$$^7\text{Li}(^7\text{Li},\alpha),(^7\text{Li},\alpha\gamma) \quad \textbf{2001Cu06,2002Li15,2003Fl02}$$

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. L. Godwin, et al.	NP A745 155 (2004)	31-Mar-2004

1971Gl07: $^7\text{Li}(^7\text{Li},\alpha)$ E=26,30 MeV, measured $\sigma(E_\alpha,\theta)$. ^{10}Be deduced resonances.

1996So17: $^7\text{Li}(^7\text{Li},\alpha^6\text{He})$ E=8 MeV, measured (Q(β^-)value) spectra, α-α-, α(^6He)-coin. ^{10}Be deduced levels, decay characteristics. Kinematically complete measurement.

2001Cu03, 2001Cu06: $^7\text{Li}(^7\text{Li},\alpha^6\text{He})$ E=34.0, 50.9 MeV, measured σ(E), angular correlations. ^{10}Be deduced levels J, π, widths, No rigid triaxial rotation.

2001Mi39: $^7\text{Li}(^7\text{Li},\alpha)$ E=8,30 MeV, measured excitation energy spectra. ^{10}Be deduced levels, J, π, molecular states.

2002Li15: $^7\text{Li}(^7\text{Li},\alpha)$ E=34 MeV, measured particle spectra following residual nucleus decay. ^{10}Be deduced levels, J, π, excited states charged particle decay branching fractions.

2003Fl02: $^7\text{Li}(^7\text{Li},\alpha)$ E=34, 50.9 MeV, measured charged particle spectra, coincidences following residual nucleus decay. ^{10}Be deduced excited states, decay modes.

2004Cu01: $^7\text{Li}(^7\text{Li},\alpha^6\text{He})$ E=58 MeV, measured particle spectra, angular correlations. ^{10}Be deduced levels J, α-decay features.

^{10}Be Levels

E(level)	J^π	$T_{1/2}$	Comments
3.37×10³		220 fs *40*	Γ: from unpublished work of Morrison et al.; see comment In (1966Wa10).
7542	2⁺		E(level): from (2001Cu06, 2002Li15, 2003Fl02). $\Gamma\alpha$=22 eV *8* (2002Li15). $\Gamma\alpha/\Gamma$=3.5×10⁻² *12* (2002Li15).
9270	(4⁻)		E(level): J^π: from (1996So17, 2002Li15).
9560 *20*	2⁺	141 keV *10*	E(level): from (1997Cu03, 2001Cu06, 2002Li15, 2003Fl02). J^π: from (2002Li15) $\Gamma\alpha$=23 keV *6* (2002Li15). Γ: from (2001Cu06). $\Gamma\alpha/\Gamma$=0.16 *4* (2002Li15).
10.15×10³ *2*	3⁻	296 keV *15*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06). Other value: E=10.2 MeV, Γ<400 keV, J^π=4⁺ (1996So17). J^π: from (2001Cu06). Γ_n = small.
10.57×10³			E(level): from (2001Cu06, 2002Li15, 2003Fl02).
11.23×10³ *5*		200† keV *80*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06).
11.76×10³			E(level): from (2003Fl02).
11.93×10³? *10*		200† keV *80*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06).
13.05×10³ *10*		290† keV *130*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06).
13.85×10³ *10*		330† keV *150*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06).
14.68×10³ *10*		310† keV *140*	E(level): from (2001Cu06, 2003Fl02). Γ: from (2001Cu06).
17.79×10³		≈140 keV	E(level): from (2003Fl02). Γ: from (2002Li15).
18.15×10³ *5*	(0⁻)	100 keV *30*	E(level): from (2002Li15, 2003Fl02). Γ: from (2002Li15). J^π: from (2002Li15).
18.55×10³		≈320 keV	E(level): from (2003Fl02). Γ: from (2002Li15).
19.8×10³?			E(level): from (2003Fl02).
20.80×10³ *10*			E(level): from (2003Fl02).
21.80×10³ *10*		≈200† keV	E(level): Γ: from (2003Fl02).
22.40×10³ *10*		≈250† keV	E(level): Γ: from (2003Fl02).
23.00×10³ *10*			E(level): from (2003Fl02).
23.35×10³ *5*			E(level): from (2003Fl02).
23.65×10³ *5*			E(level): from (2003Fl02).
24.00×10³ *10*		≈150† keV	E(level): Γ: from (2003Fl02).
24.25×10³ *5*		≈200† keV	E(level): Γ: from (2003Fl02).
24.60×10³ *10*		≈150† keV	E(level): Γ: from (2003Fl02).
24.80×10³ *10*		≈100† keV	E(level): Γ: from (2003Fl02).

$\underline{^{10}\text{Be Levels}}$ (continued)

E(level)	T$_{1/2}$	Comments
25.05×10^3 *10*	≈150† keV	E(level): Γ: from (2003Fl02).
25.60×10^3 *10*		E(level): from (2003Fl02).
25.95×10^3 *5*	≈300† keV	E(level): Γ: from (2003Fl02).
26.30×10^3 *10*	≈100† keV	E(level): Γ: from (2003Fl02).
26.80×10^3 *10*		E(level): from (2003Fl02).
27.20×10^3 *20*		E(level): from (2003Fl02).

† Not corrected for experimental system resolution and therefore upper limits (2003Fl02).