

Toroidal Mode in Nuclei: Recent Progress

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The vortical dipole toroidal mode (TM) attracts a high attention last decades [1]. The toroidal resonance is located at the energy of the pygmy dipole resonance and forms the low-energy part of the isoscalar giant dipole resonance. Besides TM can be realized as the lowest dipole $K=1$ states in light deformed nuclei [2–4]. TM is the only intrinsic electric vortical mode in nuclei. It can exist as a vortex ring [5, 6] or vortex-antivortex pair [2]. The squeezed toroidal resonance is the origin of the pygmy dipole resonance (PDR) [6, 7]. In the present talk, we review a recent progress in exploration of TM. The main attention is paid to individual toroidal states in light deformed nuclei [2–4] and relation of the toroidal resonance and PDR [6, 7].

References

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