^{10}B(p,γ) res 1979An16,1983Wi09,1970Ku09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu	NP A880, 88 (2012)	1-Jan-2011

1970Ku09: ^{10}B(P,γ) E=2.6-17 MeV, measured σ(E,E$_\gamma$,θ_γ). ^{11}C deduced resonances, J, γ, Γ-level, giant dipole resonances.
1979An16: ^{10}B(P,γ) E=1.11 MeV, measured E$_\gamma$(THETA), DSA. ^{11}C levels deduced T$_{1/2}$, γ-branching, mixing ratios.
1981Ca06: ^{10}B(P,γ) E=1.22 MeV, measured E$_\gamma$, I$_\gamma$, nγ-coin, DSA. ^{11}C levels deduced T$_{1/2}$, B(λ).
1983Wi09: ^{10}B(P,γ) E=0.07-2.2 MeV, measured E$_\gamma$, I$_\gamma$, γ yield, capture σ vs E, $\gamma(\theta)$. Deduced direct capture contributions. ^{11}C deduced resonances, J, π, Γ, γ-branching ratios, Γ_γ/Γ.
1987Ra23: ^{10}B(P,γ) E=7-9 MeV, ^{10}B(p,n) E=7-9 MeV measured absolute thick target γ yield, relative neutron yield.
1995Sa52: ^{10}B(P,γ) E≈1.8 MeV, measured E$_\gamma$, I$_\gamma$.
2003To21: ^{10}B(pol. p,γ), E=100, 130, 160 keV; measured E$_\gamma$, I$_\gamma$, σ(E,θ), Ay(E,θ). Deduced astrophysical S-factors, subthreshold resonance.

^{11}C Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0			
2.00×10^3		<24 fs	Γ: from (1979An16).
4.32×10^3		<8.3 fs	Γ: from (1979An16).
4.80×10^3		<7.6 fs	Γ: from (1979An16).
6.48×10^3		<5.5 fs	Γ: from (1979An16).
8.43×10^3		≤5 keV	Γ_γ/Γ=0.2 *5* (1983Wi09) Γ: from (1983Wi09), also see Γ<16 fs (1979An16).
8.66×10^3		≤5 keV	Γ_γ/Γ<0.06 (1983Wi09) Γ: from (1983Wi09).
8699 *2*	5/2$^+$	14.5 keV *25*	E(level): from E$_{res}$=10 keV *2* (1983Wi09). Γ: from (1983Wi09). Γ(c.m.)=14.5 keV *25* and Γ_γ/Γ≤0.1 (1983Wi09), based on direct capture data; however, based on resonance parameters Γ(c.m.)=16 keV *1* and Γ_γ/Γ≠2.60E−4 15 (1983Wi09).
9.20×10^3 *5*	5/2$^+$	0.50 MeV *9*	%IT=? E(level): from E$_{res}$=560 keV *60* (1983Wi09). Γ: from (1983Wi09).
9.64×10^3 *5*	(3/2$^-$)	210 keV *40*	%IT=?; %p=?; %α=? E(level): from E$_{res}$=1050 keV *60* (1983Wi09). Previous work had not resolved the 9.64 MeV and 9.78 MeV resonances. Γ: from (1983Wi09).
9.78×10^3 *5*	(5/2$^-$)	240 keV *50*	%IT=?; %p=?; %α=? E(level): from E$_{res}$=1200 keV *50* (1983Wi09). Previous work had not resolved the 9.64 MeV and 9.78 MeV resonances. Γ: from (1983Wi09).
9.97×10^3 *5*	(7/2$^-$)	120 keV *20*	%IT=? E(level): from E$_{res}$=1410 keV *50* (1983Wi09). Γ: from (1983Wi09).
10083. *5*	7/2$^+$	≈230 keV	%p=?; %α=?
10679. *5*	9/2$^+$	200 keV *30*	%p=?; %α=?
12.4×10^3	$^-$	1.4 MeV *4*	%IT=? E(level): Γ: from E$_{res}$= 4.1 MeV (1970Ku09). Γ_p Γ_γ/Γ≈200 eV (1970Ku09).
13.01×10^3?			%IT=? E(level): from E$_{res}$=4.75 MeV (1970Ku09).
15.1×10^3	$^-$		%IT=?; %n=?; %p=? Γ: Broad. E(level): from E$_{res}$=7.0 MeV (1970Ku09).

Continued on next page (footnotes at end of table)

^{10}B(p,γ) res 1979An16,1983Wi09,1970Ku09 (continued)

^{11}C Levels (continued)

E(level)	J^π	$T_{1/2}$	Comments
16.7×10^3	−	0.82 MeV *9*	%IT=?; %p=? E(level): Γ: from E_{res}=8.8 MeV (1970Ku09).
18.2×10^3?			%IT=?; %p=? E(level): from E_{res}=10.5 MeV (1970Ku09).

$\gamma(^{11}C)$

E_γ	I_γ	E_i(level)	J_i^π	E_f	Comments
2221	13.6 *46*	8699	$5/2^+$	6.48×10^3	
2722	20 *10*	9.20×10^3	$5/2^+$	6.48×10^3	
3302	12 *4*	9.78×10^3	$(5/2^-)$	6.48×10^3	
3492	10 *7*	9.97×10^3	$(7/2^-)$	6.48×10^3	
3605	13 *6*	10083.	$7/2^+$	6.48×10^3	
3899	2.4 *15*	8699	$5/2^+$	4.80×10^3	
4201	100	10679.	$9/2^+$	6.48×10^3	branching ratios from (1983Wi09).
4380	42 *10*	8699	$5/2^+$	4.32×10^3	
4838	8 *4*	9.64×10^3	$(3/2^-)$	4.80×10^3	
4881	6 *5*	9.20×10^3	$5/2^+$	4.32×10^3	
4978	4 *2*	9.78×10^3	$(5/2^-)$	4.80×10^3	
5321	32 *10*	9.64×10^3	$(3/2^-)$	4.32×10^3	
5461	8 *2*	9.78×10^3	$(5/2^-)$	4.32×10^3	
5651	90 *10*	9.97×10^3	$(7/2^-)$	4.32×10^3	branching ratios from (1983Wi09).
5764	67 *8*	10083.	$7/2^+$	4.32×10^3	branching ratios from (1983Wi09).
8701	42 *10*	8699	$5/2^+$	0	branching ratios from (1983Wi09).
9200	74 *18*	9.20×10^3	$5/2^+$	0	branching ratios from (1983Wi09).
9640	60 *15*	9.64×10^3	$(3/2^-)$	0	branching ratios from (1983Wi09).
9780	76 *16*	9.78×10^3	$(5/2^-)$	0	branching ratios from (1983Wi09). branching ratios from (1979An16) had not separated the 9.64 and 9.78 MeV resonances.

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Level Scheme

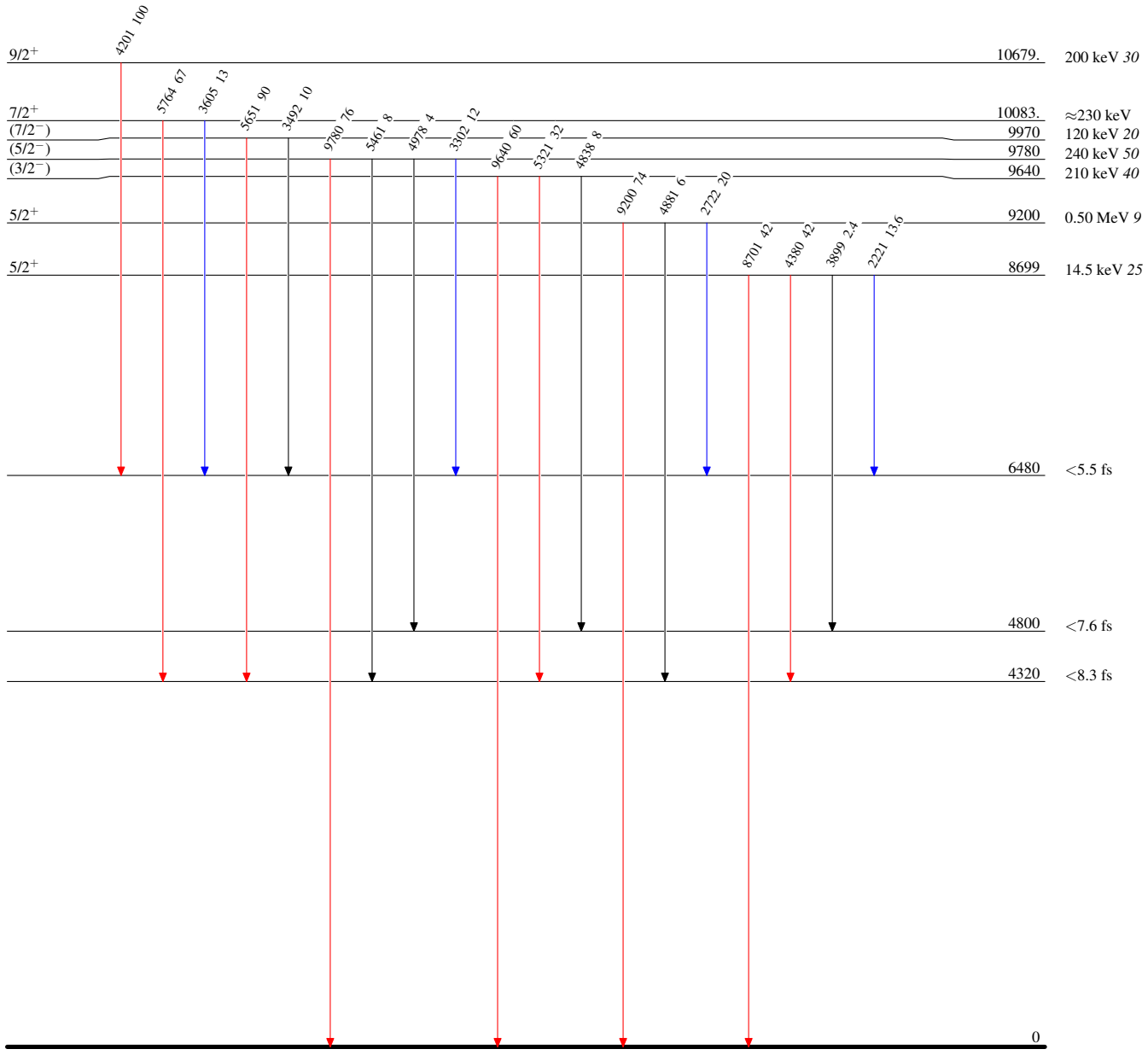
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{11}_{6}C_5$