

Abstract Submitted
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High Resolution Gamma Ray Analysis of Medical Isotopes

THOMAS CHILLERY, UMass Lowell - Brookhaven National Lab Collaboration — Compton-suppressed high-purity Germanium detectors at the University of Massachusetts Lowell have been used to study medical radioisotopes produced at Brookhaven Linac Isotope Producer (BLIP), in particular isotopes such as Pt-191 used for cancer therapy in patients. The ability to precisely analyze the concentrations of such radio-isotopes is essential for both production facilities such as Brookhaven and consumer hospitals across the U.S. Without accurate knowledge of the quantities and strengths of these isotopes, it is possible for doctors to administer incorrect dosages to patients, thus leading to undesired results. Samples have been produced at Brookhaven and shipped to UML, and the advanced electronics and data acquisition capabilities at UML have been used to extract peak areas in the gamma decay spectra. Levels of Pt isotopes in diluted samples have been quantified, and reaction cross-sections deduced from the irradiation parameters. These provide both cross checks with published work, as well as a rigorous quantitative framework with high quality state-of-the-art detection apparatus in use in the experimental nuclear physics community.

Thomas Chillery
UMass Lowell

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