

Coulomb excitations of superheavy nuclei – dreams or research project?

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In the region of the heaviest nuclei one can observe various collective phenomena: nuclear deformation, ranging from spherical to prolate and oblate shapes with the possible occurrence of triaxial symmetries [1] and superdeformation [2], collective octupole excitations [3] and high-K states [4,5]. The Coulomb excitation technique, which is widely used to study collectivity of stable and unstable nuclei, has been applied to a few heavy cases only (e.g. ^{248}Cm [6]).

A significant progress was made during last two decades in experimental methods of COULEX with exotic beams. Availability of better accelerators and new detector systems of high efficiency allow to think about Coulomb excitation of super heavy elements too. Also achievements reached in investigations of SHE structure and experimental facilities currently exploited to study nuclei heavier than Nobelium present a potential to be adopted for new generations of COULEX measurements with very heavy elements.

Hopes and challenges faced by the Coulomb excitation technique to study nuclei with Z about 100 will be presented and discussed.

Bibliography

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