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Collective properties of 170Dy and its nearest neighbors at maximum nucleon valency

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Neutron-rich rare-earth nuclei around the maximum of collectivity are predicted to exist with an extremely stable intrinsic configuration in their ground-state structure. The present work explores the structure of the yrast bands in the neutron-rich nuclei 170Dy and 176Er, which have no previously known excited states. Nuclear states of 170Dy and 176Er were populated via the -2p + 2n and +6n transfer reactions, respectively. A 860 MeV 136Xe beam was used to bombard a 1.0 mg/cm2 thick self-supporting 170Er target. The experimental setup consisted of AGATA + PRISMA + DANTE. Beam-like fragments were identified by the PRISMA spectrometer, placed at the grazing angle 44 \circ . PRISMA allows for Z and A/q identification, TOF and velocity vector determination, which is required for the Doppler correction of the emitted γ rays detected in time coincidence AGATA. Additional channel selection based on isomer tagging is possible by using three DANTE detectors mounted on a 42 \circ ring. The data analysis is in progress and preliminary results will be presented.

Primary author: GENGELBACH, Aila (Uppsala University)
Presenter: GENGELBACH, Aila (Uppsala University)
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