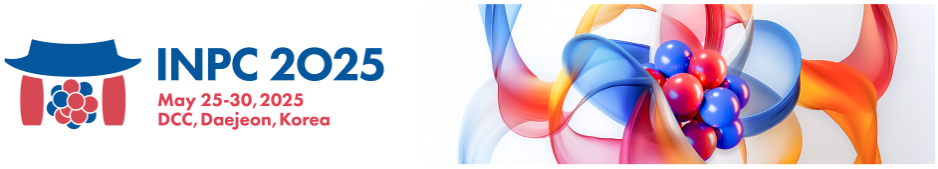

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Shape-coexistence near the neutron mid-shell nucleus Pb-190 studied in in-beam experiments

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Shape coexistence is a phenomenon where multiple shapes occur within the same nucleus and has been proposed to exist in all nuclei [1]. In particular, neutron-deficient Pb nuclei near the N=104 mid-shell provide fruitful ground for investigating this phenomenon. Notably, ^{186}Pb, ^{188}Pb and ^{190}Pb isotopes exhibit three distinct shapes near their ground states [2-7]. In the shell-model picture, these three shapes are associated with 0p-0h (spherical), 2p-2h (oblate) and 4p-4h (prolate) multiproton-multihole configuration [8].

Recently, we have performed two complementary in-beam experiments to asses competing shapes in the ^{190}Pb nucleus: one utilised a simultaneous in-beam γ-ray and conversion electron spectrometry, and the other employed plunger device for lifetime measurements of excited states. These experiments allowed for the reassigning of the yrast band with a predominantly oblate shape, confirmed predominantly prolate shape assignment for the non-yrast band, and discovered a candidate for the spherical 2^+ state. These findings highlight the power of combining these two distinct methods to enhance our understanding on shape coexistence.

This presentation will cover the latest in-beam experiments in this region performed at the Accelerator Laboratory in Jyväskylä, Finland [3,6,7].

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