

Table 12.9 from (1990AJ01): ^{12}C states from $^{10}\text{B}(^3\text{He}, \text{p})^{12}\text{C}$

E_x (MeV \pm keV)	$\Gamma_{\text{c.m.}}$ (keV)	Alpha decay to		Parity	$J^\pi; T$
		$^8\text{Be}_{\text{g.s.}}$	$^8\text{Be}^*(2.9)$		
4.44					
7.65		yes		natural	0^+
9.64	36 ± 6	yes	yes	natural	
10.849 ± 25	320 ± 30	strong	yes	natural	
11.841 ± 25	245 ± 30	no	yes	unnatural	
$12.713 \pm 6^{\text{b}}$	$\approx 350^{\text{a}}$	no	yes	unnatural	1^+
13.29 ± 30	252 ± 15	no	yes	unnatural	≥ 1
14.083 ± 15		yes	yes	natural	≥ 2
$15.108 \pm 6^{\text{b}}$					$1^+; 1$
$16.108 \pm 6^{\text{b}}$		weak	yes	natural	2^+
16.58		yes	yes	natural	
≈ 18.5	broad	(yes)			
≈ 19.5	broad		(yes)		
$20.5 \pm 100^{\text{a, c}}$			yes		
22^{d}		(yes)			

^a For references and additional information see [Table 12.10 in \(1980AJ01\)](#). The present table incorporates the results of ref. (c) in [Table 12.9 of \(1985AJ01\)](#) which has not been published.

^b $\Gamma_\gamma/\Gamma = 0.025 \pm 0.01$, > 0.95 and $(2.6 \pm 0.5) \times 10^{-3}$ for $^{12}\text{C}^*(12.7, 15.1, 16.1)$ respectively. See [Table 12.7](#) for branching ratios.

^c A ($^3\text{He}, \text{pn}$) study suggests $J^\pi = 3^+$, $T = 1$ for this state.

^d The α_0 decay of states with $20 < E_x < 25$ MeV is very unlikely, consistent with the population of $T = 1$ states: see [reaction 21 in \(1980AJ01\)](#).