Abstract Submitted
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High-precision gamma-ray spectroscopy for enhancing production and application of medical isotopes[1] E.A. MCCUTCHAN, A.A. SONZOGNI, S.V. SMITH, L. MUENCH, Brookhaven National Laboratory, M. NINO, Hofstra University, J.P. GREENE, M.P. CARPENTER, S. ZHU, Argonne National Laboratory, T. CHILLERY, P. CHOWDHURY, R. HARDING, C.J. LISTER, UMASS, Lowell — Nuclear medicine is a field which requires precise decay data for use in planning radionuclide production and in imaging and therapeutic applications. To address deficiencies in decay data, sources of medical isotopes were produced and purified at the Brookhaven Linear Isotope Producer (BLIP) then shipped to Argonne National Laboratory where high-precision, gamma-ray measurements were performed using Gammasphere. New decay schemes for a number of PET isotopes and the impact on dose calculations will be presented. To investigate the production of next-generation theranostic or radiotherapeutic isotopes, cross section measurements with high energy protons have also been explored at BLIP. The 100-200 MeV proton energy regime is relatively unexplored for isotope production, thus offering high discovery potential but at the same time a challenging analysis due to the large number of open channels at these energies. Results of cross sections deduced from Compton-suppressed, coincidence gamma-ray spectroscopy performed at Lowell will be presented, focusing on the production of platinum isotopes by irradiating natural platinum foils with 100 to 200 MeV protons.

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