

Abstract Submitted
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Gamma Ray Spectroscopy of Heavy Elements using GAMMASPHERE¹ MARCO BONETT-MATIZ, Umass Lowell — The project involves data analysis to study excitations in heavy nuclei in and around the nucleus ^{209}Bi . The data is from an experiment that was carried out to study heavy nuclei in the ^{248}Cm region. The experiment consisted of a ^{209}Bi beam from the ATLAS heavy-ion accelerator at Argonne National Laboratory incident on a ^{248}Cm target. The beam energy was 1450 MeV, 15% above the Coulomb barrier. Excited states in both target-like and beam-like nuclei were populated. While the primary focus of the experiment was to study isomers in ^{248}Cm , this complementary project was to study excitations of ^{209}Bi and neighboring nuclei around the doubly magic ^{208}Pb . The gamma rays were detected by the GAMMASPHERE array of 100 germanium detectors. Level schemes were analyzed through gamma matrices and cubes using the standard RADWARE suite of programs. Angular correlations were analyzed for multipolarity information. Isomer halfives in the nanosecond to microsecond range were studied. New isomers in ^{209}Bi , expected through the coupling of an extra proton to the ^{208}Pb core, were searched for. Results of the above spectroscopic studies will be presented.

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