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Induced depletion of ^{108m}Ag with 6 MeV bremsstrahlung J. CARROLL, M. LITZ, US Army Research Laboratory, K. NETHERTON, Drexel University, S. HENRIQUEZ, US Army Research Laboratory, N. PEREIRA, Ecopulse, Inc., S. KARAMIAN, Joint Institute for Nuclear Research — The nuclide ^{108}Ag possesses an interesting combination of a long-lived isomer ($T_{1/2}$= 418 years, $I^{\pi} = 6^{+}$, E = 109 keV) and a short-lived ground state ($T_{1/2}$ = 2.37 minutes, $I^{\pi} = 1^{+}$). The ground state decays primarily by β^{-} emission with $Q_{\beta-}$ = 1,649 keV. A search of the available nuclear data (e. g., ENSDF and Phys. Rev. C 52, 104 (1995)) suggests two possible transitions at energies below 500 keV from the isomer to higher-lying levels, whose subsequent decay can branch to the ground state. This process would lead to a partial depletion of any population trapped within the isomeric state, ^{108m}Ag. Currently, the cross section for induced isomer depletion via these transitions cannot be accurately deduced due to unknown branching ratios, and level widths and spins. Other "depletion" levels requiring excitation > 500 keV are also likely. An experimental test of ^{108m}Ag depletion has been performed using 6 MeV bremsstrahlung at the US Army Research Laboratory, with isomeric targets and a computer-controlled repetitive measurement system. The design of the system and experimental results will be discussed.

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