

$^7\text{Li}(\alpha, \alpha)$ 1966Cu02, 1957Bi84, 1954Li48

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

1954Li48: $^7\text{Li}(\alpha, \alpha')$.1957Bi84: $^7\text{Li}(\alpha, \alpha')$.1966Cu02: $^7\text{Li}(\alpha, \alpha')$ E = 1.6-12.0 MeV, measured $\sigma(E; E_{\alpha'}, \theta)$. ^{11}B deduced levels, J, π .1969Ma13: $^7\text{Li}(\alpha, \alpha), (\alpha, \alpha')$ E = 29.4 MeV, measured $\sigma(E_{\alpha'}, \theta)$. Deduced optical model parameters.1971Bi12: $^7\text{Li}(\alpha, \alpha_0)$ E=12.0-18.5 MeV, measured $\sigma(E_{\alpha}, \theta)$, deduced optical model-parameters.1972Bo07: $^7\text{Li}(\alpha, \alpha), (\alpha, \alpha')$ E=2.5-4.5 MeV; 3.0, 3.6, 4.0 MeV, measured $\sigma(E)$, $\sigma(\theta)$; deuteron exchange analyzed. Deduced deuteron width.1973Ke13: $^7\text{Li}(\alpha, \alpha), (\alpha, \alpha')$ E=8.6-12.5 MeV, 17.0-22.5 MeV, measured $\sigma(E, E_{\alpha'}, \theta)$.1979St25: $^7\text{Li}(\alpha, \alpha)$ E=1.36-3.2 MeV, measured $\sigma(\theta)$. ^{11}B deduced resonances, J, π , Γ , α -reduced width. R-matrix formalism.1982Wa23: $^7\text{Li}(\alpha, \alpha)$ E=5, 6 MeV, measured $\sigma(\theta)$. Deduced glory scattering effect.1994Ha16: $^7\text{Li}(\alpha, \alpha)$ E=65 MeV, measured spectra, $\sigma(\theta)$. Deduced model parameters.1996Bu06: $^7\text{Li}(\alpha, \alpha), (\alpha, \alpha')$ E=50.5 MeV, measured $\sigma(\theta)$. DWBA analysis.2003Ru01: $^7\text{Li}(\alpha, \alpha), (\alpha, \alpha')$ E_{C.M.}=11.45, 16.55 MeV, measured $\sigma(\theta)$. Deduced reaction mechanism features.2008BuZV: $^7\text{Li}(\alpha, \alpha)$, E=72 MeV, measured $\sigma(\theta)$. ^{11}B Levels

E(level)	J π	T _{1/2}	Comments
9872 4	3/2 ⁺	130 keV 30	E(level): from E _{res} =1.92 MeV 3 (1966Cu02), E _{res} =1889 keV 10 (1954Li48), E _{res} =1910 keV 20 (1957Bi84), E _{res} =1900 keV 10 (1967Pa19). Γ : from discussion and R-matrix fit In (1966Cu02) see from Γ =130 keV 30 (1966Cu02) and Γ =125 keV 10 (1954Li48).
10.25×10 ³ 2	3/2 ⁽⁻⁾ , 1/2	150 keV 40	E(level): from E _{res} =2.48 MeV 5 (1966Cu02), E _{res} =2500 keV 30 (1954Li48), E _{res} =2490 keV 50 (1957Bi84). Γ : from discussion and R-matrix fit In (1966Cu02) see Γ =150 keV 40 (1966Cu02) and Γ ≈155 keV (1954Li48).
10.34×10 ³ 2	(5/2 ⁻ , 7/2 ⁻)	80 keV 30	E(level): from E _{res} =2.63 MeV 3 (1966Cu02). Γ : from discussion and R-matrix fit In (1966Cu02).
10598 5	7/2 ⁺	70 keV 10	E(level): from E _{res} =3032 keV 10 (1966Cu02), E _{res} =3060 keV 30 (1957Bi84), 3040 keV 10 (1967Pa19). Γ : from discussion and R-matrix fit In (1966Cu02).
10.96×10 ³ 3	5/2 ⁻	≈4.5 MeV	E(level): from E _{res} =3.60 MeV 5 (1966Cu02), Γ : from $^7\text{Li}(\alpha, \alpha)$; the text gives two plausible values, first Table 1 "Anomolies in the scattering" gives the value Γ >0.9 MeV, however Table 2 describes parameters from a seven level fit to the data where Γ ≈4.5 MeV is given. E _{res} =3.60 MeV 10 (1957Bi84). Γ : from discussion and R-matrix fit In (1966Cu02).
11.29×10 ³ 2	9/2 ⁺	90 keV 50	E(level): from E _{res} =4.12 MeV 3 (1966Cu02). Γ : from discussion and R-matrix fit In (1966Cu02).
11.48×10 ³ 3		70 keV 30	E(level): from E _{res} =4.43 MeV 5 (1966Cu02). Γ : from (1966Cu02). ¹⁰ B+N threshold.
11.59×10 ³ 3		150 keV 50	E(level): from E _{res} =4.60 MeV 5 (1966Cu02). Γ : from (1966Cu02).
11.88×10 ³ 2		150 keV 50	E(level): from E _{res} =5.05 MeV 3 (1966Cu02). Γ : from (1966Cu02).
12.04×10 ³ 13		≈1 MeV	E(level): from E _{res} =5.30 MeV 20 (1966Cu02). Γ : from (1966Cu02).
12.16×10 ³ 6		60 keV 50	E(level): from E _{res} =5.50 MeV 10 (1966Cu02). Γ : from (1966Cu02). ¹⁰ B+N ₁ threshold.

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$^7\text{Li}(\alpha, \alpha)$ **1966Cu02, 1957Bi84, 1954Li48** (continued) ^{11}B Levels (continued)

E(level)	$T_{1/2}$	Comments
12.55×10^3 2	150 keV 50	E(level): from $E_{\text{res}}=6.10$ MeV 3 (1966Cu02). Γ : from (1966Cu02).
13.02×10^3 4	270 keV 50	E(level): from $E_{\text{res}}=6.85$ MeV 6. Γ : from (1966Cu02).
13.25×10^3 3	50 keV 50	E(level): from $E_{\text{res}}=7.20$ MeV 5 (1966Cu02). Γ : from (1966Cu02). $^{10}\text{B}+\text{N}_2$ threshold.
13.63×10^3 6	0.50 MeV 20	E(level): from $E_{\text{res}}=7.80$ MeV 10 (1966Cu02). Γ : from (1966Cu02). $^{10}\text{B}+\text{N}_3$ threshold.
$14.04 \times 10^3?$ 13	0.50 MeV 20	E(level): from $E_{\text{res}}=8.45$ MeV 20 (1966Cu02). Γ : from (1966Cu02).
$14.68 \times 10^3?$ 13	<250 keV	E(level): from $E_{\text{res}}=9.45$ MeV 20 (1966Cu02). Γ : from (1966Cu02).
15.00×10^3 13	0.50 MeV 20	E(level): from $E_{\text{res}}=9.95$ MeV 20 (1966Cu02). Γ : from (1966Cu02). $^{10}\text{B}+\text{N}_4$ threshold.
$15.79 \times 10^3?$ 13	0.18 MeV 10	E(level): from $E_{\text{res}}=11.20$ MeV 20 (1966Cu02). Γ : from (1966Cu02).