

Table 8.1 from (2004TI06): Energy Levels of ${}^8\text{He}$ ^a

E_x (MeV) ^b	$J^\pi; T$	$\tau_{1/2}$ or Γ	Decay	Reactions
g.s.	$0^+; 2$	119.0 ± 1.5 msec	β^-	1, 2, 5, 6, 7, 8, 9, 10, 12
2.7–3.6 ^{c,f}	2^+	0.6 ± 0.2 MeV		2, 6, 7, 8, 9, 10, 12
4.36 ± 0.2 ^{d,f}	(1^-)	1.3 ± 0.5 MeV ^{d,e}		5, 7, 9, 10, 12
(6.03 ± 0.10) ^f		0.15 ± 0.15 MeV		9
7.16 ± 0.04 ^f	(3^-)	0.1 ± 0.1 MeV		6, 9

^a Excited states are calculated at $E_x = 5.83, 7.92$ and 8.18 MeV, with $J^\pi = 2^+, 1^-$ and 2^- [$(0+1)\hbar\omega$ model space]. In the $(0+2)\hbar\omega$ model space the excited states are at $5.69, 9.51$ and 11.59 MeV, with $J^\pi = 2^+, 1^+$ and 0^+ (1985PO10).

^b A level has been reported at 1.3 MeV in reactions 7 and 10. However, this result has not been supported by other measurements.

^c This 2^+ level is reported near 2.7 MeV in reactions 6, 7, 10, and 12, and near 3.6 MeV in reactions 2, 8 and 9.

^d Uncertainty enlarged for weighted average. This may represent a group of states based on observations of a broad resonance observed at 4.4 MeV (reactions 5 and 12), a narrow resonance at 4 MeV (reactions 7 and 10), and a narrow resonance at 4.54 MeV (reaction 9).

^e Measured widths range from 500 ± 300 keV to 1.8 ± 0.2 MeV.

^f From data reviewed in this evaluation.