Low-lying states near the $I^\pi = 6^+$ isomer in $^{108}$Ag


1 Tata Institute of Fundamental Research, Mumbai 400005, India
2 US Army Research Laboratory, Adelphi, MD 20783, USA
3 Joint Institute for Nuclear Research, Dubna 141980, Russia
4 Sambalpur University, Sambalpur 768019, India
5 Ananda Mohan College, Kolkata 700009, India
6 Saha Institute of Nuclear Physics, Kolkata 700064, India
7 University of Notre Dame, Notre Dame, IN 46556, USA
8 University of Delhi, Delhi 110007, India
9 Panjab University, Chandigarh 160014, India
10 Department of Physics, University of Kashmir, Srinagar 190006, India
11 Department of Physics, University of Surrey, Guildford, Surrey GU2 7XH, UK

E-mail: palit@tifr.res.in

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Abstract
The low-lying states of $^{108}$Ag near the $I^\pi = 6^+$ isomer have been investigated with the $^{11}$B + $^{100}$Mo reaction at 39 MeV beam energy. We aim at understanding the structure of the states near the isomer and identifying possible isomer depletion paths. From the $\gamma-\gamma$ and $\gamma-\gamma-\gamma$ coincidence analysis, spectroscopy of the excited states near the isomer has been carried out to establish new transitions and modification of the previously known level scheme. The present work suggests a total of three possible transitions at energies below 500 keV from the isomer to higher excited levels, whose subsequent decay can branch to the ground state. The spins and parities of these states have been established with angular correlation and polarization measurements. The branching ratios and multipolarities of the associated $\gamma$-rays were used in the estimation of the integral cross section for induced isomer depletion via these states. The experimental data have been compared to the results of projected Hartree–Fock calculations to understand the configurations of the levels.

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