

^{26m}Al beam production and decay measurement at CRIB

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Nuclear isomers are commonly known and discussed, yet the term is difficult to define precisely. Generally, isomers are excited states in nuclei showing significantly different lifetimes compared to nearby states owing to various structural anomalies. Their existence in astrophysical environments leads to fascinating intricacies in the production of elements which might otherwise be difficult to probe. ^{26}Al has been observed in the Milky Way, but its production is complicated by a low-lying isomer, ^{26m}Al , which has zero spin and thus a short lifetime $T_{1/2} = 6$ s compared with its ground state which lives 0.7Myr and is 5^+ . These species can mix and come into equilibrium when exposed to a hot proton bath such as a unique route to shed light on these physics. We performed the production and characterization of a ^{26m}Al beam at CTIB facility in 2016, which was then successfully used in a subsequent scattering measurement. We present a comparison of the obtained decay data of ^{26m}Al with a detailed GEANT4 simulation, which we are applying to extract the isomer content of our in-flight radioactive beam.

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