Contribution ID: 1

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

Friday, 12 April 2019 10:15 (15 minutes)

With this proposal we intend to continue our experimental program to study neutron-rich nuclei in the region around doubly-magic 132Sn 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 144,146,148,150Ba 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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