

Table 15.4 from (1970AJ04): Energy levels of  $^{15}\text{N}$  <sup>a</sup>

$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\tau_m$ (psec) or $\Gamma$ (keV)	Decay	Reactions
0	$\frac{1}{2}^-$		stable	2, 3, 4, 8, 9, 10, 12, 13, 14, 21, 22, 23, 24, 25, 26, 29, 30, 32, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66
$5.27055 \pm 0.25$	$\frac{5}{2}^+$	$\tau_m = 2.9 \pm 0.5$	$\gamma$	3, 4, 8, 12, 13, 21, 22, 23, 26, 29, 30, 32, 39, 42, 52, 53, 55, 58, 59, 62
$5.29921 \pm 0.25$	$\frac{1}{2}^+$	$< 0.01$	$\gamma$	3, 4, 8, 12, 13, 21, 22, 23, 26, 29, 30, 32, 39, 46, 52, 53, 55, 58, 59
$6.3235 \pm 0.4$	$\frac{3}{2}^-$	$< 0.040$	$\gamma$	3, 4, 8, 10, 12, 13, 21, 22, 26, 29, 30, 32, 39, 49, 52, 53, 55, 57, 58, 59, 62
$7.1550 \pm 0.4$	$\frac{5}{2}^+$	$< 0.018$	$\gamma$	3, 4, 8, 12, 21, 22, 26, 29, 32, 39, 52, 53, 62
$7.3010 \pm 0.5$	$\frac{3}{2}^+$	$< 0.025$	$\gamma$	3, 4, 8, 12, 13, 21, 26, 29, 32, 39, 46, 52, 53, 55, 62
$7.566 \pm 3$	$\frac{7}{2}^+$	$0.06 \pm 0.02$	$\gamma$	3, 4, 8, 12, 13, 21, 22, 29, 39, 52, 53, 62
$8.3126 \pm 0.7$	$\frac{1}{2}^+$	$< 0.010$	$\gamma$	3, 4, 8, 21, 26, 29, 32, 39, 46, 52, 53, 55, 62
$8.576 \pm 2$	$\frac{3}{2}^+$		$\gamma$	3, 4, 8, 13, 21, 22, 26, 32, 39, 52, 53, 62
$9.053 \pm 2$	$\frac{1}{2}^+$		$\gamma$	2, 3, 4, 8, 21, 26, 29, 32, 39, 46, 55
$9.1518 \pm 0.5$	$\frac{3}{2}^-$		$\gamma$	3, 4, 8, 13, 21, 22, 29, 32, 39, 52, 53
$9.1549 \pm 0.5$	$(\frac{5}{2})$	$< 0.010$	$\gamma$	3, 4, 8, 13, 21, 22, 29, 32, 39, 52, 53
$9.225 \pm 3.5$	$\frac{3}{2}$ or $\frac{1}{2}$ <sup>b</sup>	$< 0.1$	$\gamma$	21, 29, 39, 55
$9.762 \pm 3.5$	$\frac{5}{2}^-$		$\gamma$	21, 39, 52, 53
$9.829 \pm 3$	$\frac{7}{2}$	$< 0.19$	$\gamma$	2, 3, 4, 8, 21, 22, 29, 52, 53
$9.929 \pm 4$	$(\frac{1}{2}, \frac{3}{2})^+$		$\gamma$	21, 39
$10.070 \pm 3$	$\frac{3}{2}^+$		$\gamma$	13, 21, 39, 52, 53
$10.451 \pm 1$	$\frac{3}{2} \rightarrow \frac{7}{2}$		$\gamma, p$	21, 22, 26, 39

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$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\tau_m$ (psec) or $\Gamma$ (keV)	Decay	Reactions
10.536 $\pm$ 1	$\frac{5}{2}^{(+)}$		$\gamma, p$	21, 26, 39
10.700 $\pm$ 1	$\frac{3}{2}^+$		$\gamma, p$	21, 22, 26, 27, 39, 52
10.800 $\pm$ 1	$\frac{3}{2}^{(-)}$		$\gamma, p$	2, 3, 4, 8, 13, 21, 26, 39
(10.94 $\pm$ 30)				21
11.236 $\pm$ 5	$\geq \frac{3}{2}$	$\Gamma = 3.3$	n	33
11.2943 $\pm$ 1	$\frac{1}{2}^-$	7.9 $\pm$ 0.3	$\gamma, n, p$	26, 27, 28, 33, 52
11.438 $\pm$ 1	$\frac{1}{2}^+$	41.4 $\pm$ 1.1	$\gamma, n, p, \alpha$	5, 26, 27, 28, 33, 35
11.615 $\pm$ 4	$\frac{1}{2}; \frac{3}{2}$	404.9 $\pm$ 6.3	$\gamma, n, p$	26, 27, 28
11.764 $\pm$ 3	$\frac{3}{2}^+$	40 $\pm$ 3	n, p, $\alpha$	5, 28, 33, 35
11.877 $\pm$ 3	$\frac{3}{2}^-$	21 $\pm$ 4	n, p, $\alpha$	5, 28, 33, 35, 52
11.943 $\pm$ 6	$(\frac{9}{2}^-)$	$\leq 3$	n	22, 33, 52
11.965 $\pm$ 3	$\frac{1}{2}^-$	17 $\pm$ 5	n, p, $\alpha$	5, 28, 33, 35
12.097 $\pm$ 4	$\frac{5}{2}^+$	14 $\pm$ 5	$\gamma, n, p, \alpha$	5, 6, 27, 28, 33, 35, 38
12.145 $\pm$ 3	$\frac{3}{2}^-$	47 $\pm$ 7	$\gamma, n, p, \alpha$	5, 6, 27, 28, 33, 35, 39
12.326 $\pm$ 4	$\frac{5}{2}^{(+)}$	22	n, p	22, 28, 33, 35
12.493 $\pm$ 4	$\frac{5}{2}^+; \frac{1}{2}$	42	$\gamma, n, p, \alpha$	5, 6, 28, 33, 35, 38, 52
12.52 $\pm$ 10	$\frac{5}{2}^+; \frac{3}{2}$	80	p	27, 52
12.921 $\pm$ 4	$\frac{3}{2}^-$	67 $\pm$ 8	n, p, $\alpha$	5, 6, 28, 33, 35, 38
12.93	$\frac{7}{2}^-$	30	p, $\alpha$	6
13.028 $\pm$ 20	$(\frac{11}{2}^-)$			22
13.14		$< 3$	n, p, $\alpha$	5, 6, 38
13.19		6	n, p, $\alpha$	5, 6, 28, 38
13.36	$\frac{3}{2}^-$	29 $\pm$ 8	n, p, $\alpha$	5, 6, 28, 38
13.40	$\frac{5}{2}^+$	$\approx 60$	n, p, $\alpha$	6, 28, 35
(13.52)			n, p	28
13.60	$(\frac{5}{2}, \frac{7}{2})^-$	15 $\pm$ 4	n, p, $\alpha$	5, 6, 28, 33, 35, 38
13.67	$\frac{1}{2}^+$	$\approx 80$	n, p, $\alpha$	6, 28
13.71		$\approx 40$	n, p, $\alpha$	5, 35, 38
13.75			n, $\alpha$	5
13.84		$\approx 40$	n, p, $\alpha$	28, 35, 38
13.89			n, $\alpha$	5
14.03			p, $\alpha$	6
14.06			n, $\alpha$	5

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$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\tau_m$ (psec) or $\Gamma$ (keV)	Decay	Reactions
14.11		105	n, p, $\alpha$	5, 28, 35, 38, 52
14.17	$\frac{3}{2}^{(+)}$	$30 \pm 5$	n, p, $\alpha$	5, 28, 35, 38
14.18			n, $\alpha$	5
14.23			n, $\alpha$	5
14.4		$\approx 2000$	n, p, $\alpha$	33, 35, 38
14.46		$\approx 180$	p, $\alpha$	6
14.51		130	n, p	28
14.64		$50 \pm 3$	n, p, $\alpha$	5, 35, 38
14.7		$\approx 280$	n, p, $\alpha$	35, 38
14.81		99	n, p	28
14.90		37	n, p, $\alpha$	5, 28, 38
15.00			n, p, $\alpha$	5, 28
15.11			n, p, $\alpha$	5, 28, 38, 52
15.29			n, $\alpha$	5
15.37			n, t, $\alpha$	5, 11
15.52			n, $\alpha$	38
15.61			n, $\alpha$	5
15.74			p, t, $\alpha$	11
15.83		$< 3$	n, p, t, $\alpha$	5, 6, 11
$15.89 \pm 20$		$< 3$	n, t, $\alpha$	5, 11
$15.96 \pm 20$			n, t, $\alpha$	5, 11
15.99			n, $\alpha$	5
16.03			n, p, t, $\alpha$	5, 6, 11, 38
16.08			n, p, t, $\alpha$	5, 6, 11, 38
$16.17 \pm 40$			n, p, t, $\alpha$	5, 6, 11
16.29			n, p, t, $\alpha$	5, 6, 11
$16.33 \pm 20$			n, p, t, $\alpha$	5, 6, 11, 38
$16.43 \pm 20$			n, p, t, $\alpha$	5, 6, 11, 38
$16.49 \pm 30$			n, p, d, t, $\alpha$	5, 6, 11, 16
$16.59 \pm 25$		70	n, p, t, $\alpha$	5, 6, 11, 38
$16.67 \pm 30$		100	n, p, d, t, $\alpha$	5, 6, 11, 15, 16, 33, 38
16.74			n, p, $\alpha$	5, 6
$16.76 \pm 30$			n, p, d, t, $\alpha$	5, 6, 11, 15, 16

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$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\tau_m$ (psec) or $\Gamma$ (keV)	Decay	Reactions
16.85 $\pm$ 30			t, $\alpha$	11
16.90		$\approx$ 350	n, p, d, t, $\alpha$	5, 6, 11, 15, 33, 38
16.98			n, p, $\alpha$	5, 6, 33, 38
17.05			p, t	11
17.10		broad	d, t, $\alpha$	11, 19
17.16 $\pm$ 50			n, p, t, $\alpha$	5, 6, 11
17.19			n, p, $\alpha$	5, 6, 18
17.30		190	n, p, $\alpha$	5, 6, 18, 38
17.36		350	n, p, d, t, $\alpha$	5, 6, 11, 16, 18, 19
17.50			n, p, $\alpha$	5, 6, 38
17.56			n, p, $\alpha$	5, 6
17.81 $\pm$ 40		$\approx$ 170	n, p, d, t, $\alpha$	5, 6, 18
17.70 $\pm$ 50		$\approx$ 500	n, d, $\alpha$	15, 19
17.72 $\pm$ 10		48 $\pm$ 9	(p), d, t, $\alpha$	16, 18, 19
17.81		170	n, $\alpha$	33, 38
17.95			n, p, $\alpha$	5, 6
18.07 $\pm$ 10		19 $\pm$ 4	(n), d, $\alpha$	15, 19
18.09 $\pm$ 20		$\approx$ 45	(n), p, d, t	15, 16, 18
18.22		160	n, $\alpha$	38
18.28 $\pm$ 30		230 $\pm$ 60	n, p, d, $\alpha$	15, 16, 19, 38
19.16 $\pm$ 30		$\approx$ 130	n, d	15
19.5			$\gamma$ , p	48
20.4			$\gamma$ , p	48
22.7			$\gamma$ , p	48
24.5			$\gamma$ , p	48

<sup>a</sup> See also Tables 15.7 and 15.10.

<sup>b</sup> See (1967PH03).