

Table 12.22 from (2017KE05): States in ^{12}C from $^{11}\text{B}(\text{d}, \text{n})^{12}\text{C}$ and $^{11}\text{B}(\text{}^3\text{He}, \text{d})^{12}\text{C}$ ^a

E_x (MeV \pm keV)	Γ_{lab} ^c (keV)	l_p ^b	l ^c	$J^\pi; T$	Decay branching ratios
g.s.		1	1	$0^+; 0$	
4.44		1	1	$2^+; 0$	
7.65			1	$0^+; 0$	
9.629 ± 10 ^a		2	2	$3^-; 0$	
10.84 ± 20	330 ± 30	$0 + 2$	0	$1^-; 0$	primarily α_0 (1965OL01)
$[11.16 \pm 50]$ ^j			(1)	$(2^+); 0$	
11.82 ± 20	290 ± 40	$0 + 2$	2	$2^-; 0$	α_0 (10%), α_1 (90%) (1965OL01)
12.70 ± 10		1	1	$1^+; 0$	α_1 (1965OL01, 1985NE01)
13.38 ± 20	500 ± 80		((0))	$(2^-); 0$	
(14.71 ± 10) ^d	< 15		0		
15.110 ± 3 ^e		1	1	$1^+; 1$	
16.11		1	1	$2^+; 1$	α_0 (3%), α_1 (97%) (1985NE01)
16.58 ^l				$2^-; 1$	
17.23 ^{e, f}	broad	> 1		$1^-; 1$	
18.27 ± 50 ^d	350 ± 50		(2)	$(4^-; 0)$	
18.38 ± 60 ^{h,k}	350 ± 50 ^k		(2)	$3^-; 1$ & $2^-; 0 + 1$	α_0 (5%), α_1 (32%), p_0 (63%) (1983NE11, 1985NE01)
19.25 ^d			(2)	$(1^-; 1)$	
19.55 ± 50 ^{g,k}	575 ± 60 ^k		(2)	$(4^-; 1) + (2^-)$	α_0 (1%), α_1 (41%), p_0 (52%), p_1 (6%) (1983NE11, 1985NE01)
20.62 ± 60 ^{i,k}	525 ± 60 ^k		(2)	$(3^-; 0)$	α_0 (2%), α_1 (30%), p_0 (56%), p_1 (12%) (1983NE11, 1985NE01)
22.40 ± 80	350 ± 50		(2)	$(1^-; 1)$	

^a See Tables 12.14 in (1980AJ01) and 12.13 in (1985AJ01) for the earlier references. See also (1983NE11).

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

^c (^3He , d): see also Table 12.13 in (1968AJ02) and (1971RE03).

^d Not reported in (d, n): see Table 12.14 in (1980AJ01).

^e From a study of slow neutron thresholds at $E_d = 1.627 \pm 0.004$ and ≈ 4.1 MeV [$E_x = 15.107 \pm 0.005$ and 17.2 MeV (broad) (1955MA76)]. 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 (1958KA31).

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

^g 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^-) ([1983NE11](#), [1985NE01](#)).

^h ([1983NE11](#)) find that this group is due to unresolved states with $J^\pi; T = 3^-; 1$ and $2^-; T = 0 + 1$. $\Gamma(3^-) = 220 \pm 50$ keV is taken from ([1971RE03](#)) while $\Gamma(2^-) = 350 \pm 50$ keV is from ([1983NE11](#), [1985NE01](#)).

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

^j This level was reported in ([1971RE03](#)), but a recent study ([2012SM06](#)) found evidence against its existence.

^k From (d, n) in ([1983NE11](#)); also see values reported in ([1971RE03](#)).

^l (d, n), see ([1974AN19](#)).