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Isomeric Yield Ratio of 104,106m,gAg from natAg (γ, xn) reaction at end-point bremsstrahlung energies of 50 and 60 MeV

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The isomeric yield ratio (IYR) of 104,106Agm,g in the 50 and 60 MeV bremsstrahlung induced reaction of natAg has been determined for the first time by off-line gamma ray spectrometric technique using 100 MeV electron linac at Pohang Accelerator Laboratory (PAL), Pohang, Korea. The end-point bremsstrahlung energies of 50 and 60 MeV were produced by impinging electron beam on tungsten metal foil of thickness 0.1 mm and area 10 cmx 10 cm. The production of 104Agm,g and 106Agm,g from natAg (γ, xn) reactions takes place from various reaction channels depending on the isotopic composition and reaction threshold. Thus the correction due to the contribution from the higher reaction channels were taken care by taking the help of TALYS 1.4 computer code to obtain the absolute IYRs of 104,106Agm,g from natAg(γ, xn) reaction. The flux-weighted IYRs of 104,106Agm,g as a function of bremsstrahlung energy were also calculated theoretically using computer code TALYS 1.4. The corrected experimental IYRs of 104 ,106Agm,g obtained in the present work along with literature data at lower energies are compared with the theoretical value from TALYS and found to be in general agreement. It was observed that the experimental and theoretical IYRs of 104,106Agm,g increase with the increase of end-point bremsstrahlung energy, which show the effect of excitation energy.

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