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Collective properties of ^{170}Dy 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 ^{170}Dy and ^{176}Er , which have no previously known excited states. Nuclear states of ^{170}Dy and ^{176}Er were populated via the $-2p + 2n$ and $+6n$ transfer reactions, respectively. A 860 MeV ^{136}Xe beam was used to bombard a 1.0 mg/cm² thick self-supporting ^{170}Er target. The experimental setup consisted of AGATA + PRISMA + DANTE. Beam-like fragments were identified by the PRISMA spectrometer, placed at the grazing angle 44°. 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° ring. The data analysis is in progress and preliminary results will be presented.

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