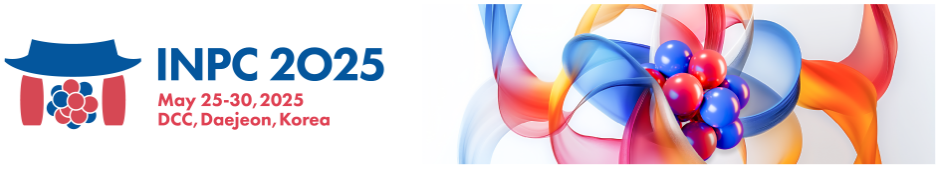

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Beta-decay spectroscopy of proton-rich N=82 isotones.

The beta decay of the heaviest known N=82 nuclide 156W was recently reported and found to exhibit a different decay pattern to152Yb and their lighter isotones [1]. This work investigates the beta decays of the intermediate isotone 154Hf to learn about the evolution with increasing atomic number of the beta decays of even-even N=82 isotones. Although a microsecond isomer in 154Hf has been identified [2,3] and its half-life has been indirectly determined as 2(1)s from the time differences between the alpha decays of 158W and 154Yb [4], the beta decay of the ground state remains unknown. The ground state of 154Hf nuclei was populated via the alpha decay of the ground and isomeric states of 158W. The 158W nuclei were produced at the Jyväskylä Accelerator Laboratory in fusion-evaporation reaction by bombarding a 106Cd target with 58Ni ion beam. The 158W nuclei were separated in-flight using the Mass Analysing Recoil Apparatus (MARA) and implanted into a double-sided silicon strip detector (DSSD) at its focal plane. The DSSD was surrounded by an array of germanium detectors, which were used to measure gamma rays in coincidence with beta particles emitted in the decay of 154Hf . These measurements enabled the determination of a more precise half-life and a preliminary level scheme for 154Hf to be constructed. The latest of results from the analysis will be presented along with prospects for future studies.

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