

$^{20}\text{Ne}(^3\text{He}, ^8\text{Li})$:LBNL 1978Ke06

Type	Author	Citation	History	Literature Cutoff Date
Full Evaluation	J. Kelley, T. Truong, C. G. Sheu	ENSDF		08-July-2016

1978Ke06:

The authors evaluated the excitation spectrum of the ^{15}F nucleus using the $^{20}\text{Ne}(^3\text{He}, ^8\text{Li})$ reaction to obtain reaction Q values, mass excesses and decay widths of states.

Beams of 88 and 75 MeV/nucleon ^3He ions from the LBNL 88-Inch Cyclotron impinged on an enriched (>99.5%) 1.2 ± 0.4 mg/cm 2 ^{20}Ne gas target. The ^8Li reaction products were detected in the focal plane of a QSD spectrometer positioned at $\theta=9^\circ$.

The peaks were analyzed to obtain Q-value and mass excesses.

The authors also evaluated the IMME parameters for the $A=15$ $T=3/2$ analog states.

 ^{15}F Levels

E(level)	J^π	Γ	$E(p+^{14}\text{O})_{\text{cm}}$ (MeV)	Comments	
0	$1/2^+$	0.8 MeV	1.37 18	E(level): The Q-value is $Q=-29.73$ MeV 18 and mass excess=16.67 MeV 18.	
1.3×10^3	2	$5/2^+$	0.5 MeV	2 2.67 10	E(level): The resonance energy is not rigorously discussed in the text; the Q-value to the state is not given. Instead the comment, "the excitation energy of the first excited state is 1.3 ± 0.1 MeV" is given in the text. The evaluator assumes the mass excess is then $\Delta m=(16.67+1.30)\pm 0.10$ MeV= 17.97 ± 0.10 MeV, which corresponds to a resonance energy $E_{\text{res}}=2.67\pm 0.10$ MeV. E(level): In a comparison to the mirror nucleus, the excitation energy is 500 keV higher than the excitation energy of the first excited state in ^{15}C .