Adopted Levels, Gammas

History

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

Q(β^-)=−17979.9 *10*; S(n)=18898.64 *8*; S(p)=17254.40 *4*; Q(α)=91.84 *4* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(β^-)=−17979.8 *10*; S(n)=18899.68 *12*; S(p)=17255.44 *9*; Q(α)=91.84 *4* 2003Au02
See also table 8.10: electromagnetic transitions in ^{8}Be (2004Ti06) and reaction: ^{4}He(α,α).

^{8}Be Levels

Cross Reference (XREF) Flags

A	^{8}Li β^- decay	L	^{7}Li(p,γ)	W	^{9}Be(^{3}He,α)
B	^{8}B β^+ decay	M	^{7}Li(p,n)	X	^{10}Be(p,t)
C	^{4}He(α,γ)	N	^{7}Li(p,p), ^{7}Li(p,p′)	Y	^{10}B(p,^{3}He)
D	^{4}He(α,α)	O	^{7}Li(p,α)	Z	^{10}B(d,α)
E	^{6}Li(d,γ)	P	^{7}Li(d,n)	Others:	
F	^{6}Li(d,n), ^{6}Li(d,p)	Q	^{7}Li(^{3}He,d), ^{7}Li(^{3}He,dα)	AA	^{11}B(^{3}He,^{6}Li)
G	^{6}Li(d,α), ^{6}Li(d,pα)	R	^{7}Li(α,t)	AB	^{12}C(d,^{6}Li)
H	^{6}Li(t,n)	S	^{7}Li(^{7}Li,^{6}He)	AC	^{12}C(^{3}He,^{7}Be)
I	^{6}Li(^{3}He,p)	T	^{7}Be(n,p)	AD	^{12}C(α,2α), ^{12}C(α,^{8}Be)
J	^{6}Li(α,d), ^{6}Li(α,2α)	U	^{9}Be(p,d), ^{9}Be(p,np)	AE	Ag(^{14}N,^{8}Be)
K	^{6}Li(^{6}Li,α)	V	^{9}Be(d,t)	AF	^{9}C β^+p decay

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	5.57 eV *25*	ABCDE HIJKL PQRS UVW YZ	XREF: Others: AA, AB, AC, AD, AE, AF %α=100 T=0 Γ: from ^{4}He(α,α)(1992Wa09). Previous value Γ=6.8 eV *17* (1968Be02). Other value Γ=5.5 eV *13* ^{9}Be(p,d).
3030 *10*	2$^+$	1513 keV *15*	ABCDE HIJKL PQRS UVW YZ	XREF: Others: AA, AB, AC, AD, AF %α≈100 T=0 E(level): see 2004Ti06 table 8.11.
11.35×10^3 *15*	4$^+$	≈3.5 MeV	CD JK P R UVW Z	XREF: Others: AB, AC, AD %α≈100 T=0 E(level): values in the literature are 11.4 MeV *3* ^{4}He(α,α) (1959Br71), 11.7 MeV *4* ^{4}He(α,α) (1974Ch45), 11.3 MeV *4* ^{6}Li(α,d) (1962Ce01), 11.3 MeV *2* ^{7}Li(d,n)(1995Ar25), 11.40 MeV *5* ^{7}Li(d,n) (1969Ho11) and 11.3 MeV *3* ^{9}Be(p,d) (1969Su02), Γ: values found in the literature are 4.0 MeV *4* ^{4}He(α,α) (1974Ch45),≈4.3 MeV ^{4}He(α,α) (1967Ke10), 3.7 MeV *2* ^{7}Li(d,n)(1995Ar25), 2.8 MeV *2* ^{7}Li(d,n) (1969Ho11). 5.2 MeV *1* ^{9}Be(p,d) (1981Be53)≈2.6 MeV ^{9}Be(^{3}He,α) (1966Ca13,1967Ca13) and≈4 MeV ^{10}B(d,α) (1966Lo18,1968Lo01).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{8}Be Levels (continued)

E(level)	J^{π}	$T_{1/2}$	XREF	Comments
16626 *3*	2^{+}	108.1 keV *5*	BCD HI KL PQR UVW YZ	XREF: Others: AA, AB, AC %IT<2.65×10^{-3}; %$\alpha\approx$100 T=0&1 E(level): from weighted average of E=16627 keV *5* ^{7}Li(^{3}He,d), 16623 keV *3* ^{4}He(α,α) and 16630 keV *3* ^{4}He(α,α). Γ: from weighted average of Γ=113 keV *3* ^{7}Li(^{3}He,d), 90 keV *5* ^{10}B(d,α), 107.7 keV *5* ^{4}He(α,α) and 108.5 keV *5* ^{4}He(α,α).
16922 *3*	2^{+}	74.0 keV *4*	CD HI KL PQR UVW YZ	XREF: Others: AA, AB, AC %IT<3.89×10^{-3}; %$\alpha\approx$100 T=0&1 E(level): from weighted average of E=16901 keV *5* ^{7}Li(^{3}He,d), 16925 keV *3* ^{4}He(α,α) and 16918 keV *3* ^{4}He(α,α). Γ: from weighted average of Γ=77 keV *3* ^{7}Li(^{3}He,d), 70 keV *5* ^{10}B(d,α), 74.4 keV *4* ^{4}He(α,α) and 73.6 keV *4* ^{4}He(α,α).
17640.0 *10*	1^{+}	10.7 keV *5*	E I L N PQ UVW Z	XREF: Others: AA, AC %IT=0.204; %p=99.8 T=1 E(level): from ^{7}Li(p,γ). Γ: from ^{7}Li(p,γ).
18150 *4*	1^{+}	138 keV *6*	I L N PQ UV Z	XREF: Others: AA %IT=4.6×10^{-3}; %p≈100 T=0 E(level): from weighted average of E=18155 keV *5* ^{7}Li(p,p′ γ), 18150 keV *5* ^{10}B(d,α) and 18144 keV *5* ^{9}Be(d,t). Γ: from ^{10}B(d,α).
18910	2^{-}	122 keV	I LMN P T	%IT=2.2×10^{-4}; %n=?; %p=? Γ: from R-matrix fit to ^{7}Be(n,p), (n,α) and (n,$\alpha\gamma$) data. Other values are Γ=131 keV *44* ^{7}Li(p,γ), 50 keV *20* ^{7}Li(p,n) and 48 keV *18* ^{7}Li(p,p).
19069 *10*	3^{+}	271 keV *15*	I L N P UV	%IT=3.87×10^{-3}; %p≈100 T=1 T: tentative. E(level): from weighted average of E=19060 keV *20* ^{7}Li(p,γ) and 19071 keV *10* ^{9}Be(d,t). Γ: from weighted average of Γ=271 keV *17* ^{7}Li(p,γ) and 270 keV *30* ^{9}Be(d,t).
19235 *10*	3^{+}	227 keV *16*	MN P TUVW Z	XREF: Others: AE %n≈50; %p≈50 T=0 T: tentative. E(level): from weighted average of E=19220 keV *30* ^{9}Be(^{3}He,α), 19260 keV *30* ^{9}Be(d,t) and 19234 keV *12* Ag(^{14}N,^{8}Be). Γ: from weighted average of Γ=208 keV *30* ^{9}Be(p,d), 265 keV *30* ^{9}Be(^{3}He,α), 220 keV *30* ^{9}Be(d,t) and 210 keV *35* Ag(^{14}N,^{8}Be). branching ratio from ^{7}Li(p,n).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{8}Be Levels (continued)

E(level)	J^{π}	$T_{1/2}$	XREF	Comments
19400	1^-	≈645 keV	I MN U	%n=?; %p=? Γ: from ^{7}Li(p,p),(p,p′).
19860 *50*	4^+	0.7 MeV *1*	D I K O RS VW Z	%p=30; %α=70 T=0 $\Gamma\alpha/\Gamma_p$=2.3 *5* ^{10}B(d,2α), ^{10}B(d,p+^{7}Li)(1992Pu06). Other measurement Γα/Γ=0.96 from ^{4}He(α,α). E(level): from ^{9}Be(d,t). Γ: from ^{9}Be(d,t).
20100	2^+	880 keV *20*	D MNOP S V Z	%n=?; %p=?; %α=? T=0 $\Gamma\alpha/\Gamma_p$=4.5 *6* ^{10}B(d,α),^{10}B(d,p)(1992Pu06). Γ: from ^{7}Li(d,n).
20200	0^+	720 keV *20*	D M P Z	%α≈50; %n=? T=0 Γ: from ^{7}Li(d,n). Γα/Γ≈0.50 ^{4}He(α,α).
20.9×10^3	4^-	1.6 MeV *2*	N	%p=? Γ: from ^{7}Li(p,p).
21.5×10^3	$3^{(+)}$	1.1 MeV	LM T Z	%IT=?; %n=?; %p=? Γ: from ^{7}Li(p,n).
22000†	1^-	≈4 MeV	L	%IT=?; %p=? T=1 Γ: from ^{7}Li(p,γ).
22.05×10^3 *10*		270 keV *70*	U W	E(level): from ^{9}Be(^{3}He,α). Γ: from ^{9}Be(^{3}He,α).
22.24×10^3 *2*	2^+	≈0.8 MeV	D G MNO Z	%n=?; %p=?; %d=?; %α=? T=0 E(level): from ^{6}Li(d,α) (1997Cz01). Γ: from ^{6}Li(d,α) (1965Fr02).
22.63×10^3 *10*		100 keV *50*	K W	E(level): from ^{9}Be(^{3}He,α). Γ: from ^{9}Be(^{3}He,α).
22.98×10^3 *10*		230 keV *50*	W	E(level): from ^{9}Be(^{3}He,α). Γ: from ^{9}Be(^{3}He,α).
24000†	$(1,2)^-$	≈7 MeV	L O Z	%IT=?; %p=?; %α=? T=1 Γ: from ^{7}Li(p,γ).
25200	2^+		D G O Z	%p=?; %d=?; %α=? T=0
25500	4^+		D G	%d=?; %α=? T=0 Γ: broad.
27494.1 *18*	0^+	5.5 keV *20*	EFG X	%IT=0.60; %n=39.4; %p=6.9; %d=27.0; %^{3}H=11.7; %^{3}He=6.6; %α=7.9 T=2 E(level): from weighted average of E=27492.2 keV *26* ^{10}B(p,^{3}He) (1975Ro01) and 27495.8 keV *24* ^{6}Li(d,γ) (1976No07). Γ: from ^{6}Li(d,γ). Other values are Γ=10 keV *3* ^{6}Li(d,p),(d,d),(d,α) (1969Bl14),

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{8}Be Levels (continued)

E(level)	$T_{1/2}$	XREF	Comments
			14.7 keV *40* ^{4}He(α,α),(α,p) (1976Hi04) and 12.3 keV *3* ^{10}B(p,^{3}He) (1975Ro01). E(level): for parameters of this state see (1979Fr04). However, the sum of the branching ratios given in (1979Fr04) greatly exceeds 100%.
28600?		L	%IT=?; %p=? Γ: broad.
32×10^{3}?	1 MeV	Z	E(level): from ^{10}B(d,α) (1993Pa31). Γ: from ^{10}B(d,α) (1993Pa31).
$\approx41\times10^{3}$?		G	

† Giant resonance: see reaction ^{7}Li(p,γ).

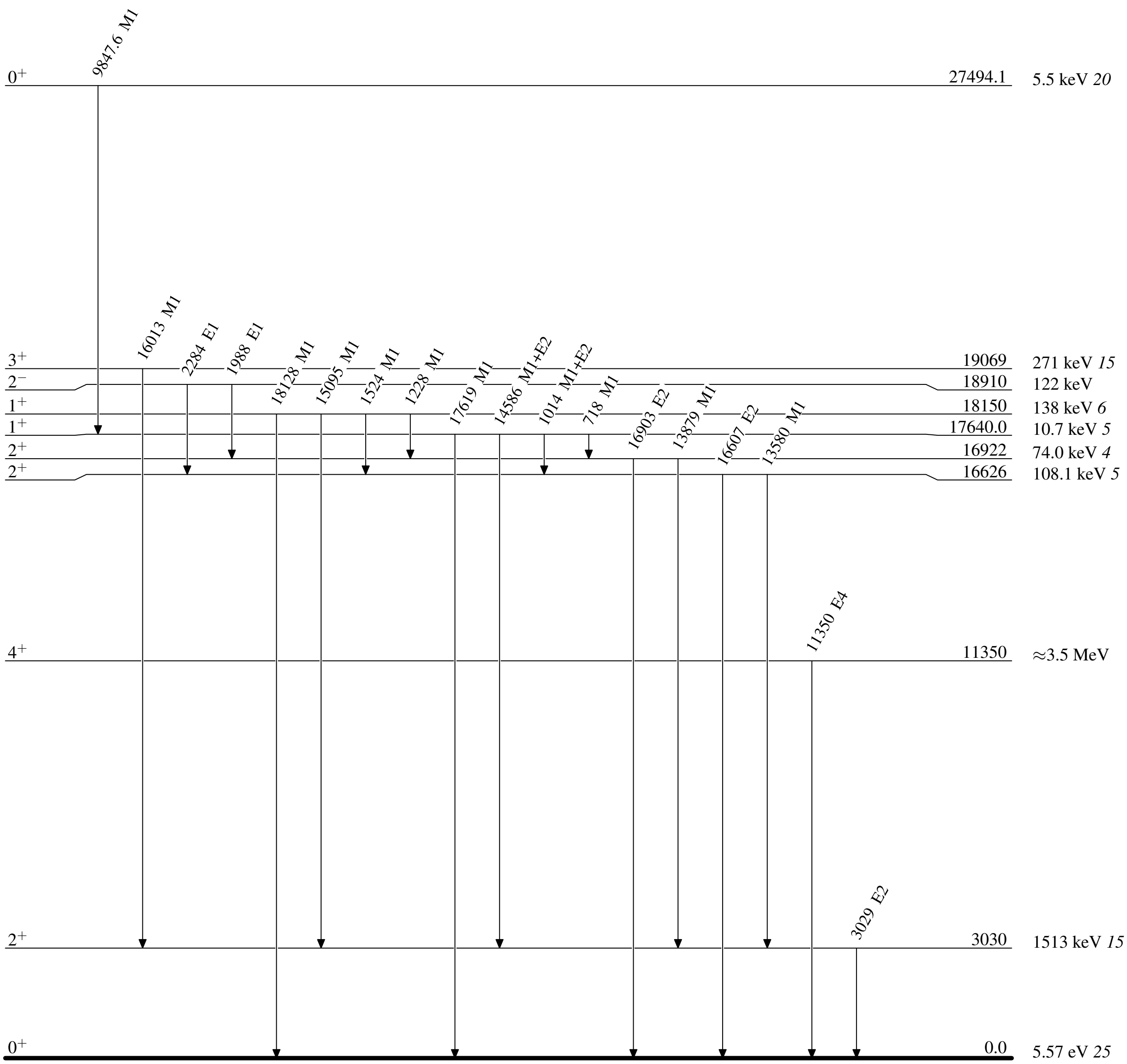
γ(^{8}Be)

E_i(level)	J^{π}_{i}	E_{γ}†	E_f	J^{π}_{f}	Mult.	δ	Comments
3030	2^+	3029	0.0	0^+	E2		Γ_γ: 8.3×10^{-3} eV (calculated in 1986La05).
11.35×10^{3}	4^+	11350	0.0	0^+	E4		Γ_γ: 0.46×10^{-3} eV (calculated in 1986La05).
16626	2^+	13580	3030	2^+	M1		Γ_γ<2.80 eV *18*; B(M1)(W.u.)<5.3×10^{-2} *3*
		16607	0.0	0^+	E2		Γ_γ=7.0×10^{-2} eV *25*; B(E2)(W.u.)=7.1×10^{-2} *25*
16922	2^+	13879	3030	2^+	M1		Γ_γ<2.80 eV *18*; B(M1)(W.u.)<5.3×10^{-2} *3*
		16903	0.0	0^+	E2		Γ_γ=8.4×10^{-2} eV *14*; B(E2)(W.u.)=7.8×10^{-2} *13*
17640.0	1^+	718	16922	2^+	M1		Γ_γ=1.3×10^{-3} eV *3*; B(M1)(W.u.)=0.17 *4*
		1014	16626	2^+	M1+E2	−0.014 *13*	Γ_γ=3.2×10^{-2} eV *3*; B(M1)(W.u.)=1.5 *2*
		14586	3030	2^+	M1+E2	0.21 *4*	Γ_γ= 6.8 eV *13*; B(M1)(W.u.)=0.10 *2*; B(E2)(W.u.)=0.23 *10*
		17619	0.0	0^+	M1		Γ_γ=15.0 eV *18*; B(M1)(W.u.)=0.13 *2*
18150	1^+	1228	16922	2^+	M1		Γ_γ=6.2×10^{-2} eV *7*; B(M1)(W.u.)=1.6 *2*
		1524	16626	2^+	M1		Γ_γ=7.7×10^{-2} eV *19*; B(M1)(W.u.)=1.0 *3*
		15095	3030	2^+	M1		Γ_γ=4.3 eV *12*; B(M1)(W.u.)=5.9×10^{-2} *17*
		18128	0.0	0^+	M1		Γ_γ=1.9 eV *4*; B(M1)(W.u.)=1.5×10^{-2} *3*
18910	2^-	1988	16922	2^+	E1		Γ_γ=9.9×10^{-2} eV *43*; B(E1)(W.u.)=4.6×10^{-2} *20*
		2284	16626	2^+	E1		Γ_γ=0.17 eV *7*; B(E1)(W.u.)=5.3×10^{-2} *20*
19069	3^+	16013	3030	2^+	M1		Γ_γ=10.5 eV; B(M1)(W.u.)=0.122
27494.1	0^+	9847.6	17640.0	1^+	M1		Γ_γ=21.9 eV *39*; B(M1)(W.u.)=1.10 *20* Γ_γ: from (1979Fr04). Revised from Γ_γ=24 eV *3* (1976No07).

† From E(level) difference; recoil correction applied.

Adopted Levels, Gammas

Level Scheme



$^{8}_{4}Be_{4}$

^{8}Li β^- decay 1986Wa01,1989Ba31

History

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

Parent: ^{8}Li: E=0.; $J^\pi=2^+$; $T_{1/2}$=839.9 ms *9*; $Q(\beta^-)$=16005.16 *10*; $\%\beta^-$ decay=100.0

1960Fa04: $^{8}Li(\beta^-)$. Deduced nuclear properties.
1960Gr10: $^{8}Li(\beta^-)$, deduced nuclear properties.
1960No01: $^{8}Li(\beta^-)$, deduced nuclear properties.
1960No05: $^{8}Li(\beta^-)$, deduced nuclear properties.
1970Sc34: $^{8}Li(\beta^-)$, measured β-delayed α-spectrum. ^{8}Be deduced level.
1971Wi05: $^{8}Li(\beta^-)$, measured delayed α spectra, $T_{1/2}$. Deduced no second-class current contribution.
1974Tr01: $^{8}Li(\beta^-)$, measured Ba(θ).
1980Mc07: $^{8}Li(\beta^-)$, measured Ba(θ). Deduced final state energy dependence.
1982Fi03: $^{8}Li(\beta^-)$, measured β-delayed E_α, I_α.
1984La27: $^{8}Li(\beta^-)$, measured charge particle spectra following β-decay. Deduced evidence for β-delayed triton emission.
1986Wa01: $^{8}Li(\beta^-)$, analyzed β-delayed breakup α-spectra. ^{8}Be deduced level, Γ, Gamow-Teller matrix elements. R-matrix.
1988Ha21: $^{8}Li(\beta^-)$, measured β-decay asymmetry vs E(β). Deduced no second class current evidence.
1989Ba31: $^{8}Li(\beta^-)$; calculated α-spectra. ^{8}Be deduce possible broad intruder state. Many-level R-matrix fit.
1992De07: $^{8}Li(\beta^-)$. Deduced BaALPHA-correlation measurement procedure.
1993Mo28: $^{8}Li(\beta^-)$, measured β-decay end point energy.
1996Eb01: $^{8}Li(\beta^-)$, measured β-decay count rate asymmetry.
2002Bh03: $^{8}Li(\beta^-)$, analyzed β-delayed E_α. ^{8}Be deduced R-matrix parameters.
2003Hu06: $^{8}Li(\beta^-)$, measured β-decay asymmetry from polarized source, electrons transverse polarization. Deduced time reversal violating triple correaltion parameter, scalar leptoquark mass limit.

^{8}Be Levels

E(level)	J^π †	$T_{1/2}$ †	Comments
0.0	0^+	5.57 eV *25*	
3030 *10*	2^+	1513 keV *15*	$\%\alpha$=100

† From Adopted Levels.

β^- radiations

E(decay)	E(level)	$I\beta^-$ †	Log *ft*	Comments
(12975 *10*)	3030	≈100	≥5.37	av $E\beta$=6248 *5* log *ft*=5.37 from (1986Wa01). Other value in the literature is log *ft*=5.72 (1989Ba31). Because broad levels of ^{8}Be participate in the β^-decay, it is necessary to make detailed computations to determine the log *ft* value.

† Absolute intensity per 100 decays.

^{8}B β^+ decay 1989Ba31,1969Ba43

History

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

Parent: ^{8}B: E=0.0; J$^{\pi}$=2$^+$; $T_{1/2}$=770 ms *3*; Q(β^+)=17979.8 *10*; %β^+ decay=100.0

1986Wa01: ^{8}B(β^+), analyzed β-delayed breakup α-spectra. Deduced intruder states role.

1989Ba31: ^{8}B(β^+); calculated α-spectra. ^{8}Be deduce possible broad intruder state. Many-level R-matrix fit.

1993Ch06: ^{8}B(β^+), analyzed Gamow-Teller β-decay data. Deduced log *ft*, β-decay matrix elements.

2000Or04: ^{8}B(EC), measured β-delayed α spectrum. Deduced neutrino spectrum. Implications for solar neutrino measurements discussed.

2002Bh03: ^{8}B(EC), analyzed β-delayed E_{α}.

2003Wi11: ^{8}B(β^+), (EC), measured β-delayed E_{α}.

2003Wi16: ^{8}B(β+α), measured β-delayed E_{α}, I_{α}, β-α-coin. Deduced neutrino spectrum.

^{8}Be Levels

E(level)	J$^{\pi}$†	$T_{1/2}$†	Comments
0.0	0$^+$	5.57 eV *25*	
3030 *10*	2$^+$	1513 keV *15*	%α=100
16626 *3*	2$^+$		

† From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+†	Iε†	Log *ft*	I(ε+β^+)†	Comments
(1354 *3*)	16626	<12	<0.45	>3.3	<12	av Eβ=123.9 *13*; εK=0.0356 *11*; εL=0.00149 *5* log *ft* from (1969Ba43).
(14950 *10*)	3030	>88		<5.6	>88	av Eβ=6732 *5* log *ft*=5.77 from (1989Ba31). Because broad levels of ^{8}Be participate in the β^-decay, it is necessary to make detailed computations to determine the log *ft* value.

† Absolute intensity per 100 decays.

^{9}C β^{+}p decay 1988Mi03,2000Ge09,2001Be51

Type	Author	History Citation	Literature Cutoff Date
Update	J. Kelley		26-Feb-2013

Parent: ^{9}C: E=0; J^{π}=(3/2^{-}); $T_{1/2}$=126.5 ms *9*; Q(β^{+}p)=16680.3 *25*; %β^{+}p decay=62.0 *19*

^{9}C-Q(β^{+}p): from 2012Wa38.

1988Mi03: Implanted ^{9}C into a thick Si detector and measured the total β-delayed breakup energy; deduced β-decay feeding to low-lying states. They missed several higherlying states that are fed and did not directly distinguish delayed p vs. α emission.

2000Ge09: ^{9}C from the TRIUMF/TISOL facility was implanted in a thin carbon foil. Data were taken in two detector configurations; one configuration was sensitive to decay through the p+$^{8}Be_{g.s.}$ decay mode while the other configuration was sensitive to the α+$^{5}Li_{g.s.}$ and p+^{8}Be*(3.0) decay channels. Breakup particles from ^{9}C -> ^{8}Be+p -> 2α+p and ^{9}C ->^{5}Li+α -> 2α+p were detected either in an array of 4 ΔE-E telescopes configured with two segmented Si annular detectors or with a similar array 2 ΔE-E telescopes configured with two doublesided position sensitive Si strip detectors and a plastic scintillator to count β-particles. Detector sensitivities and coincidence efficiencies were evaluated by Monte Carlo techniques, and a phenomenological approach was used to deduce the β-decay reaction branching ratios.

2001Be51: At the CERN/ISOLDE facility, doublesided strip detectors (DSSD) were coupled with thick stopping detectors to provide high-granularity and large solid angle coverage for detecting decay particles. Emphasis was placed on characterizing population and decay of the≈14.65 MeV IAS. Furthermore a thin ΔE DSSD was implemented to avoid threshold (efficiency) concerns that troubled (2000Ge09). Lastly, the experimenters evaluated the decay branching ratios for the ^{12}B*(12.2) state. Little comment is given on other populated levels.

2001Bu05: The authors of (2000Ge09) give a more rigorous alternate interpretation of their data in a full R-matrix analysis. There is a poor agreement between deduced level energies and accepted energy values.

Comments:

Four relevant articles are given that discuss three different experimental efforts. Agreement is relatively mixed.

The experiments that are most sensitive to decay to $^{9}B_{g.s.}$ find the largest feeding to that state, we take (54.1 *15*)% from (2001Be51). Data from TRIUMF produced the most comprehensive set of populated levels, though they are analyzed via two different methods in (2000Ge09) and (2001Bu05) yielding somewhat different results, due in part to differences in the $^{9}B_{g.s.}$ branch and subsequent renormalization. Lastly are the states above 14 MeV, (2000Ge09) reports only ^{9}B*(14.0: J^{π}= ?) which decays mainly via proton emission, while (2001Be51) reports population of ^{9}B*(14.6: J^{π}=3/2^{-}) which decays about evenly via p and α emission. On the other hand the analysis of (2001Bu05) reports population of both levels. Finally, in (2000Ge09, 2001Bu05) a previously unknown ^{9}B level at E_x=13.3 MeV is reported.

The ^{9}B ground state feeding from (2001Be51) is accepted here; the branching ratios from (2000Ge09) including the mostly α background component are then renormalized ($\times$ 0.864). The branches feeding both of the E_x=14.0 and 14.6 MeV states are accepted, though it may be that only one level was populated. The particle breakup branching ratios for ^{9}B*(12.2) are accepted from (2001Be51). And lastly, the weak branch to ^{9}B*(13.3) is included with some uncertainty.

^{8}Be Levels

E(level)†	J^{π}†	Γ†
0.0	0^{+}	5.57 eV *25*
3030 *10*	2^{+}	1513 keV *15*

† From Adopted dataset for ^{8}Be in ENSDF database.

$^{9}C\ \beta^{+}p$ decay 1988Mi03,2000Ge09,2001Be51 (continued)

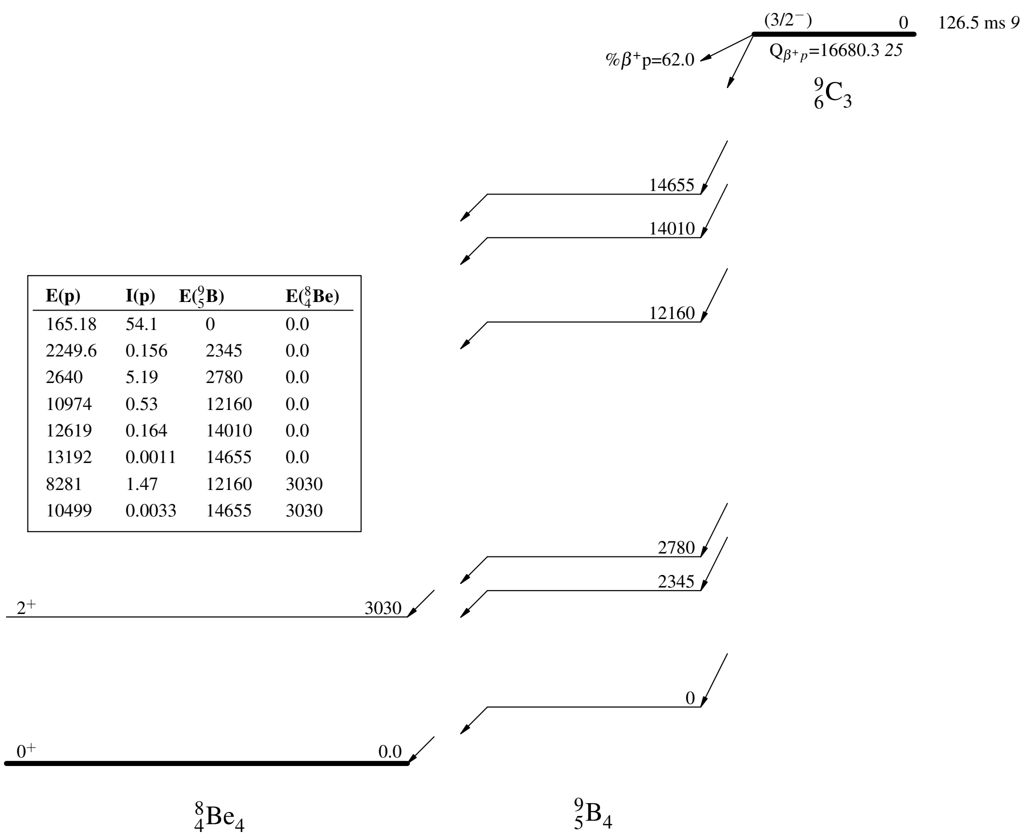
Delayed Protons (^{8}Be)

E(p)	E(^{8}Be)	I(p)	E(^{9}B)
165.18 *81*	0.0	54.1 *15*	0
2249.6 *98*	0.0	0.156 *17*	2345
2.64×10^{3} *14*	0.0	5.19 *52*	2780
8281 *37*	3030	1.47 *44*	12160
10499 *24*	3030	0.0033	14655
10974 *36*	0.0	0.53 *8*	12160
11987 *89*	0.0	0.0017 *3*	13300 ?
12619 *62*	0.0	0.164 *17*	14010
13192 *22*	0.0	0.0011	14655

^{9}C β^{+}p decay 1988Mi03,2000Ge09,2001Be51

Decay Scheme

I(p) Intensities: Relative I(p)



E(p)	I(p)	E($^{9}_{5}$B)	E($^{8}_{4}$Be)
165.18	54.1	0	0.0
2249.6	0.156	2345	0.0
2640	5.19	2780	0.0
10974	0.53	12160	0.0
12619	0.164	14010	0.0
13192	0.0011	14655	0.0
8281	1.47	12160	3030
10499	0.0033	14655	3030

^{4}**He**(α,γ) **2004Ti06**

History

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

1975Na12: ^{4}He(α,γ) E=33-38 MeV, measured σ(E,E_γ). ^{8}Be levels deduced M1 Γ.
1977Pa26: ^{4}He(α,γ) E=33.4-35 MeV, measured E_γ, I_γ(E) ^{8}Be level deduced Γ_γ.
1978Bo30: ^{4}He(α,γ) E=32-36 MeV, measured σ(E,θ). ^{8}Be resonances deduced radiative widths, δ.
1979LoZU: ^{4}He(α,γ) E not given, measured σ(E_γ,θ). ^{8}Be levels deduced Γ_γ for T=1, M1 transition.
1994De30: ^{4}He(α,γ) E≈resonance, measured γ(θ,E). ^{8}Be deduced resonances δ, mixing parameter, Γ(M1), Γ(E2).
1995De18: ^{4}He(α,γ) E=33-34.7 MeV, measured γ yield vs. E, I_γ(THETA). ^{8}Be deduced doublet decay features, δ(E2/M1), Γ_γ, $\beta(\lambda)$.
2001HaZZ: ^{4}He(α,γ) E=33-35 MeV, measured σ(θ).

^{8}Be Levels

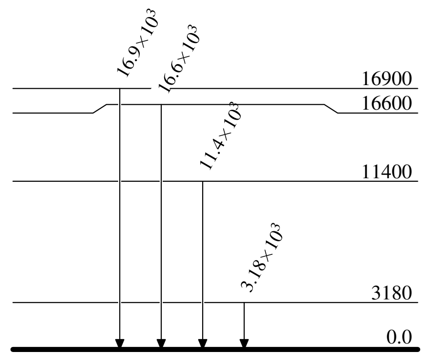
E(level)	Comments
0.0	
3.18×10^{3} *5*	
11.4×10^{3}	
16.6×10^{3}	unresolved.
16.9×10^{3}	unresolved.

γ(^{8}Be)

E_γ	E_i(level)	E_f	Comments
3.18×10^{3}	3.18×10^{3}	0.0	Γ_γ: 8.3×10^{-3} eV (calculated in 1986La05).
11.4×10^{3}	11.4×10^{3}	0.0	Γ_γ: 0.46×10^{-3} eV (calculated in 1986La05).
16.6×10^{3}	16.6×10^{3}	0.0	$\Gamma_{\gamma0}=7.0\times10^{-2}$ eV *25* Γ_γ: from (1995De18).
16.9×10^{3}	16.9×10^{3}	0.0	$\Gamma_{\gamma0}=8.4\times10^{-2}$ eV *14* Γ_γ: from (1995De18).

^{4}He(α,γ) 2004Ti06

Level Scheme



$^{8}_{4}Be_{4}$

^{4}**He**(α,α) **2004Ti06**

History

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

1968Be02: ^{4}He(α,α) E_{α}=182.2-191.5 keV, measured $\sigma(E_{\alpha})$. ^{8}Be deduced Q, Γ-level.
1972Ba83: ^{4}He(α,α) E=30-70 MeV, measured $\sigma(E,\theta)$. Deduced phase shifts. ^{8}Be deduced levels, J, π.
1974Ch45: ^{4}He(α,α) E=18.00-29.50 MeV, measured $\sigma(E,\theta)$. Deduced phase shifts L=0, 2, 4, 6.
1976Fo03: ^{4}He(α,α) E=650, 850 MeV, measured $\sigma(\theta)$.
1976Hi04: ^{4}He(α,α) E=54.96-55.54 MeV, measured $\sigma(E,\theta)$. ^{8}Be deduced resonance parameters.
1978Hi04: ^{4}He(α,α) E=32.6-35.4 MeV, measured $\sigma(E,\theta)$. ^{8}Be deduced resonance parameters.
1978Na16: ^{4}He(α,α) E=158.2 MeV, measured $\sigma(\theta)$.
1980Be14: ^{4}He(α,α) E at 4.32, 5.07 GeV/c, measured $\sigma(\theta)$.
1980Ma30: ^{4}He(α,α) E=0.5-70 MeV, analyzed phase shift data.
1985Bo35: ^{4}He(α,α) E=12.3, 29.5, analyzed phase shift data. Deduced parameter zero position dependent resonance location.
1992Go21: ^{4}He(α,α) $E_{C.M.}$=11.39 MeV, measured $\sigma(\theta)$.
1992Wu09: ^{4}He(α,α) E≈threshold, measured relative yield. Deduced ^{8}Be resonance splitting mechanism.
1994Co16: ^{4}He(α,α) E=197 MeV, measured $\sigma(\theta)$. DWIA analysis.
1994Mo27: ^{4}He(α,α) E≈7-35 MeV, analyzed $\sigma(\theta)$. Deduced model potential parameters.
1995Yi01: ^{4}He(α,α) E=0-25 MeV, analyzed phase shifts vs. E. Deduced R-matrix parameters.
1996Ku08: ^{4}He(α,α) E=low. ^{8}Be level deduced Γ.
1996St25: ^{4}He(α,α) $E_{C.M.}$=158, 200 MeV, measured $\sigma(\theta)$. DWBA analysis.
2002Bh03: ^{4}He(α,α) E≈0.4-33 MeV, analyzed phase shifts. ^{8}Be deduced R-matrix parameters.
2003Av04: ^{4}He(α,α) E<35 MeV, analyzed $\sigma(\theta)$. Deduced density distribution.
2003De37: ^{4}He(α,α) E≈0-40 MeV, analyzed σ, phase shifts, rotational band features. Deduced resonance and antiresonance effects.

^{8}Be Levels

E(level)	J^{π}	$T_{1/2}$	L	Comments
0.0		5.57 eV *25*		Γ: from (1992Wa09), other value Γ=6.8 eV *17* (1968Be02).
3.18×10^{3}	2^{+}	1.5 MeV	2	
11.5×10^{3} *3*	4^{+}	4.0 MeV *4*	4	E(level): from 11.4 MeV *3* (1959Br71) and 11.7 MeV *4* (1974Ch45). Γ: from (1974Ch45). Other value≈4.3 MeV (1967Ke10).
16627 *2*	2^{+}	108.1 keV *4*	2	Γα≈Γ. E(level): from weighted average of 16623 keV *3* and 16630 keV *3*. Γ: from weighted average of 107.7 keV *5* and 108.5 keV *5*.
16921 *2*	2^{+}	74.0 keV *3*	2	Γα≈Γ. E(level): from weighted average of 16925 keV *3* and 16918 keV *3*. Γ: from weighted average of 74.4 keV *4* and 73.6 keV *4*.
19.9×10^{3}	4^{+}	<1 MeV	4	Γα/Γ≈0.96
20.1×10^{3}	2^{+}		2	
20.2×10^{3}	0^{+}	<1 MeV	0	Γα/Γ<0.5
22.2×10^{3}	2^{+}		2	
25.2×10^{3}	2^{+}		2	
25.5×10^{3}	4^{+}		4	Γ=broad.
$28.\times10^{3}$?	(6^{+})	≈20 MeV	6	
$57.\times10^{3}$?	(8^{+})	≈73 MeV		

^{6}Li(d,γ) 2004Ti06

History

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

1976No07: ^{6}Li(d,γ) E=6.85-7.10 MeV, measured yields. ^{8}Be deduced resonance, Γ, T.
1991Wi19: ^{6}Li(pol. d,γ) E=90 MeV, measured E_γ, I_γ, $\sigma(\theta)$, vector, tensor analyzing power vs θ. ^{8}Be deduced d+^{6}Li D-state probability.
1994Wi08: ^{6}Li(pol. d,γ) E=2-14 MeV, measured σ(E) vs θ, vector, tensor analyzing power vs θ, E. Deduced transition matrix elements phases. ^{8}Be deduced D-state probability.

^{8}Be Levels

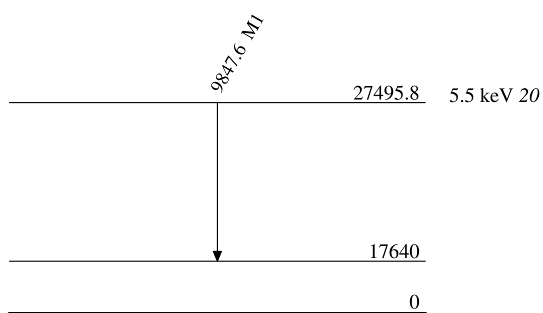
E(level)	$T_{1/2}$	Comments
0		
3.0×10^3		
17.64×10^3		
27495.8 *24*	5.5 keV *20*	T=2 E(level): from E_{res}=6965 keV.

γ(^{8}Be)

E_γ	E_i(level)	E_f	Mult.	Comments
9847.6	27495.8	17.64×10^3	M1	Γ_γ=21.9 eV *39* Γ_γ: from (1979Fr04). Revised from Γ_γ=24 eV *3* (1976No07).

^{6}Li(d,γ) 2004Ti06

Level Scheme



$^{8}_{4}Be_{4}$

^{6}Li(d,n), ^{6}Li(d,p) 2004Ti06

History

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

1957Sl01: ^{6}Li(d,n) E≈1-6 MeV, measured neutron yields. ^{8}Be deduced excited states energies.
1966Sc26: ^{6}Li(d,n_1) E=0.24-0.84 MeV, measured σ(E,θ).
1970Ga07: ^{6}Li(d,n) E=12-17 MeV, measured σ(E,E(^{7}Be),θ(^{7}Be)), σ(E,E(^{13}N),θ(^{13}N)).
1970Th08: ^{6}Li(d,n_0), ^{6}Li(d,n_1) E=2.5-3.7 MeV, measured P_n(E,THETA=10 DEG-140 DEG).
1975Az02: ^{6}Li(d,n) E=13.9, 15.25 MeV, measured σ(E_n,θ).
1975Mc02: ^{6}Li(d,n) E=0.5-3.4 MeV, measured σ(E_γ). Deduced σ(E).
1977El09: ^{6}Li(d,n) E=0.2-0.9 MeV, measured σ(E,θ).
1977Gl05: ^{6}Li(pol. d,n) E=0.6, 0.8, 1.0 MeV, measured vector, tensor analyzing powers Ay(θ), A(θ).
1977Sz05: ^{6}Li(d,n) E=100-180 keV, measured σ(E). Deduced astrophysical σ.
1979Ru07: ^{6}Li(d,n) E=0.4-10 MeV, measured σ(E). Deduced reaction mechanism. DWBA calculation.
1980Gu26: ^{6}Li(d,n) E=1.28-11.93 MeV, measured σ(total,E).
1982Ce02: ^{6}Li(d,nγ) E=48, 170 keV, measured thick target yield. Deduced σ(E), astrophysical S(E).
1983As03: ^{6}Li(d,n) E=4.8 MeV, measured ^{7}Be production σ.
1985Ce12: ^{6}Li(d,n) E=50-160 keV, measured thick target γ-ray yields.
1993Cz01: ^{6}Li(d,n) E<1 MeV, measured yield ratios, astrophysical S-factor, σ(θ). Deduced ^{8}Be resonance role in charge symmetry violation.
1996Bo27: ^{6}Li(d,n) E(C.M.)=0.5-9 MeV, measured σ(θ_n,E_n), σ(θ).
1997Cz04: ^{6}Li(d,n) E=65-135 keV, measured charged particle spectra. Deduced reaction yields ratio, (d,p_0) reaction astrophysical S-factorS. ^{8}Be deduced resonance Γ_n/Γ_p.
1997No04: ^{6}Li(d,n) E≤2 MeV, analyzed reaction rates. Deduced primordial ^{6}Li component production related features.
2000El08: ^{6}Li(d,n) E=0.7-3.4 MeV, measured E_γ, I_γ. Deduced thick target γ-ray yields.
2001Ho23: ^{6}Li(d,n) E=24-111 keV, measured σ, S-factor.
1968Du09: ^{6}Li(d,p), (pol. d,p) E=2.1-10.9 MeV, measured σ(E,E_p,θ), vector-polarization analyzing power A(E,E_p,θ).
1969Bl14: ^{6}Li(d,p) E=6.33-7.14 MeV, measured σ(E,θ). ^{8}Be deduced resonance, Γ-level.
1969Ho39: ^{6}Li(d,p) E=1.8 MeV, measured σ(E_p,θ).
1969Le22: ^{6}Li(d,pγ) E=40-130 keV, measured σ(E,E_p,E_γ), σ(E,E_α,$\theta(\alpha)$).
1969Vi06: ^{6}Li(d,p) E=180 MeV, measured σ(E_p,θ). Deduced reaction mechanism.
1970Fi07: ^{6}Li(vector-pol. d,p) E=10, 12 MeV, measured analyzing power A(θ).
1970Po03: ^{6}Li(d,p) E=4.5-5.5 MeV, measured σ(E,θ), σ(E,E_p,θ).
1975Mc02: ^{6}Li(d,p) E=0.5-3.4 MeV, measured σ(E,θ). Deduced σ(E).
1977Br33: ^{6}Li(d,p) E=361 MeV, measured proton production at 180°, σ.
1977El09: ^{6}Li(d,p) E=0.1-1.0 MeV, measured σ(E,θ).
1977Gl05: ^{6}Li(pol. d,p) E=0.6, 0.96 MeV, measured vector, tensor analyzing powers Ay(θ), A(θ).
1979Bo33: ^{6}Li(d,p) E=100-180 keV, measured σ(E). Deduced astrophysical σ.
1981Bo03: ^{6}Li(d,p) E=698 MeV, measured σ(θ). Deduced deuteron optical model parameters. DWBA.
1981Ce04: ^{6}Li(d,p) E=29-170 keV, measured thick target yield. Deduced σ(θ).
1981Yu01: ^{6}Li(d,p) E=9.05 MeV, measured σ(θ). Optical model, zero-range DWBA analyses.
1985Ce12: ^{6}Li(d,p) E=50-160 keV, measured thick target γ-ray yields.
1993Ce02: ^{6}Li(d,p) E(C.M.)=20-135 keV, measured spectra, yield ratios.
1993Cz01: ^{6}Li(d,p) E<1 MeV, measured yield ratios, astrophysical S-factor, σ(θ). Deduced ^{8}Be resonance role in charge symmetry violation.
1994Ye09: ^{6}Li(d,p) E=0.15 MeV, measured E_p, E_α, γ spectra.
1997Cz04: ^{6}Li(d,p) E=65-135 keV, measured charged particle spectra. Deduced reaction yields ratio, (d,p_0) reaction astrophysical S-factors vs E. ^{8}Be deduced resonance Γ_n/Γ_p.
2000El08: ^{6}Li(d,p) E=0.7-3.4 MeV, measured E_γ, I_γ. Deduced thick target γ-ray yields.
2002Ba77: ^{6}Li(d,p) E=low, analyzed σ, related data. Deduced electron screening potential.

^{6}Li(d,n), ^{6}Li(d,p) 2004Ti06 (continued)

^{8}Be Levels

E(level)	J^{π}	$T_{1/2}$	Comments
27.500×10^{3}	0^{+}	10 keV *3*	T=2 E(level): from E_{res}=6.945 MeV $\Gamma_{p0}<\Gamma_{p1}$ $ $\Gamma_{p0}<\Gamma_{d}$.

$^{6}Li(d,\alpha)$, $^{6}Li(d,p\alpha)$ 2004Ti06

History

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

1967Cl06: $^{6}Li(d,\alpha)$ E=3 to 12 MeV, measured $\sigma(E,\theta)$. ^{8}Be deduced levels, J, π.
1969Bl14: $^{6}Li(d,\alpha)$ E=6.33-7.14 MeV, measured $\sigma(E,\theta)$. ^{8}Be deduced resonance, Γ-level.
1971Ne12: ^{6}Li(pol. d,α) E=0.4, 0.6, 0.8, 0.96 MeV, measured vector, tensor analyzing power. ^{8}Be deduced resonances, J, π.
1975Mc02: $^{6}Li(d,\alpha)$ E=0.5-3.4 MeV, measured $\sigma(E,\theta)$.
1975Wi25: $^{6}Li(d,\alpha)$ E=425 keV, measured polarization.
1977El09: $^{6}Li(d,\alpha)$ E=0.1-1.0 MeV, measured $\sigma(E,\theta)$.
1977Ri09: $^{6}Li(d,\alpha)$ E=1.5-11.5 MeV, measured $\sigma(E,\theta)$, $\alpha(E,\theta)$. ^{8}Be deduced resonance structure.
1977Mi13: $^{6}Li(d,p\alpha)$ E=7.5, 10, 10.5 MeV, measured (E,E1,E2,θ_1,θ_2). Deduced reaction mechanism.
1979Bo33: $^{6}Li(d,\alpha)$ E=100-180 keV, measured $\sigma(E)$. Deduced astrophysical σ.
1979Ri03: ^{6}Li(pol. d,α) E=5.0-6.5, 8.0-10.0 MeV, measured A_y(THETA,E), A_{yy}(THETA,E).
1981Go19: $^{6}Li(d,\alpha)$ $E_{C.M.}$=35-110 keV, measured $\sigma(E)$.
1986So07: ^{6}Li(pol. d,α), E≈6.9-7.05 MeV, measured $\sigma(\theta)$, T_{20}(THETA), T_{21}(THETA), T_{22}(THETA), iT_{11}(THETA). ^{8}Be deduced isospin forbidden decay, channel spin dependent γ ratio.
1989Ba88: $^{6}Li(d,\alpha)$ E=18.2-36.8 MeV, measured $\sigma(\theta)$. Deduced model parameters.
1990Sa47: ^{6}Li(pol. d,α) E=10 MeV, analyzed tensor analyzing power data. ^{6}Li deduced D-state component.
1992En01: $^{6}Li(d,\alpha)$ $E_{C.M.}$=10-1004 keV, measured $\sigma(\theta,E)$. Deduced astrophysical S-factor vs. E, electron screening potential energy.
1993Ce02: $^{6}Li(d,\alpha)$ $E_{C.M.}$=20-135 keV, measured spectra, yield ratios.
1994Ar24: $^{6}Li(d,\alpha)$ E=18.2-44.5 MeV, measured $\sigma(\theta)$. Deduced $\sigma(E)$. ^{8}Be deduced possible level.
1997Cz01: $^{6}Li(d,\alpha)$ E=50-180 keV, measured $\sigma(E)$, astrophysical S-factor vs. E. Deduced subthreshold resonance contribution.
2002Ba77: $^{6}Li(d,\alpha)$ E=low, analyzed σ. Deduced electron screening potential.
2002Sa09: $^{6}Li(d,\alpha)$ $E_{C.M.}$=2.3-3.5 MeV. Deduced σ, astrophysical S-factor.
2003Pi13: $^{6}Li(d,\alpha)$ E(C.M.)≈10-1000 keV, analyzed astrophysical S-factors, electron screening potential energy.
2003Sp02: $^{6}Li(d,\alpha)$ E=low, analyzed σ, astrophysical S-factors.
2004Ka13: $^{6}Li(d,\alpha)$ E=30-75 keV, measured thick-target yields for PdLi and AuLi targets. Deduced environmental effects.

^{8}Be Levels

E(level)	J^{π}	$T_{1/2}$	Comments
22.24×10^{3} *2*	2^{+}		E(level): from E_{res}=−0.05 MeV *2*.
22.8×10^{3}		≈600 keV	E(level): from E_{res}=0.8 MeV and Γ_{lab}≈800 keV.
25.1×10^{3}	2^{+}	≈1.05 MeV	E(level): from E_{res}=3.75 MeV and Γ_{lab}≈1.4 MeV.
25.5×10^{3}	4^{+}		
27.49×10^{3}	0^{+}		T=2
≈$28.\times10^{3}$			
≈$41.\times10^{3}$?			
≈$43.\times10^{3}$?			
≈$50.\times10^{3}$?			

^{6}Li(t,n) 2004Ti06

History

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

1984LiZY: ^{6}Li(t,n) E=2-4.5 MeV, measured $\sigma(\theta)$, $\sigma(E_n)$, σ. ^{8}Be deduced levels.

^{8}Be Levels

E(level)
0.0
3.0×10^3
16.6×10^3
16.9×10^3

$^{6}Li(^{3}He,p)$ 2004Ti06

History

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

1965Fl03: $^{6}Li(^{3}He,p)$ E=5-17 MeV, measured $\sigma(E,E_p,\theta_p)$.
1969Nu01: $^{6}Li(^{3}He,p)$ E=8 MeV, measured $\sigma(\theta)$. ^{8}Be resonance deduced E, Γ-level.
1969Vi05: $^{6}Li(^{3}He,p)$ E<2 MeV, measured $\sigma(E,E_p,\theta)$, $\sigma(E_p,E_\alpha)$. ^{8}Be deduced resonance interference, Γ-level.
1980El02: $^{6}Li(^{3}He,p)$ E=0.5-1.85 MeV, measured $\sigma(E_p,\theta)$.
1995Ba24: ^{6}Li(pol. ^{3}He,p) E=4.6 MeV, measured $\sigma(\theta)$, analyzing power vs. θ.

^{8}Be Levels

E(level)
0.0
3.0×10^{3}
16.63×10^{3}
16.92×10^{3}
17.64×10^{3}
18.15×10^{3}
19.0×10^{3}
19.4×10^{3}
19.9×10^{3}

^{6}Li(α,d), ^{6}Li(α,2α) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1968Do13: ^{6}Li(α,2α) E=25 MeV, measured $\sigma(E_\alpha,E_d,\theta)$.
1969Do02: ^{6}Li(α,2α) E=25 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_1,\theta_2)$.
1969Pi11: ^{6}Li(α,2α) E=55 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_1,\theta_2)$.
1970Ga14: ^{6}Li(α,2α) E=42.8, 55 MeV, measured $\sigma(\theta)$.
1970Ja17: ^{6}Li(α,2α) E=64 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_1,\theta_{\alpha-2})$.
1971Be52: ^{6}Li(α,d) E=12 MeV, measured $\sigma(E_d)$. ^{8}Be deduced variations in ghost anomaly.
1971Wa19: ^{6}Li(α,2α) E=50.4, 59.0, 60.5, 70.3, 79.6 MeV, measured $\sigma(E,E_{\alpha-1},E_{\alpha-2},\theta_{\alpha-1}, \theta_{\alpha-2})$.
1974Gr21: ^{6}Li(α,d) E=20, 24 MeV, measured $\sigma(E_d,\theta)$, deduced exchange contributions.
1974Le14: ^{6}Li(α,d) E=12-25 MeV, measured $\sigma(E_\alpha,\theta)$.
1979Do04: ^{6}Li(α,2α) E=700 MeV, measured absolute $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_{\alpha-1},\theta_{\alpha-2})$. Deduced effective number of α clusters.
1985Ko29: ^{6}Li(α,2α) E=27.2 MeV, measured $\sigma(E_{\alpha-1},\theta_{\alpha-1},\theta_{\alpha-2})$. Deduced reaction mechanism.
1989Li24: ^{6}Li(α,d) E=26.68 MeV, measured $\sigma(\theta)$. Deduced reaction mechanism, clusters role.
1992Wa18: ^{6}Li(α,2α) E=77-119 MeV, measured $\sigma(\theta_1,\theta_2$,E1,E2). Deduced reaction mechanism, spectral functions.

^{8}Be Levels

E(level)	$T_{1/2}$	Comments
0.0		
3.0×10^{3}	1.2 MeV *3*	
11.3×10^{3} *4*		E(level): from (1962Ce01).

^{6}Li(^{6}Li,α) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1964Ma26: ^{6}Li(^{6}Li,α) E(^{6}Li)=2-4.4 MeV, measured $\sigma(\theta$,E).
1966Be22: ^{6}Li(^{6}Li,α)2α E=2.75 MeV, measured α-$\alpha(\theta$,E$_\alpha$).
1968Da20: ^{6}Li(^{6}Li,α) E=24.5 MeV, measured σ(E$_\alpha$,θ), σ(E$_t$). ^{8}Be deduced levels, L.
1969In06: ^{6}Li(^{6}Li,α) E=6 MeV, measured σ(E$_\alpha$,$\theta_{\alpha-1}$,$\theta_{\alpha-2}$). ^{8}Be deduced resonances, Γ-level.
1970Fr06: ^{6}Li(^{6}Li,α)2α E=4-24 MeV, measured σ(E,θ).
1971Gl07: ^{6}Li(^{6}Li,α) E=26, 30 MeV, measured σ(E$_\alpha$,θ). ^{8}Be deduced resonances.
1971No04: ^{6}Li(^{6}Li,α) E not given, analyzed σ(E$_\alpha$). ^{8}Be levels deduced Γ-level.
1983Mi10: ^{6}Li(^{6}Li,α) E=3.5-6.8 MeV, measured $\sigma(\theta)$ vs E.
1990Le05: ^{6}Li(^{6}Li,α) E=2-16 MeV, measured $\sigma(\theta)$, I$_\gamma$(THETA). Deduced fusion σ(E), reaction mechanism.

^{8}Be Levels

E(level)	$T_{1/2}$
0.0	
3.0×10^3	
11.4×10^3	
16.6×10^3	90 keV
16.9×10^3	70 keV
19.9×10^3?	1.3 MeV
22.2×10^3?	
22.5×10^3	

^{7}Li(p,γ) 2004Ti06

History

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

1964Mi10: ^{7}Li(p,γ) E_p=0.50-2.0 MeV, measured α-, γ-spectra.
1964Pr04: ^{7}Li(p,γ) E_p=0.4-1.8 MeV, measured α-, γ-spectrum, α-γ-coin. ^{8}Be deduced levels.
1964Sc19: ^{7}Li(p,γ) E_p=0.2-1.7 MeV, measured p, $\gamma(\theta$,E). ^{8}Be deduced levels, J, π.
1969Sw01: ^{7}Li(p,γ) E=0.44-2.45 MeV, measured σ(E,θ). ^{8}Be deduced resonances, levels, Γ-level, γ-branching.
1969Sw02: ^{7}Li(p,γ) E=0.44, 1.50 MeV, measured $\sigma(E,E_\gamma,E_\alpha,\theta(\alpha-\gamma))$. ^{8}Be transition deduced γ-mixing.
1976Fi05: ^{7}Li(p,γ) E=0.8-17.6 MeV, measured $\sigma(E,E_\gamma,\theta)$. ^{8}Be deduced giant resonances, Γ_γ.
1977Ul02: ^{7}Li(pol. p,γ) E=380-960 keV, measured A(E,θ). ^{8}Be deduced level, Γ, J, π.
1981Ma33: ^{7}Li(p,γ) E=11.5-30 MeV, measured E_γ, I_γ. Deduced σ(E,θ). ^{7}Li(p,γ) E=4-30 MeV, measured σ(E). ^{8}Be deduced possible GDR.
1983Fi13: ^{7}Li(p,γ) E=400-550 keV, measured yield vs. E.
1984Se16: ^{7}Li(pol. p,γ) E=14 MeV. Analyzed $\sigma(\theta)$, analyzing power data. Deduced j-dependence of polarization effects.
1989BrZO: ^{7}Li(p,γ) E not given, measured 2α-γ-coin. Deduced ^{8}Be level excitation σ.
1990Ri06: ^{7}Li(p,γ) E=7.5, 8 MeV, measured E_γ, spectral shape at θ_γ=90°. ^{8}Be level deduced intrinsic line shape.
1991Br11: ^{7}Li(p,γ) E=25 MeV, measured σ(E,θ), γ(particle)-coin. Deduced reaction mechanism, σ upper limit.
1992Ce02: ^{7}Li(p,γ) E=40-180 keV, measured capture E_γ, I_γ, $\gamma(\theta)$. Deduced astrophysical S-factor. ^{8}Be levels deduced γ-ray to charged particle branching ratio.
1994Ch23: ^{7}Li(pol. p,γ) E≤80 keV, measured $\sigma(\theta)$, analyzing power vs. θ. Deduced implications for astrophysical S-factor.
1994Ro16: ^{7}Li(p,γ) E≤1.5 MeV. Analyzed astrophysical S-factor. Deduced resonance tail role.
1995Bb21: ^{7}Li(pol. p,γ) E≈70 keV. Analyzed $\sigma(\theta)$, analyzing power. Deduced no evidence for large p-wave strength.
1995Za03: ^{7}Li(p,γ) E=100-1500 keV, measured E_γ, I_γ(THETA) ratios. Deduced σ(E), astrophysical S-factor vs. E, capture mechanism. ^{8}Be deduced resonance energy, Γ.
1996Go01,1997Go13: ^{7}Li(pol. p,γ) E=0-80 keV, measured α-γ-coin, A_y(THETA), $\sigma(\theta)/A_0$. Deduced p-wave strength, astrophysical implications.
1996Ha06: ^{7}Li(p,γ) E=80-450 keV, measured I_γ(THETA), relative yields. Deduced Legendre coefficients.
1997Ba04: ^{7}Li(p,γ) E=low. Analyzed p-wave strength in σ. Deduced projectile penetration factors dependence.
2000Sp01: ^{7}Li(pol. p,γ) E=40-100 keV, measured yields, analyzing power. Deduced slope of astrophysical S-factor, role of subthreshold resonance.

^{8}Be Levels

E(level)	J^π	$T_{1/2}$	l_p	Comments
0.0				
3.03×10^3				
16.626×10^3				
16.922×10^3				
17640.0 *10*	1^+	10.7 keV *4*	1	Γ: from Γ_{lab}=12.2 keV *5*.
18150 *5*	1^+	147 keV	1	
18.91×10^3	(2^-)	131 keV *44*		
19.07×10^3 *2*	$(1,2,3)^-$	271 keV *17*		
$20.\times10^3$?				
21.5×10^3				
21.6×10^3	1^-	≈4.5 MeV	0	T=1
22.5×10^3				
23.8×10^3	$(1^-,2^-)$	≈7. MeV	(0)	T=1
$27.\times10^3$?				
28.6×10^3				Γ=broad.

^{7}Li(p,γ) 2004Ti06 (continued)

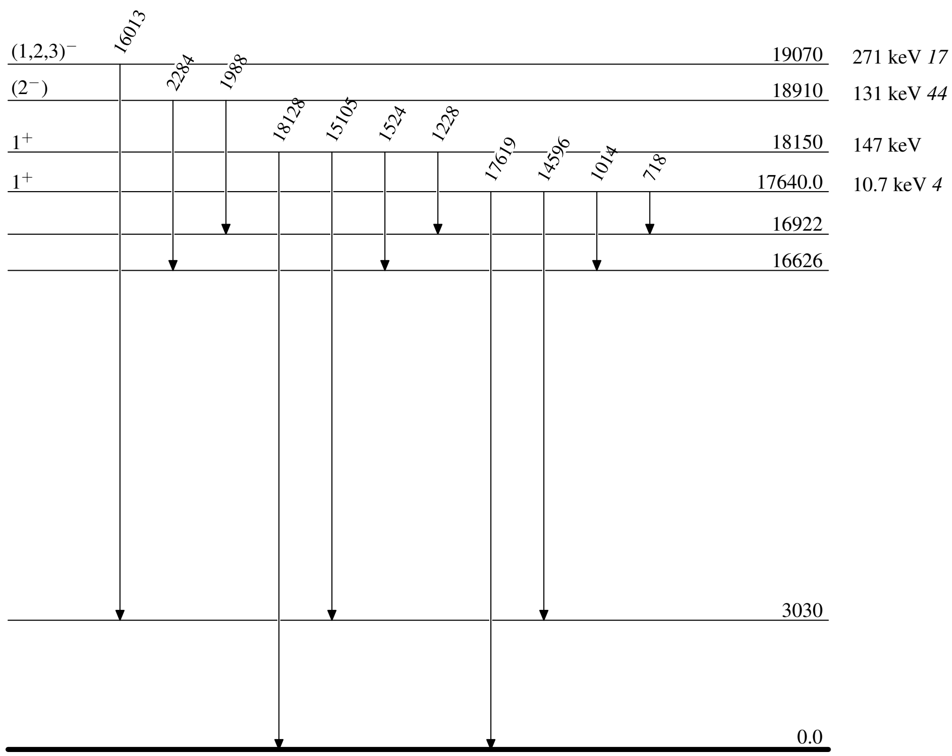
$\gamma(^{8}Be)$

Eγ values are from recoil-corrected E(level) differences.

Eγ	E$_i$(level)	J$^\pi_i$	E$_f$
718	17640.0	1$^+$	16.922×10^3
1014	17640.0	1$^+$	16.626×10^3
1228	18150	1$^+$	16.922×10^3
1524	18150	1$^+$	16.626×10^3
1988	18.91×10^3	(2$^-$)	16.922×10^3
2284	18.91×10^3	(2$^-$)	16.626×10^3
14596	17640.0	1$^+$	3.03×10^3
15105	18150	1$^+$	3.03×10^3
16013	19.07×10^3	(1,2,3)$^-$	3.03×10^3
17619	17640.0	1$^+$	0.0
18128	18150	1$^+$	0.0

^{7}Li(p,γ) 2004Ti06

Level Scheme



$^{8}_{4}Be_{4}$

^{7}Li(p,n) 2004Ti06

History

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

1969Cl06: ^{7}Li(p,n) E=30,50 MeV, measured $\sigma(\theta)$. Deduced isospin-dependent effective interaction.
1970Ro07: ^{7}Li(p,n) E=0.9-1.9 MeV, measured σ(E). ^{7}Li(p,n) deduced thresholds.
1972Az01: ^{7}Li(p,n) E=17.8 MeV, measured $\sigma(E_n,\theta)$.
1972El19: ^{7}Li(p,n) E=2.2-5.5 MeV, measured $\sigma(E,E_n,\theta)$.
1972Pr03: ^{7}Li(p,n_1) E=2.37-6.0 MeV, measured σ(E).
1973Ro35: ^{7}Li(pol. p,n) E=2.05-3.00 MeV, measured analyzing power A(θ).
1974Bu16: ^{7}Li(p,n) E<3.8 MeV, measured $\sigma(E,E_n,\theta)$.
1974Sh06: ^{7}Li(p,n), measured Q.
1975Mc18: ^{7}Li(p,n) E =15,20,30 MeV, measured σ.
1976Po06: ^{7}Li(p,n) E=4.2-26 MeV, measured $\sigma(E,\theta)$ to ^{7}Be ground state, first excited state; θ=3.5°−159°.
1977Ri07: ^{7}Li(p,n) E=800 MeV, measured σ.
1977Sc37: ^{7}Li(p,n) E=25-45 MeV, measured $\sigma(E,E_n)$.
1979Ba68: ^{7}Li(p,n) E=1 GeV, measured $\sigma(E_n,\theta)$. Deduced dependency of quasielastic neutron production on mass.
1980Au02: ^{7}Li(p,n) E=25,35,45 MeV, measured $\sigma(E_n)$. Deduced Gamow-Teller analog transition effective interaction.
1980Go07: ^{7}Li(p,n) E=120 MeV, measured $\sigma(\theta=0°)$.
1982Ta03: ^{7}Li(p,n) E=60-200 MeV, measured $\sigma(\theta=0°)$. Deduced isovector effective interaction strength ratio.
1982Wa02: ^{7}Li(p,n) E=60-200 MeV, measured total reaction σ vs. E. Activation technique.
1984Ta07: ^{7}Li(pol. p,n) E=160 MeV, measured transverse spin transfer coefficient D(NN) (θ=0°), polarized neutrons.
1986JeZZ: ^{7}Li(pol. p,n) E=55-72 MeV, measured polarization transfer, θ=0°.
1989Ra09: ^{7}Li(p,n) E=492 MeV, measured $\sigma(\theta,E)$. Deduced unit σ(ratio).
1989Wa15: ^{7}Li(p,n) E=200-400 MeV, measured $\sigma(\theta)$.
1990Ra08: ^{7}Li(p,n), ^{7}Li(pol. p,n) E=60-200 MeV, measured $\sigma(\theta)$.
1990Ta11: ^{7}Li(p,n) E=80-795 MeV, measured $\sigma(\theta)$.
1994Ra23: ^{7}Li(pol. p,n) E=186 MeV, measured $\sigma(\theta,E_n)$, $\sigma(\theta)$, spin observable vs. θ. Deduced quasifree excitation role in giant resonance region.
1994Sa43: ^{7}Li(pol. p,n) E=300,400 MeV, measured $\sigma(\theta)$ vs. Energy transfer, neutron energy spectra, polarization transfer coefficients vs. θ.
1994Wa22: ^{7}Li(p,n), ^{7}Li(pol. p,n) E=186 MeV, measured $\sigma(\theta,E_n)$, polarization transfer coefficient, analyzing power vs. θ.
1995Ya12: ^{7}Li(p,n) E=186 MeV, measured $\sigma(\theta,E_n)$. Deduced quasifree reaction contribution in giant resonance region, ΔL=1 transitions energy spectra.
1999Bu10: ^{7}Li(p,n) E<2000 keV. Analyzed data.
2000Jo17: ^{7}Li(p,n) E=35 MeV, measured $\sigma(\theta)$. Deduced isovector optical potential parameters.
2001Go25: ^{7}Li(p,n) E=120,160 MeV. Analyzed neutron spectra. Deduced Gamow-Teller matrix elements.
2003Ko40: ^{7}Li(p,n) E≈1.9 MeV, measured neutron yields.

^{8}Be Levels

E(level)	J^{π}	$T_{1/2}$	L	Comments
18.9×10^{3}	2^{-}	50 keV *20*		
19.2×10^{3}	3^{+}		1	T=1 T: tentative $\Gamma_p\approx\Gamma_n$.
19.5×10^{3}	1^{-}			
20.1×10^{3}?				
20.2×10^{3}?				
21.5×10^{3}	$3^{(+)}$	1.1 MeV		

^{7}Li(p,p), ^{7}Li(p,p′) 2004Ti06

History

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

1965Gl03: ^{7}Li(p,p),^{7}Li(p,p′) E=2.5-12 MeV, measured σ(E,θ). ^{8}Be deduced levels, J, π, Γ-level.
1969Ki04: ^{7}Li(p,p_0),(p,p_1) E=2.7-10.6 MeV, measured σ(E,θ), polarization analyzing power (E,θ).
1969Le08: ^{7}Li(p,p) E=1.36 MeV, measured σ.
1972Pr03: ^{7}Li(p,p_1) E=2.0-6.0 MeV, measured σ(E).
1973Br13: ^{7}Li(pol. p,p) E=0.67 to 2.45 MeV, measured A(θ,E). Deduced phase shifts for E=0.4 to 2.45 MeV. Deduced channel spin mixing. ^{8}Be deduced levels, J, π. Deduced nature of threshold state. Deduced two 3^+ states are coupled.
1976Hi04: ^{7}Li(p,p),(p,p′) E=11.65-11.75 MeV, measured σ(E,θ). ^{8}Be deduced resonance parameters.
1979Ar10: ^{7}Li(p,p) E<2 MeV, calculated phase shifts. ^{8}Be deduced resonance, R-matrix analysis.
1982Pe06: ^{7}Li(p,p),(p,p′) E=24.4 MeV, measured $\sigma(E_{p'})$, $\sigma(\theta)$. E=24-50 MeV, analyzed data.
1985Ki07: ^{7}Li(p,p′γ) E=2.4-4.2 MeV, measured thick target relative γ yields, E_γ, I_γ.
1988Bo37: ^{7}Li(p,p′γ) E≈2.7-3.8 MeV, measured $\sigma(\theta)$ vs. E.
1988Gu10: ^{7}Li(p,p) $E_{C.M.}$≈1.2-2.4 MeV, measured $\sigma(\theta)$ vs. E. ^{8}Be deduced resonance parameters.
1994Mi21: ^{7}Li(p,p′γ) E=2.5-3.5 MeV, measured γ yield vs. E. Deduced β, Li elemental.
1999Sa16: ^{7}Li(p,p′) E=1.0-4.1 MeV, measured E_γ, I_γ, thick target γ-ray yields.
2001Zh38: ^{7}Li(p,p),(p,p′) E=0.143-1.0 GeV. Analyzed $\sigma(\theta)$.
2004Ya12: ^{7}Li(p,p′) E=300 MeV, measured particle spectra, σ(E,θ).

^{8}Be Levels

E(level)	J^π	$T_{1/2}$	Comments
17640	1^+	10.7 keV	θ_p^2=0.064.
18155 *5*	1^+	147 keV	$\Gamma_{p'}$≈6 keV
18.90×10^3	2^-	48 keV *18*	
19.05×10^3	3^+	≈350 keV	
19.22×10^3	3^+		
19.4×10^3	1^-	≈656 keV	
20.9×10^3 *2*	4^-	1.58 MeV *18*	
22.2×10^3			Γ=broad, possible doublet.

^{7}Li(p,α) 2004Ti06

History

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

1964As04: ^{7}Li(p,α) E_p=2-3.5 MeV, polarized, measured asymmetry.
1964Ma25: ^{7}Li(p,α) E_p=0.85 MeV, measured α-spectrum (θ). ^{8}Be deduced absence of three reported levels.
1964Ma51: ^{7}Li(p,α) E=1-12 MeV, measured σ(E,θ). ^{8}Be deduced levels.
1964Mi10: ^{7}Li(p,α) E_p=0.50-2.0 MeV, measured α-, γ-spectra. ^{8}Be deduced levels.
1964Pr04: ^{7}Li(p,α γ) E_p=0.4-1.8 MeV, measured α-, γ-spectrum, α-γ-coin. ^{8}Be deduced levels.
1965Bo07: ^{7}Li(pol. p,α) E_p=3.2-5.3 MeV, measured $\sigma(E_\alpha,\theta)$. Deduced polarization.
1966Ma03: ^{7}Li(p,α γ) E=0.4-2.4 MeV, measured $\sigma(E,E_\alpha)$, γ-α-coin.
1968Du11: ^{7}Li(p,α) E=150 keV, measured $\sigma(E_\alpha,\theta)$. Deduced Q.
1968Le22: ^{7}Li(p,α) E=130 keV, measured $\sigma(E_\alpha,\theta(\alpha))$.
1968Pe03: ^{7}Li(pol. p,α) E=0.8-3.0 MeV, measured σ(E,θ). Deduced polarization analyzing power.
1968Pl01: ^{7}Li(p,α) E=3-10 MeV, measured polarization analyzing power (E,θ).
1969De04: ^{7}Li(p,α) E=30.3 MeV, measured $\sigma(\theta)$.
1969Sw01: ^{7}Li(p,α) E=0.44-2.45 MeV, measured σ(E,θ). Deduced direct reaction contribution. ^{8}Be deduced resonances, levels, Γ-level, γ-branching.
1971Sp05: ^{7}Li(p,α) E=130,271,416,561 keV, measured $\sigma(\theta)$. Deduced total σ.
1976Hi04: ^{7}Li(p,α) E=11.65-11.75 MeV, measured σ(E,θ). ^{8}Be deduced resonance parameters.
1986Ro13: ^{7}Li(p,α) $E_{C.M.}$=25-873 keV, measured $\sigma(\theta)$. Deduced σ, astrophysical S(E) factor.
1989Ba88: ^{7}Li(p,α) E=29.1-44.6 MeV, measured $\sigma(\theta)$. Deduced model parameters.
1989Ha14: ^{7}Li(p,α) E=20-250 keV, measured σ(E). Deduced astrophysical S-factor vs. E.
1990Ra28: ^{7}Li(p,α) $E_{C.M.}$=0.013-1 MeV, analyzed $\sigma(\theta)$, astrophysical S-factor vs. E. Deduced reaction mechanism at thermonuclear energy.
1991Ri03: ^{7}Li(p,α) E=low, analyzed reaction rate, astrophysical S-factor data.
1992En01: ^{7}Li(p,α) $E_{C.M.}$=10-1004 keV, measured $\sigma(\theta$,E). Deduced astrophysical S-factor vs. E.
1999Sp09: ^{7}Li(p,α) E<0.4 MeV. Deduced $\sigma(\theta)$, astrophysical S-factor.
2000Ba89: ^{7}Li(p,α) $E_{C.M.}$=0-900 keV. Analyzed σ,$\sigma(\theta)$. ^{8}Be levels deduced R-matrix parameters.
2001La35: ^{7}Li(p,α) E$\approx$10-400 keV. Deduced astrophysical S-factor.
2002Ba77: ^{7}Li(p,α) E=low, analyzed σ, related data. Deduced electron screening potential.
2002Gr09: ^{7}Li(p,α) E=100-200 keV, measured E_α.
2003Pi13, 2003Pi14, 2003Sp02: ^{7}Li(p,α) E(C.M.)$\approx$10-1000 keV, analyzed astrophysical S-factors, electron screening potential energy.

^{8}Be Levels

E(level)	J^π	Comments
15.9×10^3	2^+	E(level): probably refers to the 16.6 MeV state.
19.7×10^3	0^+	
20.1×10^3	2^+	
21.8×10^3?	0^+	
22.2×10^3	2^+	
$\approx24.\times10^3$		
$25.\times10^3$	2^+	

^{7}Li(d,n) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1957Sl01: ^{7}Li(d,n) E≈1-6 MeV, measured neutron yields. ^{8}Be deduced states energies.
1966Mi09: ^{7}Li(d,n) E=0.8,1.0 MeV, measured $\sigma(\theta_{\alpha},\alpha)$, $\sigma(\theta_n)$, $\sigma(E_{\alpha-1}, E_{\alpha-2}, \theta_{\alpha-1}, \theta_{\alpha-2})$.
1967Je01: ^{7}Li(d,n)2α E=180 keV, measured $\sigma(E_{\alpha}, \theta_{n,\alpha})$.
1969Ho11: ^{7}Li(d,n)2α E=0.98,1.2,1.4,1.6 MeV, measured $\sigma(E, E_{\alpha,\theta,\Phi})$. ^{8}Be level deduced Γ-level.
1970Sa20: ^{7}Li(d,n) E=500 keV, measured $\sigma(\theta)$. ^{8}Be level deduced J, π.
1971Ro05: ^{7}Li(d,n) E=3.72,4.76 MeV, measured $\sigma(E_n)$. ^{8}Be resonance deduced Γ-level.
1972Se09: ^{7}Li(d,n) E=0.2-1.02 MeV, analyzed polarization effects, resonant matrix elements.
1973Ka32: ^{7}Li(d,n) analyzed α-α-coin, reaction data. ^{8}Be analyzed levels.
1980Ma48: ^{7}Li(d,n) E=13.2 MeV, measured $\sigma(E_n)$. ^{8}Be levels deduced neutron branching.
1980Ya11: ^{7}Li(d,n) E=400,680,1020 keV, measured $\sigma(E_n)$. Deduced reaction mechanism. ^{8}Be levels deduced neutron branching.
1983Da32: ^{7}Li(d,n) E=0.19 MeV, measured $\sigma(\theta)$. Deduced back angle anomaly.
1995Ar25: ^{7}Li(d,2α) E=19.7 MeV, measured (θ_1, θ_2). ^{8}Be deduced level energy, Γ.
2001Ho23: ^{7}Li(d,n) E=24-111 keV, measured σ, S-factor.

^{8}Be Levels

E(level)	$T_{1/2}$	l_p	Comments
0.			
3.10×10^{3} *7*	1744 keV *62*		E(level): weighted average of 3.1 MeV *1* and 3.10 MeV *9*. Γ: weighted average of Γ=1750 keV *100* and 1740 keV *80*.
11.3×10^{3} *2*	3.7 MeV *2*		E(level): a state with E=11.40 MeV *5* is reported in (1969Ho11) and E=11.3 MeV *2* is reported in (1995Ar25). Γ: a state with Γ=2.8 MeV *2* is reported in (1969Ho11) and Γ=3.7 MeV *2* is reported in (1995Ar25).
16.6×10^{3}		1	
16.9×10^{3}			
17.6×10^{3}		1	
18.2×10^{3}		1	
18.9×10^{3}			
19.1×10^{3}			
19.2×10^{3}			
20.1×10^{3}	0.88 MeV *16*		Γ: average of 0.85 MeV *25* (1991Ar18) and 0.90 MeV *20* (1992Da22).
20.2×10^{3}	0.71 MeV *16*		Γ: average of 0.75 MeV *25* (1991Ar18) and 0.70 MeV *20* (1992Da22).

^{7}Li(^{3}He,d), ^{7}Li(^{3}He,dα) 2004Ti06

History

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

1969Nu01: ^{7}Li(^{3}He,d) E=8 MeV, measured $\sigma(\theta)$. ^{8}Be resonance deduced E, Γ-level.
1970Di12: ^{7}Li(^{3}He,d) E=10 MeV, measured $\sigma(E_d,\theta)$, $\sigma(E_p,\theta)$. ^{8}Be levels deduced S.
1971Pi06: ^{7}Li(^{3}He,d) E=15 MeV, measured $\sigma(E_d,\theta)$, SIGNA(E_t,θ). ^{8}Be deduced levels, Γ-level.
1975Bo56: ^{7}Li(^{3}He,d) E=1.0-2.5 MeV, measured $\sigma(E,E_d,\theta)$.
1976Da24: ^{7}Li(^{3}He,dα) E=4.7 MeV, measured $\alpha d(\theta)$, σ.
1977Bo29: ^{7}Li(^{3}He,d) E=1.0-2.5 MeV, measured $\sigma(E,E_d,\theta)$. ^{8}Be level deduced S.
1979RoZZ: ^{7}Li(^{3}He,d) E=13 MeV, measured $\sigma(E_d)$. Deduced reaction mechanism.
1981Ba38: ^{7}Li(pol. ^{3}He,d) E=33.3 MeV, measured $\sigma(\theta)$, A(θ). ^{8}Be levels deduced S.
1985Fr01: ^{7}Li(^{3}He,dα) E=120 MeV, measured $\sigma(E1,E2,\theta_1,\theta_2)$. Deduced residuals missing mass spectra.
2003Fr22: ^{7}Li(^{3}He,d) E=390-1130 keV, measured E_α, σ, $\sigma(\theta)$.
1988Ar20: ^{7}Li(^{3}He,dα) E=11.5 MeV, measured $\sigma(\theta_d,\theta_\alpha)$ vs arc length.
1991Ar19: ^{7}Li(^{3}He,dα) E=5 MeV, measured $\sigma(\theta_d,\theta_\alpha)$ vs arc length.
1995Ar14: ^{7}Li(^{3}He,dα) E=4.5, 6 MeV, measured dALPHA-coin.

^{8}Be Levels

E(level)	$T_{1/2}$
0.0	
3.0×10^{3}	
16627 *5*	113 keV *3*
16901 *5*	77 keV *3*
17.6×10^{3}	
18.2×10^{3}	

^{7}**Li(α,t)** **2004Ti06**

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1971Be52: ^{7}Li(α,t) E=10 MeV, measured $\sigma(E_t)$. ^{8}Be deduced variations in ghost anomaly.
1972Me07: ^{7}Li(α,t) E=30 MeV, measured $\sigma(E_p,\theta(p))$, $(E_d,\theta(d))$, $(E_t,\theta(t))$. Deduced S, cluster reduced widths. DWBA, pwbae analysis.
1972Va34, 1974Dm01: ^{7}Li(α,t) E=15-25 MeV, measured $\sigma(E,\theta)$. Deduced reaction mechanisms.
1974Ma49: ^{7}Li(α,t) E=29.4 MeV, measured $\sigma(\theta)$. ^{8}Be deduced levels.
1985Pu03, 1992Ko26: ^{7}Li(α,t) E=50 MeV, analyzed breakup $\sigma(\theta_{\alpha-1},\theta_{\alpha-2},E_{\alpha-1})$. ^{8}Be deduced resonances, Γ.

^{8}Be Levels

E(level)	J^{π}
0	0^{+}
3.0×10^{3}	
11.4×10^{3}	
16.6×10^{3}	
16.9×10^{3}	
19.9×10^{3}	

$^{7}Li(^{7}Li,^{6}He)$ 2004Ti06

History

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

1988Bo18: $^{7}Li(^{7}Li,^{6}He)$ E=22 MeV, measured $\sigma(E(^{6}He))$, $\sigma(\theta)$. Deduced reaction mechanism.

^{8}Be Levels

E(level)
0
3.0×10^{3}

^{7}Be(n,p) 2004Ti06

History

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

1988Bo15: ^{7}Be(n,p) E≈0.02-10 eV, measured σ(E). R-matrix fit.
1988Ko03: ^{7}Be(n,p) E=0.025-13500 eV, measured σ. ^{8}Be levels deduced Γ_p, Γ_n, Γ.
1989Ce03: ^{7}Be(n,p) E=thermal, 2 keV, measured σ.
1991An17: ^{7}Be(n,p) E=24.5 keV, measured reaction σ.
1998Fi02: ^{7}Be(n,p) E not given, analyzed reaction rate uncertainties. Deduced uncertainties in elemental abundances from primordial nucleosynthesis.
2002Gl03: ^{7}Be(n,p) E=low, compiled, analyzed σ, particle spectra, resonance parameters.
2003Ad05: ^{7}Be(n,p) E(C.M.)<20 MeV, analyzed σ. Deduced R-matrix parameters. ^{8}Be levels deduced neutron and proton resonance widths.
2004Cy01: ^{7}Be(n,p) E<2 MeV, analyzed reaction rates.

^{8}Be Levels

E(level)	Comments
18.90×10^{3}	Γ_n=0.225 MeV and Γ_p=1.409 MeV (2003Ad05: S-matriX).
19.23×10^{3}	level is the sum of EX=19.07 MeV and 19.24 MeV contributions Γ_n=0.077 MeV and Γ_p=0.088 MeV (2003Ad05: S-matriX).
21.56×10^{3}	Γ_n=0.490 MeV and Γ_p=0.610 MeV (2003Ad05: S-matriX).

^{9}Be(p,d), ^{9}Be(p,np) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1966La20: ^{9}Be(p,d) E=7.0,8.0,9.0 MeV, measured σ(E,E_d),σ(E,E_α). ^{8}Be deduced level, Γ-level.
1968Le01: ^{9}Be(p,d) E=100 MeV, measured σ(E_d,θ). ^{8}Be deduced levels, relative S.
1969Ba05: ^{9}Be(p,d) E=155.6 MeV, measured σ(E_d,θ). ^{8}Be deduced levels, J, π, L, S.
1969Co06: ^{9}Be(p,pn) E=12, 17 MeV, measured σ(E,θ).
1969Su02: ^{9}Be(p,d) E=185 MeV, measured σ(E_d,θ). ^{8}Be deduced levels, L_n, S.
1971Be52: ^{9}Be(p,d) E=3.8 MeV, measured σ(E_d). ^{8}Be deduced variations in ghost anomaly.
1971Sc26: ^{9}Be(p,d) E=46,100 MeV. Analyzed σ(θ). ^{8}Be levels deduced S. DWBA, local-energy approximation.
1972Hu03: ^{9}Be(p,d_0) E=5,6,7,8,9,10,11 MeV, measured σ(θ). ^{8}Be deduced S.
1974Mi05: ^{9}Be(p,pn) E=46 MeV, measured σ(E_p,θ).
1974Wi21: ^{9}Be(p,d) E=6.5-9.5 MeV, measured σ(E,E_p,θ), σ(E,E_d,θ).
1975Ch42: ^{9}Be(p,pn) E=5.5 MeV, measured σ.
1976Ba67: ^{9}Be(p,d) E=39.91 MeV, measured σ(θ). Deduced anomaly.
1976Da15: ^{9}Be(pol. p,d) E=15 MeV, measured σ(θ), A_y(THETA). ^{8}Be levels deduced S, Γ, J-admixtures.
1977Gu14: ^{9}Be(p,d) E=17.7 MeV, measured σ(E_d,θ).
1977Wa05: ^{9}Be(p,pn) E=45, 47 MeV, measured excitation energy, energy sharing spectra.
1978Je01: ^{9}Be(p,pn) E=10-24 MeV, measured σ(E_p,θ_p,θ_n) in kinematically complete geometry. Deduced reaction mechanism.
1981Ov02: ^{9}Be(p,d) E=33 MeV, measured σ(E_d). ^{8}Be resonances deduced Γ, α-reduced widths.
1984Wa21: ^{9}Be(pol. p,pn) E=148.8 MeV, measured separation energy spectra, σ(E_p,θ_p,θ_n), analyzing powers. ^{8}Be deduced tentative deep-hole neutron states.
1984Za07: ^{9}Be(p,d) E=50,72 MeV, measured σ(θ). Deduced reaction mechanism. ^{8}Be levels deduced S.
1985Be30: ^{9}Be(p,np) E=1 GeV, measured σ(E_{p1},σ(E_n). Deduced proton, neutron space distribution role.
1985Pu03: ^{9}Be(p,d) E=9 MeV. Analyzed breakup σ($\theta_{\alpha-1}$,$\theta_{\alpha-2}$,$E_{\alpha-1}$). ^{8}Be deduced resonances, Γ.
1987Go27: ^{9}Be(p,d) E=18.6 MeV. Analyzed σ(θ). Deduced model parameters. ^{8}Be levels deduced spectroscopic factors.
1987Ka25: ^{9}Be(pol. p,d) E=60 MeV, measured inclusive spectra, analyzing power vs. θ. Deduced continuum final state matrix element amplitudes.
1992Ko26: ^{9}Be(p,d) E=9 MeV. Analyzed data. Deduced two-cluster system resonance parameter variation features.
1997Za06: ^{9}Be(p,d) E=16-390 keV, measured astrophysical S-factor, σ(θ).
1998Br10: ^{9}Be(pol. p,d) E=77-321 keV, measured σ(θ), A_y(THETA). Deduced reaction mechanism.
2000Sh01: ^{9}Be(p,np) E=70 MeV, measured proton spectra, neutron spectra, pp-, pn-coin, σ(E,θ). ^{8}Be deduced radius.
2001Ba47: ^{9}Be(p,d) E=16-700 keV. Analyzed σ, σ(θ), astrophysical S-factor, analyzing powers. Deduced R-matrix parameters.

^{8}Be Levels

E(level)	$T_{1/2}$	Comments
0.0	5.5 eV *13*	
3038 *25*	1.50 MeV *2*	
11.3×10^3 *3*	5.2 MeV *1*	E(level): from (1969Su02). Γ: from (1981Be53).
16.6×10^3		
16.9×10^3		
17.6×10^3		
18.2×10^3		
19.1×10^3		
19.21×10^3	208 keV *30*	
19.4×10^3		
22.05×10^3		

^{9}Be(d,t) 2004Ti06

History

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

1967Fi07: ^{9}Be(d,t) E=11.8 MeV, measured $\sigma(E_{d'},\theta)$, $\sigma(E_t, \theta)$. ^{8}Be deduced levels, S.
1971Be52: ^{9}Be(d,t) E=2.5 MeV, measured $\sigma(E_t,\theta)$. ^{8}Be deduced variations in ghost anomaly.
1973Za06: ^{9}Be(d,t) E=13.6 MeV, measured $\sigma(E_t,\theta)$.
1974Bo42: ^{9}Be(d,t_0) E=0.9-2.5 MeV, measured $\sigma(E,E_{p0},\theta)$, $\sigma(E,E_{p1},\theta)$, $\sigma(E,E_{t0},\theta)$.
1974Fr02: ^{9}Be(d,t) E=0.6-2.7 MeV, measured $\sigma(\theta)$.
1975Zw01: ^{9}Be(d,t) E=0.9-3.1 MeV, measured $\sigma(E,\theta)$, $\sigma(E)$. ^{8}Be levels deduced S.
1976Da15: ^{9}Be(pol. d,t) E=15 MeV, measured $\sigma(\theta)$, A_y(THETA). ^{8}Be levels deduced S, Γ, J-admixtures. DWBA analysis.
1977Oo01: ^{9}Be(d,t) E=27.97 MeV, measured $\sigma(\theta)$. ^{8}Be deduced levels, L, S, ISOSPIN-mixing.
1978Ta04: ^{9}Be(d,t) E=12.17-14.43 MeV, measured $\sigma(\theta)$.
1981Ov02: ^{9}Be(d,t) E=26 MeV, measured $\sigma(E_\alpha$,$\sigma(E_d)$,$\sigma(E_t)$,$\sigma(E(^{6}Li))$,$\sigma(E(^{16}O))$. ^{8}Be resonances deduced Γ, α-reduced widths.
1984An16: ^{9}Be(pol. d,t) E=2-2.8 MeV, measured $\sigma(\theta)$, vector analyzing power vs. θ. Deduced reaction mechanism. DWBA.
1988Go02,1988Gu20: ^{9}Be(d,t) E=18 MeV, measured $\sigma(\theta)$. Deduced model parameters, spectroscopic factors. DWBA.
1989Sz02: ^{9}Be(d,t) E=6.7-7.5 MeV, measured $\sigma(\theta)$ vs. E. Deduced reaction mechanism.
1994Ab25: ^{9}Be(d,t) E=0.9-11.2 MeV, measured $\sigma(E)$.
1994Ly02: ^{9}Be(pol. d,t) E=1.3-3.1 MeV, measured vector analyzing power vs. θ,E. Deduced direct, resonant interactions interference evidence. DWBA, R-matrix analyses.
1995Ab41: ^{9}Be(d,t) E=3-11 MeV, measured $\sigma(\theta)$. Deduced σ.
1995Gu22: ^{9}Be(d,t) E=8-50 MeV, analyzed $\sigma(\theta)$. Deduced vertex constants. DWBA.
1997Ya02,1997Ya08: ^{9}Be(d,t) $E_{C.M.}$=57-139 MeV, measured energy spectra, $\sigma(\theta)$. Deduced σ, astrophysical S-factors.
2000Ge16: ^{9}Be(d,t) E=3-11 MeV, measured $\sigma(\theta)$, integral σ.

^{8}Be Levels

E(level)	$T_{1/2}$	S	Comments
0.0			
3.03×10^{3} *1*	1.43 MeV *6*		
11.4×10^{3}			
16.6×10^{3}		0.074	
16.9×10^{3}		1.56	
17.6×10^{3}		0.22	
18144 *5*		0.17	
19071 *10*	270 keV *30*	0.41	
19.26×10^{3} *3*	220 keV *30*	0.48	
19.86×10^{3} *5*	0.70 MeV *10*	0.40	unresolved.
20.1×10^{3}			unresolved.

^{9}Be(^{3}He,α) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1966Su04: ^{9}Be(^{3}He,α) E(^{3}He)=3.0 MeV, measured α-α(θ). ^{8}Be deduced J, π.
1968Ar12: ^{9}Be(^{3}He,α) E=19-37 MeV, measured $\sigma(E_{\alpha})$, $\sigma(E_{\alpha},\theta)$. ^{8}Be deduced levels, L_n, S.
1973Ro28: ^{9}Be(^{3}He,α) E=2.9-10.0 MeV, measured σ(E,θ).
1974Ca32: ^{9}Be(^{3}He,α) E=5.0 MeV, measured α-continuum. Deduced contribution to 2α, 3α decay modes.
1975Bi14: ^{9}Be(^{3}He,α) E=4, 5, 7 MeV, measured $\sigma(E_{\alpha},\theta)$. ^{8}Be deduced levels, isobaric spin mixing.
1975Ro09: ^{9}Be(^{3}He,α) E=2-10 MeV, measured $\sigma(E,E_{\alpha},\theta)$ α-α-coin, α-α(θ,t). DWBA analysis.
1976Aj01: ^{9}Be(^{3}He,α) E=49.3 MeV, measured $\sigma(E_{\alpha},\theta)$. ^{8}Be deduced levels, Γ.
1976Ka23: ^{9}Be(pol. ^{3}He,α) E=33.3 MeV, measured $\sigma(\theta)$, A(θ). Deduced J-dependence. ^{8}Be levels deduced S.
1985Pu03: ^{9}Be(^{3}He,α) E=9.94 MeV, analyzed breakup $\sigma(\theta_{\alpha-1}, \theta_{\alpha-2}, E_{\alpha-1})$. ^{8}Be deduced resonances, Γ.
1992Ko26: ^{9}Be(^{3}He,α) E=9.94 MeV E=0.68-1.98 MeV, analyzed data. Deduced two-cluster system resonance parameter variation features.

^{8}Be Levels

E(level)	$T_{1/2}$	S	Comments
0.0			
2900 *40*	1.35 MeV *15*		
11.4×10^{3}	≈2.6 MeV		Γ: from (1966Ca08,1967Ca13).
16.6×10^{3}			
16.9×10^{3}		1.74	
17.6×10^{3}		0.72	
19.22×10^{3} *3*	265 keV *30*	1.17	
19.9×10^{3}			
22.05×10^{3} *10*	270 keV *70*		
22.55×10^{3}? *6*	186 keV *32*		
22.63×10^{3} *10*	100 keV *50*		
22.98×10^{3} *10*	230 keV *50*		
≈25.×10^{3}?			

^{10}Be(p,t) 2004Ti06

History

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

1979Fr04: ^{10}Be(p,t) E=42, 46 MeV, measured t-charged particle-coin, tn γ-coin. ^{8}Be deduced lowest J=0, T=2 positive parity level, systematics of isospin forbidden decay widths.

^{8}Be Levels

E(level)	L
0	
27.49×10^{3}	0

^{10}B(p,^{3}He) 2004Ti06

History

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

1971Sq01: ^{10}B(p,^{3}He) E=49.5 MeV, measured $\sigma(E(^{3}He),\theta)$.
1975Ro01: ^{10}B(p,^{3}He) E=45 MeV, measured $\sigma(E(^{3}He),\theta)$. Deduced T=2 levels, completed isobaric quintet.
1977Av01: ^{10}B(p,^{3}He) E=660 MeV, measured absolute σ.
1983LeZZ: ^{10}B(p,^{3}He) E not given, measured Q. ^{8}Be deduced T=2 state mass excess.
1983Ya05: ^{10}B(p,^{3}He) E=51.9 MeV, measured $\sigma(\theta)$. ^{8}Be deduced level isospin mixing ratio, β_2.

^{8}Be Levels

E(level)
0.0
3.0×10^{3}
16.6×10^{3}
16.9×10^{3}

^{10}B(d,α) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1968Co31: ^{10}B(d,α) E=0.8-2.5 MeV, measured $\sigma(E,\theta)$. Deduced reaction mechanism. ^{8}Be transitions deduced L.
1969Na17: ^{10}B(d,α) E=0.6, 1.1, 1.45, 1.9 MeV, measured $\sigma(E,E_\alpha,\theta)$. ^{8}Be deduced level, Γ-level.
1969Nu01: ^{10}B(d,α) E=4 MeV, measured $\sigma(\theta)$. ^{8}Be resonance deduced E, Γ-level.
1970Ca12: ^{10}B(d,α) E=4-12 MeV, measured $\sigma(E,E_\alpha,\theta)$. ^{8}Be deduced levels, Γ-level.
1970St02: ^{10}B(d,α) E=1-2 MeV, measured $\sigma(E,E_\alpha,\theta(\alpha))$. ^{8}Be deduced level, Γ-level.
1971La14: ^{10}B(d,α) E=0.4, 1.0, 1.5 MeV, measured $2\alpha(\theta)$. Deduced reaction mechanism.
1971No04: ^{10}B(d,α) E not given, analyzed $\sigma(E_\alpha)$. ^{8}Be levels deduced Γ-level.
1973Ro28: ^{10}B(d,α) E=2.9-10.0 MeV, measured $\sigma(E,\theta)$.
1974La29: ^{10}B(d,α) E=1.83 MeV, measured $\sigma(E_\alpha,\theta)$. ^{8}Be levels deduced Γ-level.
1975Ro09: ^{10}B(d,α) E=2.9=10 MeV, measured $\sigma(E,E_\alpha,\theta)$,α-α-coin, α-α(θ,t). DWBA analysis.
1975Va04: ^{10}B(d,α) E=2.5-4.5 MeV, measured $\sigma(E,E_\alpha,\theta)$, α-α-coin, absolute σ.
1976Gr22: ^{10}B(d,α), measured $\sigma(\theta)$. Deduced 3α reaction mechanisms.
1985Pu03: ^{10}B(d,α) E=2.5, 3 MeV, analyzed breakup $\sigma(\theta_{\alpha-1},\theta_{\alpha-2},E_{\alpha-1})$. ^{8}Be deduced resonances, Γ.
1992Ko26: ^{10}B(d,α) E=2.5, 3 MeV, analyzed data. Deduced two-cluster system resonance parameter variation features.
1992PuZZ: ^{10}B(d,α) E=13.6 MeV, measured residual nucleus breakup spectra. ^{8}Be levels deduced $\Gamma_\alpha/\Gamma,\Gamma_p/\Gamma$.
2001Ho22: ^{10}B(d,α) E=120-340 keV, measured $\sigma(\theta)$, S-factor.

^{8}Be Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0			
2.9×10^3			
11.4×10^3		≈4 MeV	Γ: from (1966Lo18,1969Lo01).
16.63×10^3	2^+	90 keV *5*	
16.92×10^3	2^+	70 keV *5*	
17.64×10^3			T=1
18150 *5*		138 keV *6*	
19.2×10^3	3^+		
19.86×10^3			$\Gamma\alpha/\Gamma_p$=2.3 *5* (1992Pu06)
20.1×10^3			$\Gamma\alpha/\Gamma_p$=4.5 *6* (1992Pu06)
21.5×10^3			
22.2×10^3			
$24.\times10^3$			
25.2×10^3			
$\approx32.\times10^3$?		≈1 MeV	from (1993Pa31).

$^{11}B(^{3}He,^{6}Li)$ 2004Ti06

History

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

1974De25: $^{11}B(^{3}He,^{6}Li)$ E=25.20-26.25 MeV, measured $\sigma(E(^{3}He),E(^{6}Li),\theta)$. Deduced reaction mechanism.
1986Ja02: $^{11}B(^{3}He,^{6}Li)$ E=71.8 MeV, measured $\sigma(\theta)$. Deduced reaction mechanism.
1986Ja14: $^{11}B(^{3}He,^{6}Li)$ E=71.8 MeV, measured $\sigma(\theta)$. Deduced reaction mechanism.

^{8}Be Levels

Projectile: energy: E=71.8 MeV.

E(level)
0.0
3.0×10^{3}
16.6×10^{3}
16.9×10^{3}
17.6×10^{3}
18.2×10^{3}

$^{12}C(d,^{6}Li)$ 2004Ti06

History

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

1971Gu07: $^{12}C(d,^{6}Li)$ E=19.5 MeV, measured $\sigma(E(^{6}Li),\theta)$.
1971Mc04: $^{12}C(d,^{6}Li)$ E=55 MeV, measured $\sigma(E(^{6}Li))$.
1972Be29: $^{12}C(d,^{6}Li)$ E=28 MeV, measured $\sigma(\theta)$. ^{8}Be deduced relative S.
1972Co23: $^{12}C(d,^{6}Li)$ E=28 MeV, measured $\sigma(E(^{6}Li),\theta)$. Deduced multistep process contributions.
1974Ga30 $^{12}C(d,^{6}Li)$ E=13.6 MeV, measured $\sigma(\theta)$.
1975Be01: $^{12}C(d,^{6}Li)$ E=35 MeV, measured $\sigma(E(^{6}Li),\theta)$. Deduced α-S.
1975Go36: $^{12}C(d,^{6}Li)$ E=13.2, 12.7 MeV, measured $\sigma(\theta)$.
1980Ya02: $^{12}C(d,^{6}Li)$ E=54.25 MeV, measured $\sigma(\theta)$. ^{8}Be levels deduced S_{α}. DWBA analysis.
1981Do15: $^{12}C(d,^{6}Li)$ E=12.7, 13.2, 13.6 MeV, measured $\sigma(E(^{6}Li))$, $\sigma(\theta)$. ^{8}Be deduced level.
1981Ov02: $^{12}C(d,^{6}Li)$ E=33 MeV, measured $\sigma(E_{\alpha})$, $\sigma(E_{d})$. ^{8}Be resonance deduced Γ, α-reduced widths.
1983Sh39: $^{12}C(d,^{6}Li)$ E=12.7, 13.2 MeV, measured $\sigma(\theta)$, ratios. ^{8}Be level deduced production mechanism. ToF.
1984Um04: $^{12}C(d,^{6}Li)$ E=54.2 MeV, measured $\sigma(\theta)$. ^{8}Be levels deduced α-particle spectroscopic factors. Finite-range DWBA analysis.
1986Ya12: ^{12}C(pol. $d,^{6}Li)$ E=51.7 MeV, measured $\sigma(\theta)$, analyzing power vs. θ. ^{8}Be level deduced spectroscopic factors. Finite-range DWBA analysis.
1987Ta07: ^{12}C(pol. $d,^{6}Li)$ E=18, 22 MeV, measured $\sigma(\theta)$ iT_{11}, T_{20}, T_{21}, T_{22} vs. θ. DWBA analysis.
1988Ra27: E=15 MeV, analyzed $\sigma(\theta)$. ^{8}Be level deduced spectroscopic factors. DWBA analysis.
1989Go07: $^{12}C(d,^{6}Li)$ E=50 MeV, measured $\sigma(E(^{6}Li))$, $\theta(^{6}Li)$. Deduced reaction mechanism, potential dependence.
1989Go26: $^{12}C(d,^{6}Li)$ E=50 MeV, measured $\sigma(E(^{6}Li),\theta)$, $\sigma(\theta)$. DWBA.

^{8}Be Levels

E(level)	S_{α}
0.0	0.48
3.0×10^{3}	0.51
11.4×10^{3}	0.82
16.6×10^{3}	
16.9×10^{3}	

^{12}C(^{3}He,^{7}Be) 2004Ti06

History

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

1965En01: ^{12}C(^{3}He,^{7}Be) E=29.4 MeV, measured σ(E,E(^{7}Be),θ).
1970De12: ^{12}C(^{3}He,^{7}Be) E=30 MeV, measured σ(E(^{7}Be),θ). ^{8}Be deduced relative S.
1975Au01: ^{12}C(^{3}He,^{7}Be) E=26 MeV, measured σ(E(^{7}Be),θ). Deduced relative α-particle S.
1976Pa07: ^{12}C(^{3}He,^{7}Be) E$\leq$31 MeV, measured σ(E,E(^{7}Be),θ). Deduced reaction mechanism.
1976St11: ^{12}C(^{3}He,^{7}Be) E=70 MeV, measured $\sigma(\theta)$. Deduced S_{α}. ^{8}Be deduced levels.
1986Ra15,1988Ra20,1988Ra21: ^{12}C(^{3}He,^{7}Be) E=41 MeV, measured $\sigma(\theta)$. Deduced model parameters. DWBA analysis.
1989Si02: ^{12}C(^{3}He,^{7}Be) E=33 MeV, measured $\sigma(\theta)$, particle spectra. Deduced model parameters.
1990Ra25: ^{12}C(pol. ^{3}He,^{7}Be) E=41 MeV, analyzed $\sigma(\theta)$, asymmetry vs θ. Deduced model parameters, ejectile states role. Finite-range DWBA.
1990Sm04, 1991Be49: ^{12}C(^{3}He,^{7}Be) E=22.5 MeV, measured σ(E(^{7}Be)), yields.

^{8}Be Levels

E(level)
0.0
3.0×10^{3}
11.4×10^{3}
16.6×10^{3}
16.9×10^{3}
17.6×10^{3}

^{12}C(α,2α), ^{12}C(α,^{8}Be) 2004Ti06

History

Type	Author	Citation	Cutoff Date
Update	J. H. Kelley, J. L. Godwin, C. G. Sheu	ENSDF	31-Mar-2004
Full Evaluation	D. R. Tilley, J. H. Kelley, J. L. Godwin, D. J Millener et al.	NP A745, 155 (2004)	31-Mar-2004

1969Do02: ^{12}C(α,2α) E=25 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_1,\theta_2)$.
1970Ja06: ^{12}C(α,2α) E_α=90 MeV, measured $\sigma(E_\alpha,E(^{8}Be))$.
1973Wo06: ^{12}C(α,^{8}Be) E=65 MeV, measured $\sigma(E(^{8}Be)),\sigma(\theta)$.
1976Sh02: ^{12}C(α,2α) E=90 MeV, measured $\sigma(\theta)$, α-$\alpha(\theta)$. ^{8}Be levels deduced α-S.
1976Wo11: ^{12}C(α,^{8}Be) E=65-72.5 MeV, measured $\sigma(E(^{8}Be),\theta)$ ^{8}Be levels deduced absolute, relative S_α, L. DWBA analysis.
1980Wa07 ^{12}C(α,2α) E=140 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2},\theta_{\alpha-1},\theta_{\alpha-2})$. ^{8}Be levels deduced S.
1981Ru10: ^{12}C(α,^{8}Be) E=20-50 MeV, measured $\sigma(E_{\alpha-1},E_{\alpha-2})$. Deduced reaction mechanism.
1989Ko55: ^{12}C(α,2α) E=20-30 MeV, measured $\alpha\alpha$-correlation function.
1999Na05: ^{12}C(α,2α) E=580 MeV, measured $\sigma(\theta_1,\theta_2,E)$. Deduced dominance of quasifree knockout mechanism. DWIA calculations.
1999St06: ^{12}C(α,2α) E=200 MeV, measured E_α, $\alpha\alpha$-coin, $\sigma(E,\theta)$. Deduced α-cluster spectroscopic factors. DWIA analysis.

^{8}Be Levels

E(level)
0.0
3.0×10^{3}
11.4×10^{3}

Ag(^{14}N,^{8}Be) 2004Ti06,1989He24

History

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

1989He24: Ag(^{14}N,^{8}Be) E=35 MeV/nucleon, measured n(fragment)-coin, relative energy spectra following ejectile breakup. ^{8}Be level deduced E, Γ.

^{8}Be Levels

E(level)	$T_{1/2}$
0	
19234 *12*	210 keV *35*