Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Photo-Induced depopulation of the ^{180m}Ta isomer[1] MEGHA BHIKE, FNU KRISHICHAYAN, W. TORNOW, Department of Physics/TUNL, Duke University — The ^{180m}Ta nucleus is the rarest isotope in the universe, existing only in an isomeric state at 77.2 keV ($J^{\pi} = 9^{-}$) with half-life of greater than 7.1×10^{15} years. The stellar production of this high-spin isomer has been a challenging astrophysical problem. Cross-section measurements for the depopulation of the ^{180m}Ta isomer with monoenergetic photon beams of energies 2.5 and 3.1 MeV have been carried out at the HIγS facility. The activated Ta foils of natural abundance and containing 14.4 mg of ^{180m}Ta were γ-ray counted at TUNL's low background facility using a 13% planar HPGe detector. A $8''\times12''$ NaI detector in combination with the standard HIγS scintillator paddle system was employed for absolute photon-flux determination. Preliminary results will be discussed, and measurements at lower energies are planned.

[1]This work was supported by the U.S. DOE under grant NO. DE-FG02-97ER41033.

Megha Bhike
Department of Physics/TUNL, Duke University

Date submitted: 30 Jun 2015 Electronic form version 1.4