

$^1\text{H}(^{12}\text{B},\text{p})$:res **2008Sk06**

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

2008Sk06: XUNDL dataset compiled by McMaster, 2008.

A $E(^{12}\text{B})=44.6$ MeV beam from the Notre Dame TwinSol RIB facility impinged on a 16.97 mg/cm² CH₂ target that stopped the beam. Scattered protons were detected at $\theta=7.5^\circ$ and 15° using two Si ΔE -E telescopes. The excitation function for elastic proton scattering at $E_{\text{c.m.}}=1.25$ - 3.2 MeV was obtained using a thick-target inverse kinematics technique. Resonances were deduced and analyzed using an R-matrix analysis. Based on comparison with ^{13}O and ^{13}B , resonances at $E_{\text{c.m.}}=0.87$ ($l=0$, $(1/2^+)$, $\Gamma=190$ keV) and 1.07 MeV ($l=0+2$, $(3/2^+)$, $\Gamma=90$ keV) are assumed in the unmeasured low-energy region to account for the excess strength in this area.

Potential analog states in ^{13}N and ^{13}C are discussed.

 ^{13}C Levels

<u>E(level)[†]</u>	<u>J^π[‡]</u>	<u>Γ[‡]</u>	<u>L[‡]</u>	<u>$E(\text{c.m.})$ (MeV)[‡]</u>	<u>Comments</u>
19110?	$(3/2, 1/2, 5/2)^-$	<30 keV	1	1.58	T=3/2 J^π : $3/2^-$ is preferred.
19740	$(3/2, 5/2, 7/2)^+$	200 keV	0,2	2.20	T=3/2 J^π : $3/2^+$ is preferred. E(level): If $J^\pi=5/2^+$ or $7/2^+$ then $E_{\text{c.m.}}=2350$ keV ($E_x=19900$ keV).
20130	$(5/2, 1/2, 3/2)^-$	120 keV	1	2.60	T=3/2 J^π : $5/2^-$ is preferred.
20300	$(5/2, 3/2, 7/2)^+$	170 keV	0,2	2.77	T=3/2 J^π : $5/2^+$ is preferred.

[†] S(p)+E(c.m.), where S(p) of $^{13}\text{C}=17533.4$ kJ (2021Wa16).

[‡] From R-matrix analysis.