^{21}Al

In 2024, Kostyleva et al. discovered ^{21}Al in "Observation and spectroscopy of proton-unbound nucleus ^{21}Al" (2024Ko22). A primary 591 MeV/nucleon ^{24}Mg beam delivered by the SIS facility at GSI was used to produce a 450 MeV/nucleon secondary ^{20}Mg beam which was focussed on a 2 g/cm^2 ^{9}Be target located in the middle focal plane of the fragment separator FRS. ^{21}Al was populated by one-proton pick-up reactions from ^{20}Mg but also by one-neutron removal and charge-exchange reactions from beam contaminants of ^{22}Al and ^{21}Mg, respectively. Decay fragments (^{20}Mg) and protons were tracked in an array of double-sided micro-strip silicon detectors. "The peaks (1) and (2) were reproduced by applying Monte-Carlo simulations of 1p-decays of two ^{21}Al states into the ^{20}Mg g.s. [...] with the evaluated 1p-decay energies of 1.1(1) and 3.20(15) MeV, respectively."

2024Ko22 D. Kostyleva, X. D. Xu, I. Mukha, L. Acosta *et al.*, Phys. Rev. C **110**, L031301 (2024).

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