Abstract Submitted
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Experimentally Resolved Photo-Excitation Cross Sections Below the Neutron Separation Energy[1] NATHAN COOPER, VOLKER WERNER, Yale University — Numerous nuclear resonance fluorescence experiments have been performed in recent years to study the photon strength function of nuclei up to $E_\gamma = S_n$ by measuring the photo-excitation cross section; however, accurate measurement of the total cross section remains an experimental challenge. A simple method of evaluating several aspects of experimentally resolvable photo-excitation cross sections below $E_x = S_n$ within a statistical model will be presented. The method used in the statistical code developed for this work differs from the widely-used DICEBOX algorithm [1] in that only transition widths of γ-rays which directly depopulate photo-excited states are sampled and converted into observable quantities, as production of a complete γ-ray intensity spectrum would be superfluous for this purpose. Available experimental data on the $N = 50$ and $N = 82$ isotonic chains will be compared with results using photon strength functions given by the standard Lorentzian and the model of Kadmenskii, Markushev, and Furman [2].

[1] F. Bečvář, Nucl. Instrum. Meth. A 417, 434 (1998).
[2] S.G. Kadmenskii, V.P. Markushev, and V.I. Furman, Yad. Fiz. 37, 277 (1983).

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