

Table 12.13 from (1990AJ01):
States ^a in ¹²C from ¹¹B(d, n)¹²C and ¹¹B(³He, d)¹²C

Peak no.	E_x (MeV \pm keV)	Γ_{lab} (keV)	l_p^b	l^c	$J^\pi; T$
1	g.s.		1	1	0 ⁺ ; 0
2	4.44		1	1	2 ⁺ ; 0
3	7.65			1	0 ⁺ ; 0
4	9.629 \pm 10 ^a		2	2	3 ⁻ ; 0
5	10.84 \pm 20 ^d	330 \pm 30	0 + 2	0	1 ⁻ ; 0
6	11.16 \pm 50	550 \pm 100		(1)	(2 ⁺); 0
7	11.82 \pm 20 ^e	300 \pm 30	0 + 2	2	2 ⁻ ; 0
8	12.70 \pm 10 ^f		1	1	1 ⁺ ; 0
9	13.38 \pm 20	500 \pm 80		((0))	(2 ⁻); 0
10	(14.71 \pm 10) ^g	< 15		0	
11	15.110 \pm 3 ^h		1	1	1 ⁺ ; 1
12	16.11 ⁱ		1	1	2 ⁺ ; 1
13	17.23 ^{h, j}	broad	> 1		1 ⁻ ; 1
14	18.27 \pm 50 ^g	350 \pm 50		(2)	(4 ⁻ ; 0)
15	18.35 \pm 50 ^{k, l}	350 \pm 50		(2)	3 ⁻ ; 1 + 2 ⁻ ; 0 + 1
16	19.25 ^g			(2)	(1 ⁻ ; 1)
17	19.55 \pm 50 ^k	575 \pm 60		(2)	(4 ⁻ ; 1) + (2 ⁻)
18	20.62 \pm 60 ^{k, m}	525 \pm 60		(2)	(3 ⁻ ; 0)
19	22.40 \pm 80	350 \pm 50		(2)	(1 ⁻ ; 1)

^a See [Tables 12.14 in \(1980AJ01\)](#) and [12.13 in \(1985AJ01\)](#) for the earlier references. Please note that the 1980 table also displays the S_{rel} obtained in several studies. See also the newer review by [\(1983NE11\)](#).

^b (d, n): see also [Table 12.12 in \(1968AJ02\)](#).

^c (³He, d): see also [Table 12.13 in \(1968AJ02\)](#).

^d There is some evidence that this state decays primarily by α_0 [\(1965OL01\)](#).

^e This state decays by α -emission to ⁸Be*(2.9) [90%] and to ⁸Be_{g.s.} [10%] [\(1965OL01\)](#).

^f Decays via α_1 to ⁸Be*(2.9) [\(1965OL01, 1985NE01\)](#).

^g Not reported in (d, n): see [Table 12.14 in \(1980AJ01\)](#).

^h From a study of slow neutron thresholds at $E_d = 1.627 \pm 0.004$ and ≈ 4.1 MeV [$E_x = 15.107$ and 17.2 MeV (broad)]. In another study at the lower threshold [$E_d = 1.633 \pm 0.003$ MeV, $E_x = 15.112$ MeV, $\Gamma < 2$ keV] 15.1 MeV γ -rays are observed: see [\(1980AJ01\)](#) for references.

ⁱ Decays 3% via α_0 and 97% via α_1 [\(1985NE01\)](#).

^j Not reported in (³He, d): see [Table 12.14 in \(1980AJ01\)](#).

^k Strong and broad neutron groups to ¹²C*(18.38, 19.55, 20.62) have been reported by [\(1985NE01, 1983NE11\)](#). The decay of ¹²C*(18.38) is reported to be 5% via α_0 , 32% via α_1 , 63% via p_0 ; ¹²C*(19.55) 1% α_0 , 41% α_1 , 52% p_0 , 6% p_1 ; ¹²C*(20.62) 2% α_0 , 30% α_1 , 56% p_0 , 12% p_1 [\(1985NE01\)](#). ¹²C*(19.55) is composed of at least two states separated by ≈ 300 keV, the lower of which α -decays. The p_0 angular correlation suggests (2⁻).

^l [\(1983NE11\)](#) find that this group is due to unresolved states with $J^\pi; T = 3^-; 1$ and 2⁻; $T = 0 + 1$.

^m A broader α -decaying region may lie under this peak [\(1985NE01\)](#).