$^{14}C(\pi^-,2p)$ 2010Gu04,2013Ch30

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, J. E. Purcell and C. G. Sheu	NP A968, 71 (2017)	1-Jan-2017

2013Ch30: The authors measured the 3-body decay reactions of $^{14}C+\pi^-$ that populated levels in ^{10}Li, ^{11}Li and ^{12}Li nuclei.

Beams of 30 MeV π^- projectiles were stopped in 24 mg/cm^2 carbon targets that were enriched to 76% ^{14}C (23% ^{12}C) at the Los Alamos Meson Physics Facility. Some pions were captured on the target nuclei and populated levels in the heavy lithium isotopes. Charged particles, emitted after pion absorption, were detected in a set of ΔE-E telescopes that were oriented at an angle of 180° with respect to each other. Reactions yielding hydrogen ions in each of the telescopes were analyzed by reconstructing the missing mass assuming $^{14}C(\pi^-,pt)^{10}Li$, $^{14}C(\pi^-,dd)^{10}Li$, $^{14}C(\pi^-,pd)^{11}Li$ and $^{14}C(\pi^-,pp)^{12}Li$ reactions. A background corresponding to $\pi^-+^{12}C$ capture was subtracted.

^{12}Li Levels

E(level)[†]	Γ	$E_{res}(^{11}Li+n)$ (keV)	Comments
3.9×10^3 *2*	1.1 MeV *4*	4.00×10^3 *20*	E(level): From E(n+^{11}Li)=4.0 MeV *2* (2013Ch30). Γ: Throughout the articles Γ=1.1 MeV *2* and Γ=1.1 MeV *4* are used interchangeably.
≈6400		6.5×10^3 *5*	E(level): An excess of counts is reported for E_{res}=6 to 7 MeV (2013Ch30).

[†] Assuming ΔM(^{12}Li)=48920 keV *15* and S_n=−120 keV *15* (unbound) (2008Ak03,2012Wa38).