Table 5.1 from (2002TI10): Energy levels of ^{5}He, extended R-matrix prescription [a]

E_x (MeV)	$J^\pi; T$	Γ_{cm} [b] (MeV)	Γ_n (MeV)	Γ_d (MeV)	Γ_{n^*} [c] (MeV)	Decay	Reactions (used in analysis)
g.s. [d]	$\frac{3}{2}^-; \frac{1}{2}$	0.648	0.578	8.80 [e]	66.0 [e]	n, α	5, 8, 13, 23, 24, 25
1.27	$\frac{1}{2}^-; \frac{1}{2}$	5.57	3.18	38.0 [e]	1.27 [e]	n, α	5, 8, 21, 24, 25
16.84	$\frac{3}{2}^+; \frac{1}{2}$	0.0745	0.040	0.025 [f]		γ, n, d, t, α	2, 3, 7, 8, 10, 13, 14, 23, 24, 25
19.14	$\frac{5}{2}^+; \frac{1}{2}$	3.56	0.003	1.62 [g]		n, d, t, α	4, 10, 14, 23
19.26	$\frac{3}{2}^+; \frac{1}{2}$	3.96	0.014	1.83 [g]		n, d, t, α	4, 10, 14, 23
19.31	$\frac{7}{2}^+; \frac{1}{2}$	3.02	0.045	1.89 [g]		n, d, t, α	4, 10, 14
19.96	$\frac{3}{2}^-; \frac{1}{2}$	1.92	0.003	0.325 [h]	0.862	n, p, d, t, α	3, 17, 24, 25
21.25	$\frac{3}{2}^+; \frac{1}{2}$	4.61	0.098	2.38 [i]		n, d, t, α	21
21.39	$\frac{5}{2}^+; \frac{1}{2}$	3.95	0.091	2.12 [l]		n, d, t, α	21
21.64	$\frac{1}{2}^+; \frac{1}{2}$	4.03	0.050	0.878 [j]	0.726	n, p, d, t, α	21
23.97	$\frac{7}{2}^+; \frac{1}{2}$	5.44	0.053	2.85 [g]		n, d, t, α	
24.06	$\frac{5}{2}^-; \frac{1}{2}$	5.23	0.013	2.18 [k]		n, d, t, α	
(35.7 ± 0.4) [l]		≈ 2 [l]					21, 25

[a] This prescription, based on the complex poles and residues of the S-matrix, is the recommended one (see Introduction). The channel radii are: $a_n = 3.0$ fm, $a_d = 5.1$ 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 broad higher levels. Except where noted, all parameters in the 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 n* designation indicates n + 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 798 keV above the n + α threshold. This value is in excellent agreement with early measurements reported by (1963SM03; 790 ± 30 keV) and by (1960YO06; 800 ± 100 keV).

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

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

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

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

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

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

[k] Primarily $^4P(d)$.

[l] Retained from the previous evaluation (1988AJ01).