$^{12}C(\alpha,^{8}He)$ 1974Ro17,1976Tr01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. E. Purcell, C. G. Sheu	ENSDF	13-Aug-2018

1974Ro17: E=156 MeV, measured Q of ^{8}He spectrum, σ, deduced ^{8}C mass excess and width. This is the article in which ^{8}C is first recognized (2012Th01). The differential cross section was found to be about 20 nb/sr at θ_{lab}=2°. The mass excess of ^{8}C was found to be $\Delta M(^{8}C)$=35.30 MeV *20*. As indicated above, ^{8}C decays by proton emission. Assuming a Gaussian line shape, the width of observed ^{8}C state is found to be Γ=0.22 MeV *+8−14*.

Since the ^{8}He spectrum is the observed quantity in this experiment, a change in the measured mass of ^{8}He would lead to a change in the mass of ^{8}C. In (1974Ce05) a more accurate value of the mass defect of ^{8}He led to a revision of the measured mass defect of ^{8}C, $\Delta M(^{8}C)$=35.38 MeV *17*.

1976Tr01: E=123.5 MeV, measured σ, deduced mass excess and width. The mass excess of ^{8}C was found to be $\Delta M(^{8}C)$=35.10 MeV *3*. The width was found to be Γ=230 keV *50* assuming a Gaussian fit and 183 keV *56* assuming a Breit-Wigner fit. An IMME study of A=8 nuclei is reported in this article.

^{8}C Levels

E(level)	Γ	Comments
0	230 keV *50*	Γ: from (1976Tr01), other value Γ=0.22 MeV *+8−14* (1974Ro17).