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Transfer Reactions with Isomeric Beams

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Nuclear reactions induced by isomeric beams have long been considered an extremely attractive tool for nuclear structure, nuclear reactions and nuclear astrophysics studies. One of the most interesting cases is in ^{26}Al , where a 0^+ isomer is located 228 keV above the 5^+ ground state. Proton captures on both, the ground state and the isomeric state, could have a direct impact on the abundance of ^{26}Al in the Galaxy.

In this talk, I will discuss our efforts to develop and characterize an isomeric ^{26}Alm beam with sufficient intensity, purity, high isomer-to-ground state ratio and energy resolution to study transfer reactions induced by the 0^+ isomer in ^{26}Al . Results on the measurement of the $^{26}\text{Alm}(d,p)^{27}\text{Al}$ reaction and its astrophysical implications will also be presented.

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