$^{12}C(^{23}Al,^{23}Al')$ 2015Ma19

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia[#], A. Chakraborty[##]	NDS 171, 1 (2021)	1-Jun-2020

Based on XUNDL. Compiled by B. Singh (McMaster); Mar 12, 2015.

Measurement of two-proton emission and proton-proton correlations from an excited state (most likely 11780, $(5/2)^+$) in ^{23}Al.
S(2p)(^{23}Al)=5645.2 *4* (2017Wa10: AME-2016).
E=57.4 MeV/nucleon ^{23}Al beam produced from fragmentation of ^{28}Si beam at 135 MeV/nucleon on ^{9}Be production target. Particle identification of ^{23}Al was done by means of Bρ-ΔE-TOF method using RIPS beamline at RIBF-RIKEN facility. The reaction target was ^{12}C around which was a γ detector array of 160 NaI(Tl) detectors (DALI2), after which there were five layers of Si-strip detectors for detection of heavy fragments and protons. Analyzed excitation energy distribution from invariant mass of two-protons emissions in ^{21}Na+p+p channel, momentum distributions of two protons in the excitation energy window of 10.5-15 MeV, and opening angle distribution of two protons. The calculations compared the three-body (^{21}Na+p+p) emission with 2-body (^{21}Ne+^{2}He) emission.

^{23}Al Levels

E(level)	Comments
12.7×10^3 *23*	E(level): From excitation energy window=10.5 to 15 MeV. A dominant mode of two-proton emission from this level is that of sequential emission based on broad momentum distribution without any peaks and structureless angle distributions.