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The study of shape evolution in Mo isotopes with photon strength function

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The charge radii in neutron-rich isotopes of Mo, Sr, and Zr have been experimentally shown to suddenly increase at $N=58-60$ due to a prolate-to-oblate transition, indicating a significant shape evolution. The giant resonance structure has been observed in photonuclear reaction experiments and in measuring the photo-absorption cross sections. For spherical nuclei, a single Lorentzian curve is sufficient to fit the experimental photon absorption cross section. However, for deformed nuclei, the cross-section curve splits into two components due to the breaking of rotational symmetry. These components correspond to the frequencies of oscillation along the long and short axes, respectively. In this paper, the evolution of the shape of Mo isotopes is studied by the use of photon power functions.

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