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Improving the probability tables of the cross section of near closed-shell nuclei[1] MATTEO VORABBI, DAVE BROWN, Brookhaven National Laboratory, CALEB MATTOON, GERT GODFREE, BRET BECK, Lawrence Livermore National Laboratory — The level density distribution of near closed-shell nuclei is much lower than the typical nucleus, therefore, the cross sections show significant fluctuations and these fluctuations are not predictable. The current methodology used to describe such behavior and construct the probability table of the cross section is based on the extrapolation of the average resonance widths and average resonance spacings from the resonance region and use these parameters to construct the probability table. Although this is a standard and widely used technique, it does not take into account the existing experimental data, such for total and the elastic cross section. Our goal is to extend the current theory and provide a more general approach to compute the probability distribution function of the cross section combining the existing probability tables and the available experimental data. Results will be presented for ^{90}Zr.

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