

$^7\text{Li}(^{12}\text{B}, ^7\text{Be})$ 2012Me05

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

2012Me05: XUNDL dataset compiled by TUNL, 2012.

The authors measured the $^{12}\text{B}(^7\text{Li}, ^7\text{Be})$ charge exchange reaction as a means of evaluating the $\beta(\text{GT})$ values for $^{12}\text{Be}_{\text{g.s.}}(0^+) \rightarrow ^{12}\text{B}_{\text{g.s.}}(1^+)$ and $^{12}\text{Be}^*(2.24; 0^+) \rightarrow ^{12}\text{B}_{\text{g.s.}}(1^+)$ transitions. An $E(^{12}\text{B})=80$ MeV/nucleon beam was created by fragmenting an $E(^{18}\text{O})=120$ MeV/nucleon beam in a 1904 mg/cm² Be target at the MSU NSCL. The ^{12}B beam then impinged on a 5.5 mg/cm² natLi target. The $^{12}\text{Be}^*(0, 2.24$ MeV) states were found to be the main participants in the reaction, which was measured with the S800 spectrometer and the SeGA γ -ray array.

A DWBA (and multipole decomposition analysis) of the angular dependent cross sections was used to deduce the $\sigma(q=0)$ values for $^{12}\text{Be}^*(0, 2.24$ MeV), which are selected to their $\beta(\text{GT})$ values. Using the known $^{12}\text{Be}_{\text{g.s.}} \rightarrow ^{12}\text{B}_{\text{g.s.}}$: $\beta(\text{GT})=0.184$ 8 value ([1990Aj01](#)) a value for $^{12}\text{Be}^*(2.24) \rightarrow ^{12}\text{B}_{\text{g.s.}}$: $\beta(\text{GT})=0.214$ 5*l* is deduced. Furthermore, $(0s)^4(0p)^8$ configurations of 25% 5 and 60% 5 are deduced for $^{12}\text{Be}_{\text{g.s.}}$ and $^{12}\text{Be}^*(2.24$ MeV), respectively.

 ^{12}Be Levels

E(level)	J^π	$T_{1/2}$	B(GT)	Comments
0	0^+		0.184 8	E(level), J^π : From Adopted Levels. $\beta(\text{GT})$: From (1990Aj01).
2251 <i>l</i>	0^+	229 ns 8	0.214 5 <i>l</i>	E(level), $J^\pi, T_{1/2}$: From (2007Sh34). B(GT): Deduced by comparison with $^{12}\text{Be}_{\text{g.s.}}$.