



Contribution ID: 73

Type: Oral

Systematic investigation of photon strength functions with monochromatic gamma-ray beams

Thursday, 20 July 2023 18:00 (15 minutes)

Following the main objective of the IAEA Coordinated Research Project on Photonuclear Data and Photon Strength Functions (Code F41032; Duration 2016-2019), new measurements of photoneutron and photofission cross sections in the Giant Dipole Resonance energy region have been performed at the laser Compton-scattering γ -ray source of the NewSUBARU synchrotron radiation facility. Nuclei in a wide mass range spanning from ^9Be to ^{238}U have been investigated. Quasi-monochromatic γ -ray beams with typical energy resolution 3% in FWHM have been employed. The neutron multiplicity sorting has been performed using an energy-dependent statistical treatment of neutron coincidence events associated with a flat-efficiency moderated neutron detection array. We report updates on the experimental technique and methodology and selected experimental results on photoneutron (^{197}Au , ^{208}Pb) and photofission (^{232}Th , ^{238}U) cross sections as well as average energies of neutron emission spectra.

Primary authors: GHEORGHE, I. (National Institute for Physics and Nuclear Engineering, Horia Hulubei (IFIN-HH), 30 Reactorului, 077125 Bucharest-Magurele, Romania); FILIPESCU, D. (National Institute for Physics and Nuclear Engineering, Horia Hulubei (IFIN-HH), 30 Reactorului, 077125 Bucharest-Magurele, Romania); LALIC, N. (Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, 64289, Germany); SYMOCHKO, D. (Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, 64289, Germany); SCHEIT, H. (Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, 64289, Germany); AUMANN, T. (Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, 64289, Germany); WANG, H. (Shanghai Advanced Research Institute, Chinese Academy of Sciences, No.99 Haike Road, Zhangjiang Hi-Tech Park, 201210 Pudong Shanghai China); FAN, G. (Shanghai Advanced Research Institute, Chinese Academy of Sciences, No.99 Haike Road, Zhangjiang Hi-Tech Park, 201210 Pudong Shanghai China); MIYAMOTO, S. (Laboratory of Advanced Science and Technology for Industry, University of Hyogo, 3-1-2 Kouto, Kamigori, Ako-gun, Hyogo 678-1205, Japan); AR-IZUMI, T. (Konan University, Department of Physics, 8-9-1 Okamoto, Higashinada, Kobe 658-8501, Japan); UT-SUNOMIYA, H. (Konan University, Department of Physics, 8-9-1 Okamoto, Higashinada, Kobe 658-8501, Japan); Shanghai Advanced Research Institute, Chinese Academy of Sciences, No.99 Haike Road, Zhangjiang Hi-Tech Park, 201210 Pudong Shanghai China)

Presenter: GHEORGHE, I. (National Institute for Physics and Nuclear Engineering, Horia Hulubei (IFIN-HH), 30 Reactorului, 077125 Bucharest-Magurele, Romania)

Session Classification: Session 13B

Track Classification: Experimental Nuclear Structure