

Study of octupole deformation in neutron-rich Ba isotopes using Coulomb excitation at intermediate energies

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With this proposal we intend to continue our experimental program to study neutron-rich nuclei in the region around doubly-magic ^{132}Sn using in-beam γ -ray spectroscopy at relativistic energies, which we initiated with experiment NP1306-RIBF98R1 in 2015. In particular, we propose to study the octupole deformation of neutron-rich Ba isotopes by measuring the transition probabilities to the first excited 3- states, $B(E3; 0^+ \rightarrow 3^-)$, in $^{144,146,148,150}\text{Ba}$ using the technique of intermediate-energy Coulomb excitation. The results of this experiment will allow to test the predictions of various microscopic calculations which establish the Ba isotopes as low-Z boarder of the region of octupole deformation above the $Z=50$ and $N=82$ shell closures.

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