^{9}Be(^{14}B,^{13}Bγ),^{197}Au(^{14}B,^{13}Bγ) 2000Gu23

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell	NDS 198,1 (2024)	1-Aug-2024

2000Gu23, 2004Gu21: ^{9}Be(^{14}B,^{13}Bγ), ^{197}Au(^{14}B,^{13}Bγ). One neutron knock-out reactions were used to study the ^{13,14}B systems. A beam of 830 MeV ^{14}B ions, from the NSCL/A1200, impinged on either a ^{9}Be or ^{197}Au target. The ^{13}B products were momentum analyzed using the S800 spectrometer, while coincident were measured using an array of 38 NaI(Tl) scintillator detectors that surrounded the target. The Doppler corrected γ-ray spectrum is obtained. Cross sections to ^{13}B(0, 3.48, 3.68, 4.13) are deduced. Shell model calculations are compared with the data and used to suggest J^{π} values.

^{13}B Levels

E(level)	J^{π}[†]	L	S	Comments
0	[3/2$^-$]	0+2		σ(L=0)=113 mb *15*; σ(L=2)=14 mb *3*; S(L=0)=0.622; S(L=2)=0.306.
3480	[3/2$^+$]	1	0.407	σ=18 mb *3*.
3680	[5/2$^+$]	1	0.886	σ=30 mb *5*.
4130				σ=1.2 mb *12*.

[†] From comparison with shell model calculations.

γ(^{13}B)

E_γ[†]	E_i(level)	J_i^{π}	E_f	J_f^{π}
3480	3480	[3/2$^+$]	0	[3/2$^-$]
3680	3680	[5/2$^+$]	0	[3/2$^-$]
4130	4130		0	[3/2$^-$]

[†] From Figure 1 in (2000Gu23).

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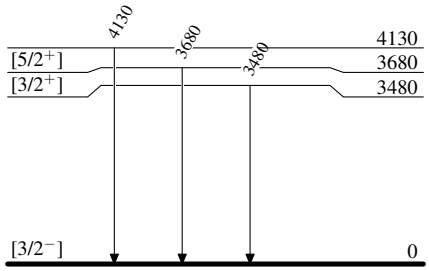
Level Scheme



$^{13}_{5}B_{8}$