^{164}Dy(α,pγ) 2023Po08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 191,1 (2023)	22-Aug-2023

Determination of nuclear level density (NLD) and γ-strength function (GSF) using the Oslo method from the measurement of continuum γ-ray spectra in coincidence with protons. Using these results, authors deduced ^{166}Ho(n,γ) cross sections at different neutron energies, including at temperatures relevant to nucleosynthesis by the s-process.

2023Po08: E(α)=26 MeV. Measured E(p), I(p), Eγ, Iγ, pγ-coin using the OSCAR array of 30 $LaBr_3$(Ce) scintillation detectors for γ detection, and the SiRi detector array of eight silicon-telescope modules for detection of protons at the University of Oslo cyclotron facility. Deduced nuclear level density (NLD) up to 8-MeV excitation energy, and the γ-ray strength function (GSF) for Eγ up to 7 MeV, estimation of the E1 strength, and presence of a scissors resonance and a pygmy dipole resonance in GSF. ^{166}Ho(n,γ), E(n)=0.001-10 MeV; deduced σ(E) for E(n)=0.001-10 MeV, and the Maxwellian-averaged cross sections (MACS) for kT<105 keV using extracted NLD and GSF, and the Oslo analysis method. Relevance to astrophysical s-process in AGB stars. Comparison to various theoretical model calculations.