TRIUMF — Access to new and rare radioactive isotopes is key for application in nuclear science. Rare Isotope Beam (RIB) facilities around the world, such as TRIUMF, work towards development of new target materials to generate increasingly exotic species used in nuclear medicine, astrophysics and fundamental physics studies. At Simon Fraser University and TRIUMF, we have built a computer simulation of the RIB targets used at the Isotope Separation and ACceleration (ISAC) facility of TRIUMF, to compliment existing knowledge and to support new target material development. The simulation is built in the GEANT4 nuclear transport toolkit, and can simulate the production rate of isotopes from beam and target characteristics specific to TRIUMF. The simulation models the bombardment of a production target by an incident high-energy proton beam and calculates isotope production rates via fission, fragmentation and spallation. Results from the simulation will be presented, along with an evaluation of various nuclear reaction physics models as well as experimentally determined RIB yields at ISAC.

Fatima Garcia
Simon Fraser University

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