

Table 16.25 from (1986AJ04): ^{16}F levels from $^{14}\text{N}(^3\text{He}, \text{n})$, $^{16}\text{O}(\text{p}, \text{n})$, $^{16}\text{O}(^3\text{He}, \text{t})$ and $^{19}\text{F}(^3\text{He}, ^6\text{He})^{\text{a}}$

$^{16}\text{F}^*^{\text{b}}$ (MeV \pm keV)	L^{b}	$^{16}\text{F}^*^{\text{c}}$ (MeV \pm keV)	$J\pi^{\text{d}}$	$^{16}\text{F}^*^{\text{e}}$ (MeV \pm keV)	ΔI^{f}	$^{16}\text{F}^*^{\text{g}}$ (MeV \pm keV)	$^{16}\text{F}^*^{\text{h}}$ (MeV \pm keV)	$\Gamma_{\text{c.m.}}^{\text{i}}$ (keV)	$J\pi^{\text{j}}$
0	1	0	(1 ⁻)	0		0	0	40 \pm 20	0 ⁻
0.192 \pm 15	1	0.190 \pm 20	(0 ⁻)	0.197 \pm 12		0.19 \pm 20	0.192 \pm 10	< 40	1 ⁻
0.425 \pm 15	3	0.425 \pm 10	(≥ 2)	0.424 \pm 5	1	0.425 \pm 20	0.424	40 \pm 30	2 ⁻
0.722 \pm 10	(3)	0.725 \pm 10	(≥ 2)	0.720 \pm 6	3	0.72 \pm 20	0.722 \pm 10	< 15	3 ⁻
3.751 \pm 10	0	3.775 $\pm 10^{\text{k}}$	(1)	3.76	0	3.75 \pm 20	3.740 $\pm 15^{\text{n}}$	< 40	1 ⁺
3.861 \pm 10	2	3.880 $\pm 10^{\text{k}}$	≥ 1			3.86 \pm 20	3.873 $\pm 15^{\text{n}}$	< 20	2 ⁺
4.370 \pm 10		4.375 $\pm 10^{\text{k}}$	(≥ 2)	4.37	2	4.37 \pm 20	4.372 ⁿ	50 \pm 20	3 ⁺
4.646 \pm 10	0	4.661 $\pm 10^{\text{k}}$	≥ 1	4.65	0	4.66 \pm 20	4.652 $\pm 10^{\text{n}}$	60 \pm 20	1 ⁺
						4.71 $\pm 20^{\text{m}}$			
4.973 \pm 10	2	4.97 $\pm 20^{\text{l}}$	≥ 2			4.97 \pm 20	5.007 \pm 20	60 \pm 40	(2 ⁺)
5.264 \pm 20		5.27 $\pm 20^{\text{l}}$		5.27	1		5.274 $\pm 10^{\text{n}}$		(1 ⁻)
5.390 \pm 20	2	5.40 $\pm 20^{\text{l}}$				5.39 \pm 20	5.414 \pm 15		4
5.448 \pm 20		5.45 $\pm 20^{\text{l}}$							
5.528 \pm 20	2	5.52 $\pm 20^{\text{l}}$ (5.57 ± 20) ^l				5.53 \pm 20	5.521 \pm 15		$\pi = +$
5.840 \pm 40				5.86	3		5.858 $\pm 10^{\text{n}}$		2 ⁻
						6.05 $\pm 20^{\text{m}}$			
6.230 \pm 50				6.22	0		6.224 \pm 15		
6.371 \pm 20				6.37	3		6.372 \pm 10		4 ⁻
							6.559 $\pm 10^{\text{n}}$		
6.678 \pm 10		6.68 $\pm 20^{\text{l}}$	≥ 1			6.68 \pm 20		≤ 45	(3 ⁻ + 1 ⁻)
						6.93 $\pm 20^{\text{m}}$			

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$^{16}\text{F}^* \text{ }^{\text{b}}$ (MeV \pm keV)	$L \text{ }^{\text{b}}$	$^{16}\text{F}^* \text{ }^{\text{c}}$ (MeV \pm keV)	$J\pi \text{ }^{\text{d}}$	$^{16}\text{F}^* \text{ }^{\text{e}}$ (MeV \pm keV)	$\Delta I \text{ }^{\text{f}}$	$^{16}\text{F}^* \text{ }^{\text{g}}$ (MeV \pm keV)	$^{16}\text{F}^* \text{ }^{\text{h}}$ (MeV \pm keV)	$\Gamma_{\text{c.m.}} \text{ }^{\text{i}}$ (keV)	$J\pi \text{ }^{\text{j}}$
7.110 \pm 20				≈ 7.5	1		7.50 \pm 30 ^{n,o}	950 \pm 100	2 ⁻
7.730 \pm 40				≈ 9.5	1		7.90 \pm 15	< 100	
				≈ 9.5	1		9.50 \pm 30 ^{n,o}	1050 \pm 100	1 ⁻ (+2 ⁻)
				≈ 11.5	1		9.60 \pm 20	250 \pm 50	
				≈ 11.5	1		11.50 \pm 50 ^{n,o}	1900 \pm 500	1 ⁻ (+2 ⁻)

^a See also Tables 16.33 in (1971AJ02) and 16.26 in (1982AJ01) for the earlier work and for references.

^b $^{14}\text{N}(^3\text{He}, \text{n})^{16}\text{F}$.

^c $^{14}\text{N}(^3\text{He}, \text{np})^{15}\text{O}$.

^d From angular correlation studies.

^e $^{16}\text{O}(\text{p}, \text{n})^{16}\text{F}$. E_{x} shown without uncertainties are from Table 16.24.

^f (1982FA06; $E_{\text{p}} = 99.1$ and 135.2 MeV).

^g $^{16}\text{O}(^3\text{He}, \text{t})$ and $^{19}\text{F}(^3\text{He}, ^6\text{He})^{16}\text{F}$.

^h $^{16}\text{O}(^3\text{He}, \text{t})$: (1984ST10; $E(^3\text{He}) = 81$ MeV) and Dr. M. Harakeh (private communication).

ⁱ From (a) and (1984ST10, 1985HA01).

^j From (a) and (1984ST10).

^k See also (1985HA01).

^l (1985HA01).

^m Observed only in $^{19}\text{F}(^3\text{He}, ^6\text{He})$.

ⁿ Decays to $^{15}\text{O}_{\text{g.s.}}$ by proton emission (1984ST10).

^o Decays to $^{15}\text{O}^*(6.18)$ (1984ST10).