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Beta-delayed proton emission of ^{73}Sr and the effective half-life of ^{72}Kr in stellar conditions

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With a beta-decay half-life of 17s, ^{72}Kr is a main waiting point for the rp-process in accreting neutron stars. The effective half-life in stellar environment could be, however, significantly reduced by the $^{72}\text{Kr}(2p,g)^{74}\text{Sr}$ reaction. To accurately model the rp-process flow in this reaction channel, the proton separation energy of the proton unbound nucleus ^{73}Rb is required. In the experiment, ^{73}Sr was produced by fragmentation of a ^{124}Xe beam and implanted in the silicon detectors of WASABi. The beta decay of ^{73}Sr produces ^{73}Rb and the energy of the proton emitted can be measured by the silicon detector with a resolution of ~ 20 keV. The talk reports on the status of the data analysis of the experiment.

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