Contribution ID: **36** Type: **Contributed Talk**

Triaxiality of neutron-rich ruthenium nuclei studied by lifetime measurements

Tuesday, 25 November 2025 11:50 (15 minutes)

Neutron-rich ruthenium nuclei with mass around A≈110 are considered some of the best examples for nuclei with triaxial shape in their ground state. Quantitative information about the deformation in general and the degree of triaxiality in particular was obtained from lifetime measurements of short-lived excited states in ^{108}Ru, ^{110}Ru, and ^{112}Ru. Lifetimes were measured using the recoil distance Doppler shift (RDDS) technique for states in both the ground-state band and the K=2 gamma band for the Ru isotopes under study. Combining the lifetimes with known branching rations, the measurements provide a multitude of new B(E2) transition strengths. The excited states were populated in fusion-fission reactions between a ^{238}U beam at 6.2 A MeV and a ^{9}Be target in an experiment performed at GANIL. The fission fragments were identified in mass, charge, and atomic number in the magnetic spectrometer VAMOS on an event-by-event basis. The velocity of nuclei exiting the target foil was slowed down in a degrader that was mounted in a plunger device at variable distances from the target. The AGATA gamma-ray tracking array was used to measure picosecond lifetimes with the RDDS method. The experiment produced a wide range of neutron-rich fission fragments, for which lifetimes could be measured under identical experimental conditions. An overview of the results will be presented, with emphasis on the chain of Ru isotopes. The comparison of experimental results with the triaxial rotor model and with beyond-mean field calculations provides quantitative information on the evolution of triaxiality in the chain of Ru isotopes.

Primary authors: GÖRGEN, Andreas (University of Oslo, Norway); HEINES, Johannes Sørby (University of Oslo, Norway); MODAMIO, Victor (University of Oslo, Norway); KORTEN, Wolfram (IRFU, CEA, Université Paris-Saclay, France); FOR THE GANIL E706 COLLABORATION

Presenter: GÖRGEN, Andreas (University of Oslo, Norway)

Session Classification: Session 5

Track Classification: Nuclear Structure, Reactions and Dynamics