

Level Width Broaden Effect

ZHANG Jing-Shang

China Institute of Atomic Energy, P.O. Box 275(41), Beijing 102413, China
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Abstract: In fitting the double-differential measurements the level width broadening effect should be taken into account properly due to Heisenberg uncertainty. Besides level width broadening effect the energy resolution in the measurements is also needed in this procedure. In general, the traditional normal Gaussian expansion is employed. However, the research indicates that to do so in this way the energy balance could not hold. For this reason, the deformed Gaussian expansion functions with exponential form for both the single energy point and continuous spectrum are introduced, with which the normalization and energy balance conditions could hold exactly in the analytical form.

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Key words: level width broadening, double-differential cross section, energy balance

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