Recoil-decay tagging studies of neutron-deficient actinium nuclei at JYFL-ACCLAB*

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Since December 2020 a series of four experiments has been conducted to probe systematically the structure of all odd-A neutron-deficient actinium isotopes from ^{207}Ac to ^{213}Ac. In this campaign both recoil separators, RITU and MARA, of the Accelerator Laboratory of University of Jyväskylä, Finland (JYFL-ACCLAB) were employed. These experiments used fusion-evaporation reactions to produce the nuclei of interest, and the events associated with actinium isotopes were identified through very selective recoil-decay tagging method (RDT). In this talk a brief introduction will be provided to the RDT studies at JYFL-ACCLAB, followed by a discussion on the results of this campaign, some of which has been recently published [1], and some will be published in near future [2]. The main outcome of these experiments is that the structure of the studied actinium nuclei resembles strongly that of the underlying even-even radium core of a given isotope. The odd $h_{\frac{9}{2}}$ proton of actinium ground states appear to systematically act as a "passive spectator" and it contributes very little to the lowest exited states. Similar effect has been observed previously in nearby francium and astatine nuclei, see, for example Refs. [3-4] and references therein.

[1] J. Louko *et al.*, Phys. Rev. C **110** (2024) 034311.
[2] H. Kokkonen *et al.*, to be published.
[3] U. Jakobsson *et al.*, Phys. Rev. C **87** (2013) 054320.
[4] K. Auranen *et al.*, Phys. Rev. C **91** (2015) 024324.

* This work was supported by the Research Council of Finland under Contracts No. 323710, No. 347154, No. 353786