Contribution ID : **207** Type : **Poster**

Isomeric ratio for the pair 85m,gSr formed in natSr(γ,xn)

Tuesday, 29 November 2022 17:10 (120)

The aim of the present work was to measure the yield ratios of the 85m,gSr produced in the natSr(γ,xn) reactions with bremsstrahlung end-point energy 55 MeV. The study examined the possibility of producing 85Sr isotope in photonuclear reactions on a natural mixture of strontium isotopes. The radionuclide 85Sr has decay parameters such as half-life and photon energies suitable for the nuclear medical applications. So far, it has been widely used in the scanning of suspected bone disease. Usually, the 85Sr is produced through the 85Rb(p,n) nuclear reaction. The investigated multiparticle photonuclear reactions natSr(γ,xn)85m,gSr can also be considered as part of a complementary method for the production of the 85Sr medical isotope. The yields of the target nuclide 85m,gSr were measured as a result of natSr(γ, xn) reactions. The isomeric ratio is obtained for 85m,gSr. The value found for this isomeric ratio is compared with the results of other studies and with the results of calculations based on TALYS-1.96.

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Session Classification : Poster Session

Track Classification : Nuclear physics