LIFETIME MEASUREMENT IN THE EVEN-EVEN NEUTRON-RICH MOLYBBDENUM ISOTOPES WITH THE PRESPEC-AGATA SETUP

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The energies of the excited states of the mid shell nuclei with mass 100<A<110 indicate collective behaviors. In particular, the neutron rich molybdenum and zirconium isotopes show a rapid shape transition. In addition, shape-coexistence behaviors and triaxiality are expected in this region.
In order to have a better understanding of the collectivity in this region, lifetimes of excited states in even-even molybdenum isotopes were measured by an in-flight-gamma-ray spectroscopy experiment using the PreSPEC-AGATA setup. The coupling of AGATA with LYCCA detectors provided with a high resolution the ion positions at the target level and the emission angles of the gamma rays, which allow the use of a Doppler Shift Attenuation Method for the lifetime determination.
After a detailed analysis, several transitions associated with the decay of the ground state band in even-even molybdenum isotopes from A=100 to A=108 have been observed and there lifetime were measured. A good agreement was obtained between our results and the adopted values. A comparison of the results with beyond mean-field calculations indicates a triaxial behavior in the neutron rich molybdenum isotopes.
The key elements of the data analysis that allowed to estimate the lifetime of even-even molybdenum isotopes together with the results will be presented in this talk.