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

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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.

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