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Decay studies of n-deficient nuclei at ACCULINNA: case of ^{27}S and ^{26}P

Study of beta-delayed protons is an important tool to investigate exotic, n-deficient nuclei. It provides a lot of information on nuclear structure of these nuclei which, in turn, is needed to understand astrophysical phenomena,

like the rp-process or the nucleosynthesis of a cosmic gamma-emitter ^{26}Al

Experimental studies of beta-delayed proton emission from ^{27}S and ^{26}P were performed at the ACCULINNA separator, JINR, Dubna, in December 2015. The goal of the experiment was to search for so-far unobserved low-energy protons emitted after beta decay of these nuclei. This goal was reached by using the Optical Time Projection Chamber (OTPC) to record charged particles emitted by the nuclei of interest implanted in its active volume [1]. This experimental technique was developed at the Institute of Experimental Physics of the University of Warsaw and it is ideally suited for this kind of studies [2], specially to measure the low energy part of proton spectrum. The results of the experiment [3] will be presented.

[1] M. Pomorski et al., Phys. Rev. C 90, 014311 (2014)

[2] M. Pfützner et al., Phys. Rev. C 92, 014316 (2015)

[3] Ł. Janiak, N. Sokołowska et al., Phys. Rev. C 95, 034315 (2017)

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