^{11}B(n,γ):E=thermal 2016Fi06

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

2016Fi06: XUNDL dataset compiled by TUNL, 2016.

A beam of $E_{thermal}$ neutrons, from the 10-MW Budapest Reactor, impinged on H_3BO_3 and B_4N targets with natural abundances. The capture γ rays were measured using a single Compton suppressed HPGe detector that was 27% efficient relative to a 3 inch×3 inch NaI detector. The relative intensities of the capture γ rays were determined and normalized primarily to the known capture cross sections of ^{1}H(n,γ) (σ_γ=332.5±0.7 mb) or to secondary cross sections determined for capture reactions on ^{12}C or ^{14}N.

The transition probabilities and cross sections were deduced by balancing the intensity feeding and deexciting each state.

Lastly, the present results are compared with literature results, particularly for the capture cross section and the neutron separation energy. S_n=3368.87 keV *16* is deduced.

2008FiZZ: ^{11}B(n,γ) E=thermal, measured cross sections.

σ=9.09 mb *10* (2016Fi06).

^{12}B Levels

E(level)	J$^\pi$[†]	T$_{1/2}$[†]
0.0	1$^+$	20.20 ms *2*
953.05 *20*	2$^+$	180 fs *28*
(3368.87 *16*)	1$^-$,2$^-$	

[†] From Adopted Levels.

γ(^{12}B)

E$_\gamma$[†]	I$_\gamma$[†‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α[#]
953.1 *6*	29.2 *5*	953.05	2$^+$	0.0	1$^+$	M1	1.00×10^{-6} *1*
2415.57 *12*	29.2 *5*	(3368.87)	1$^-$,2$^-$	953.05	2$^+$	E1	0.00092 *2*
3368.36 *17*	70.7 *5*	(3368.87)	1$^-$,2$^-$	0.0	1$^+$	E1	0.00142 *2*

[†] The measured γ-ray energies and the observed γ-ray intensities. In (2016Fi06), the figures show the experimental γ-ray energies and the transition probabilities (accounting for internal conversion). Similarly, the tables show γ-ray energies associated with the level scheme deduced from a least-squares fit to the measured transition energies along with the measured γ-ray transition intensities.

[‡] Intensity per 100 neutron captures.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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