

Adopted Levels

Type	Author	History	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)=2.48×10⁴ *sys* 2012Wa38

Note: Current evaluation has used the following Q record 10651. 7 2574 18

2003Au02.

⁸He 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 ^π	T _{1/2}	XREF	Comments
0.0	0 ⁺	119.1 ms 12	ABCDEF GH	<p>%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 ⁷Li*(478) (1981Bj01). %β⁻ ³H=0.9 1 (2003Au02, 1986Bo41). %n≈100; %α≤5 T=2</p>
3.1×10 ³ 5	2 ⁺	0.6 MeV 2	A CDEF HI	<p>E(level): values in the literature are discrepant. Five independent values are E=3.55 MeV 15 ¹H(⁸He,⁸He) (1995Ko27), 2.80 MeV 20 ⁹Be(⁷Li,⁸B) (1985Al29), 2.70 MeV 30 ⁹Be(⁹Be,¹⁰C) and ¹¹B(⁷Li,¹⁰C) (1988Be34), 3.59 MeV ⁹Be(¹³C,¹⁴O) (1995Vo05), 2.90MeV 20 ¹²C(⁸He,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 ¹H(⁸He,⁸He) (1995Ko27), 0.5 MeV 3 ⁹Be(⁹Be,¹⁰C) (1988Be34), 0.8 MeV (3) ⁹Be(¹³C,¹⁴O) (1995Vo05), 1.0 MeV 5 ¹¹B(⁷Li,¹⁰C) (1988BeYJ), 0.3 MeV 3 ¹²C(⁸He,6he2n) (2001Ma05). %n≈100</p>
4.36×10 ³ 20	(1 ⁻)	1.3 MeV 5	B D FGHI	<p>E(level): independent values in the literature are E=4.40 MeV 20 ⁹Be(π⁻,p) (1998Go30), 4.00 MeV 30 ⁹Be(⁹Be,¹⁰C) and ¹¹B(⁷Li,¹⁰C) (1988Be34), 4.54 MeV 15 ¹⁰Be(¹²C,¹⁴O) (1999Bo26), 4.40 MeV 40 ¹¹B(π⁻,p+D) (1998Go30), 4.15 MeV 20 ¹²C(⁸He,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 ⁹Be(π⁻,p), ¹¹B(π⁻p) and ¹²C(⁸He,6he2n); a narrow resonance is observed at 4 MeV in ⁹Be(⁹Be,¹⁰C) and ¹¹B(⁷Li,¹⁰C) and a narrow resonance is observed at 4.54 MeV in ¹⁰Be(¹²C,¹⁴O). Γ: The Γ is obtained from the weighted average of Γ=1.8 MeV 2 ⁹Be(π⁻,p) (1998Go30), 0.5 MeV 3 ⁹Be(⁹Be,¹⁰C) and ¹¹B(⁷Li,¹⁰C)</p>

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Adopted Levels (continued) ${}^8\text{He}$ Levels (continued)

<u>E(level)</u>	<u>Jπ</u>	<u>T_{1/2}</u>	<u>XREF</u>	<u>Comments</u>
				(1988Be34), 0.70 MeV $25\ {}^{10}\text{Be}({}^{12}\text{C}, {}^{14}\text{O})$ (1999Bo26), 1.2 MeV $2\ {}^{11}\text{B}(\pi^-, \text{p})$ (1998Go30), 0.5 MeV $3\ {}^{11}\text{B}({}^7\text{Li}, {}^{10}\text{C})$ (Belousov et al., Sov.Phys. Lebedev Inst. Rept. No. 9 (1987) 203) and 1.6 MeV $2\ {}^{12}\text{C}({}^8\text{He}, 6\text{He}2\text{n})$ (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: ${}^9\text{Be}({}^9\text{Be}, {}^{10}\text{C})$, ${}^{11}\text{B}({}^7\text{Li}, {}^{10}\text{C})$ in 1988Aj01 for possible evidence of other states in ${}^8\text{He}$ and the results of nuclear model calculations.