Table 5.3 from (2002TI10): Energy levels of ^{5}Li, extended R-matrix prescription [a]

E_x (MeV)	$J^\pi; T$	Γ_{cm} [b] (MeV)	Γ_p (MeV)	Γ_d (MeV)	Γ_{p^*} [c] (MeV)	Decay	Reactions (used in analysis)
g.s. [d]	$\frac{3}{2}^-; \frac{1}{2}$	1.23	1.06	43.1 [e]	0.009 [e]	p, α	3, 6, 9, 13, 18, 20, 23
1.49	$\frac{1}{2}^-; \frac{1}{2}$	6.60	3.78	16.4 [e]		p, α	3, 9, 13, 18, 20
16.87	$\frac{3}{2}^+; \frac{1}{2}$	0.267	0.055	0.134 [f]		γ, p, d, ^{3}He, α	3, 4, 5, 18, 20
19.28	$\frac{3}{2}^-; \frac{1}{2}$	0.959	0.001	0.040 [g]	0.741	n, p, d, ^{3}He, α	4, 5, 9
19.45	$\frac{7}{2}^+; \frac{1}{2}$	3.28	0.040	1.82 [h]		p, d, ^{3}He, α	5
19.71	$\frac{5}{2}^+; \frac{1}{2}$	4.31	0.011	2.03 [h]		p, d, ^{3}He, α	3, 5
20.53	$\frac{1}{2}^+; \frac{1}{2}$	5.00	0.026	1.53 [i]	0.196	n, p, d, ^{3}He, α	6
22.06	$\frac{5}{2}^-; \frac{1}{2}$	15.5	0.928	2.33 [j]		p, d, ^{3}He, α	23, 24
23.74	$\frac{5}{2}^+; \frac{1}{2}$	5.43	0.234	2.49 [k]		p, d, ^{3}He, α	
25.42	$\frac{3}{2}^+; \frac{1}{2}$	0.534	0.023	0.467 [l]		p, d, ^{3}He, α	
25.44	$\frac{7}{2}^+; \frac{1}{2}$	2.63	0.043	1.94 [h]		p, d, ^{3}He, α	23
32.53	$\frac{1}{2}^-; \frac{1}{2}$	35.7	8.75	0.013 [m]		p, d, ^{3}He, α	23, 24

[a] This prescription, based on the complex poles and residues of the S-matrix, is the recommended one (see Introduction). The channel radii are $a_p = 2.9$ fm, $a_d = 4.8$ fm. The uncertainties in the widths and positions of the first three levels are less than 1%. Above 19 MeV excitation energy, they increase rapidly, varying from about 5% up to as much as 50% for the broader levels. All parameters in this table are newly adopted in this evaluation.

[b] The fact that the sum of the partial widths is unequal to the total width in the extended R-matrix prescription is characteristic of non-Breit-Wigner resonances as was discussed in the appendix of (1992TI02).

[c] The p* designation indicates p + α* where the first excited state of the α particle was included as a way to approximate the effects of three-body breakup on the two-body channels.

[d] Situated 1.69 MeV above the p + α threshold.

[e] These partial widths in closed channels have no meaning as decay widths, but rather as asymptotic normalization constants.

[f] Primarily $^4S(d)$.

[g] Primarily $^2P(d)$.

[h] Primarily $^4D(d)$.

[i] Primarily $^2S(d)$.

[j] Primarily $^2F(d)$.

[k] Primarily $^2D(d)$.

[l] Mixture of $^4S(d)$ and $^4D(d)$.

[m] Mixture of $^4P(d)$ and $^2P(d)$.