Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004

Q(β^-)=10663.88 *10*; S(n)=2535 *8*; S(p)=2.48×10^4 *syst* 2012Wa38
Note: Current evaluation has used the following Q record 10651. 7 *2574* 18 2003Au02.

^{8}He Levels

Cross Reference (XREF) Flags

A	^{1}H(^{8}He,^{8}He)	F	^{10}Be(^{12}C,^{14}O)
B	^{9}Be(π^-,p)	G	^{11}B(π^-,pd)
C	^{9}Be(^{7}Li,^{8}B)	H	^{11}B(^{7}Li,^{10}C)
D	^{9}Be(^{9}Be,^{10}C)	I	^{12}C(^{8}He,^{6}He2n)
E	^{9}Be(^{13}C,^{14}O)		

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	119.1 ms *12*	ABCDEFGH	%β^-=100; %β^-n=16 *1* T=2 T$_{1/2}$: from weighted average of T$_{1/2}$=117.5 ms *15* (1981Bj03), and T$_{1/2}$=122 ms *2* (1965Po06). These values are averaged to obtain T$_{1/2}$=119 ms *1* (1981Bj01) and T$_{1/2}$=119.0 ms *1.5* (2004Ti06,2003Au02). Other values are T$_{1/2}$=841 ms *4* (1954Kl36), T$_{1/2}$=848 ms *5* (1960Ja12), T$_{1/2}$=844.0 ms *7* (1966Cl02), T$_{1/2}$=854 ms *8* (1968Da12) and T$_{1/2}$=838 ms *6* (1971Wi05). %β^-n: From (1981Bj01), other value %β^-n=12 *1* (1965Po06). 32 *3%* of β^-n neutrons populate ^{7}Li*(478) (1981Bj01). %β^- ^{3}H=0.9 *1* (2003Au02, 1986Bo41).
3.1×10^3 *5*	2$^+$	0.6 MeV *2*	A CDEF HI	%n≈100; %α≤5 T=2 E(level): values in the literature are discrepant. Five independent values are E=3.55 MeV *15* ^{1}H(^{8}He,^{8}He) (1995Ko27), 2.80 MeV *20* ^{9}Be(^{7}Li,^{8}B) (1985Al29), 2.70 MeV *30* ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) (1988Be34), 3.59 MeV ^{9}Be(^{13}C,^{14}O) (1995Vo05), 2.90MeV 20 ^{12}C(^{8}He,6he2n) (2001Ma05). The value E=3.1 MeV is obtained from the average of the measured values. The uncertainty is assigned by the evaluator. Γ: The Γ is obtained from the weighted average of Γ=0.50 MeV *35* ^{1}H(^{8}He,^{8}He) (1995Ko27), 0.5 MeV *3* ^{9}Be(^{9}Be,^{10}C) (1988Be34), 0.8 MeV (3) ^{9}Be(^{13}C,^{14}O) (1995Vo05), 1.0 MeV *5* ^{11}B(^{7}Li,^{10}C) (1988BeYJ), 0.3 MeV *3* ^{12}C(^{8}He,6he2n) (2001Ma05).
4.36×10^3 *20*	(1$^-$)	1.3 MeV *5*	B D FGHI	%n≈100 E(level): independent values in the literature are E=4.40 MeV *20* ^{9}Be(π^-,p) (1998Go30), 4.00 MeV *30* ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) (1988Be34), 4.54 MeV *15* ^{10}Be(^{12}C,^{14}O) (1999Bo26), 4.40 MeV *40* ^{11}B(π^-,p+D) (1998Go30), 4.15 MeV *20* ^{12}C(^{8}He,6he2n) (2001Ma05). The energy is obtained from the weighted average of these values. However, the uncertainty is obtained by doubling the value obtained in the weighting formula. This state may represent a group of levels. A broad resonance is observed at 4.4 MeV in ^{9}Be(π^-,p), ^{11}B(π^-p) and ^{12}C(^{8}He,6he2n); a narrow resonance is observed at 4 MeV in ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) and a narrow resonance is observed at 4.54 MeV in ^{10}Be(^{12}C,^{14}O). Γ: The Γ is obtained from the weighted average of Γ=1.8 MeV *2* ^{9}Be(π^-,p) (1998Go30), 0.5 MeV *3* ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C)

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Adopted Levels (continued)

^{8}He Levels (continued)

E(level)	J^{π}	$T_{1/2}$	XREF	Comments
				%n≈100 E(level): independent values in the literature are E=4.40 MeV *20* ^{9}Be(π^{-},p) (1998Go30), 4.00 MeV *30* ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) (1988Be34), 4.54 MeV *15* ^{10}Be(^{12}C,^{14}O) (1999Bo26), 4.40 MeV *40* ^{11}B(π^{-},p+D) (1998Go30), 4.15 MeV *20* ^{12}C(^{8}He,6he2n) (2001Ma05). The energy is obtained from the weighted average of these values. However, the uncertainty is obtained by doubling the value obtained in the weighting formula. This state may represent a group of levels. A broad resonance is observed at 4.4 MeV in ^{9}Be(π^{-},p), ^{11}B(π^{-}p) and ^{12}C(^{8}He,6he2n); a narrow resonance is observed at 4 MeV in ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) and a narrow resonance is observed at 4.54 MeV in ^{10}Be(^{12}C,^{14}O). Γ: The Γ is obtained from the weighted average of Γ=1.8 MeV *2* ^{9}Be(π^{-},p) (1998Go30), 0.5 MeV *3* ^{9}Be(^{9}Be,^{10}C) and ^{11}B(^{7}Li,^{10}C) (1988Be34), 0.70 MeV *25* ^{10}Be(^{12}C,^{14}O) (1999Bo26), 1.2 MeV *2* ^{11}B(π^{-},p) (1998Go30), 0.5 MeV *3* ^{11}B(^{7}Li,^{10}C) (Belousov et al., Sov.Phys. Lebedev Inst. Rept. No. 9 (1987) 203) and 1.6 MeV *2* ^{12}C(^{8}He,6he2n) (2001Ma05). The uncertainty is estimated by the evaluator.
6.03×10^{3}? *10*		0.15 MeV *15*	F	
7.16×10^{3} *4*	(3^{-})	0.1 MeV *1*	C F	E(level): see reactions: ^{9}Be(^{9}Be,^{10}C), ^{11}B(^{7}Li,^{10}C) in 1988Aj01 for possible evidence of other states in ^{8}He and the results of nuclear model calculations.