

γ -ray Strength Functions and Partial GDR Cross Sections in the IAEA Photonuclear Data Project

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We review the latest development of measuring γ -ray strength functions and partial GDR cross sections for the the IAEA photonuclear data project [1] at the MewSUBARU synchrotron radiation facility. γ -ray strength functions (γ SF_a) are investigated with the γ SF method [2] and the Oslo method [3,4]; (γ ,n) cross sections are used as experimental constraints on the model E1 and M1 γ SFs from the Hartree-Fock- Bogolyubov plus quasi particle random-phase approximation based on the Gogny D1M interaction supplemented with the M1 upbend in the former and on the experimental information on γ SFs below neutron threshold deduced by the Oslo method in the latter. The investigation includes isotopic chains of Ni, W, Zn, and Gd. Partial GDR cross sections are measured for 11 nuclei from 9Be to 209Bi by direct neutron-multiplicity sorting with a flat-response neutron detector [5] toward a goal of resolving the long-standing discrepancy between the Livermore and Saclay data [6]. We present γ SFs and partial GDR cross sections, including those for Ni isotopic chain [7] and updated for 209Bi [8].

[1] <https://www-nds.iaea.org/CRP-photonuclear/>

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