

Table 7.2 from (2002TI10): Energy levels of  ${}^7\text{Li}$

$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\tau_m$ or $\Gamma_{cm}$ (keV)	Decay	Reactions
g.s.	$\frac{3}{2}^-; \frac{1}{2}$		stable	1, 2, 3, 5, 6, 7, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52, 54, 55, 57
$0.477612 \pm 0.003$	$\frac{1}{2}^-; \frac{1}{2}$	$\tau_m = 105 \pm 3 \text{ fsec}^a$	$\gamma$	1, 5, 6, 7, 11, 12, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 30, 33, 34, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 49, 50, 52, 54, 55, 57
4.652 <sup>b</sup>	$\frac{7}{2}^-; \frac{1}{2}$	$\Gamma = 69 \text{ keV}^b$	t, $\alpha$	4, 5, 11, 12, 17, 18, 19, 20, 21, 22, 23, 27, 39, 40, 42, 47, 51
6.604 <sup>b</sup>	$\frac{5}{2}^-; \frac{1}{2}$	918 <sup>b</sup>	t, $\alpha$	4, 12, 17, 18, 19, 23, 40, 47, 55
7.454 <sup>b</sup>	$\frac{5}{2}^-; \frac{1}{2}$	80 <sup>b</sup>	n, t, $\alpha$	3, 4, 8, 9, 10, 12, 17, 18, 19, 20, 23, 37, 39, 40, 47
8.75 <sup>b</sup>	$\frac{3}{2}^-; \frac{1}{2}$	4712 <sup>b</sup>	n, $\alpha$	8, 37
9.09 <sup>b</sup>	$\frac{1}{2}^-; \frac{1}{2}^b$	2752 <sup>b</sup>	n, t, $\alpha$	4, 8, 10
9.57 <sup>b</sup>	$\frac{7}{2}^-; \frac{1}{2}$	437 <sup>b</sup>	n, t, $\alpha$	3, 4, 12, 18, 20, 23, 40
$11.24 \pm 30$	$\frac{3}{2}^-; \frac{3}{2}$	$260 \pm 35$	n, p	8, 9, 39
13.7		$\approx 500$	n	15
14.7 <sup>c</sup>		$\approx 700$	n	15

<sup>a</sup> See Table 7.2 in (1979AJ01), 7.5 here and reaction 40.

<sup>b</sup> Newly adopted in this evaluation. These level parameters were obtained with the extended  $R$ -matrix prescription (see the Introduction) from an analysis of  ${}^6\text{Li}(n, n)$ ,  ${}^6\text{Li}(n, t)$ ,  ${}^4\text{He}(t, n)$ , and  ${}^4\text{He}(t, t)$  data, and are somewhat different from the corresponding parameters of (1988AJ01). The uncertainties in the widths and positions of the second through fourth excited states above the ground state are less than 5%. Uncertainties for the higher-lying states range from 10 – 30%.

<sup>c</sup> See also reactions 8, 10, 15, 22 and 38 for possible additional states.