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Shape coexistence in exotic nuclei studied by low energy coulomb excitation

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The study of the shape coexistence in exotic nuclei provide important benchmarks for modern nuclear theories. Shape-coexisting states in neutron-deficient krypton isotopes have been studied by low-energy multi-step Coulomb excitation of radioactive 74Kr and 76Kr beams at GANIL. Thanks to a large statistic, both transitional and diagonal matrix elements were extracted up to high spins using the GOSIA code. The final result shows a complex coupling between prolate, oblate and vibrational configurations. All experimental values are compared with HFB+GCM theoretical calculations underlining the necessity to treat all quadrupole degrees of freedom to describe these nuclei. Finally, the investigation of shape coexistence between a highly deformed prolate configuration and a spherical state in neutron-rich nuclei around N=60 at REX-ISOLDE will be presented. The future Coulomb excitation experiment (IS451) of a radioactive 96Sr beam at MINIBALL will be discussed.

Primary author: Dr CLEMENT, Emmanuel (European Organization for Nuclear Research (CERN))

Presenter: Dr CLEMENT, Emmanuel (European Organization for Nuclear Research (CERN))

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