

Table 13.14 from (1991AJ01): Energy levels of  $^{13}\text{N}$ 

$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\Gamma_{\text{c.m.}}$ (keV)	Decay	Reactions
g.s.	$\frac{1}{2}^-; \frac{1}{2}$	$\tau_{1/2} = 9.965 \pm 0.004$ min	$\beta^+$	1, 2, 5, 7, 8, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36
$2.3649 \pm 0.6$	$\frac{1}{2}^+$	$\Gamma_{\text{c.m.}} = 31.7 \pm 0.8$	$\gamma, p$	5, 7, 8, 9, 13, 14, 24, 25, 28, 30, 31, 35, 36
$3.502 \pm 2^a$	$\frac{3}{2}^-$	$62 \pm 4^a$	$\gamma, p$	2, 5, 7, 8, 9, 13, 14, 17, 18, 19, 24, 25, 26, 27, 28, 29, 30, 34, 35
$3.547 \pm 4$	$\frac{5}{2}^+$	$47 \pm 7$	p	2, 5, 7, 9, 13, 14, 17, 18, 19, 24, 25, 26, 28, 30
$6.364 \pm 9$	$\frac{5}{2}^+$	11	p	6, 7, 9, 14, 25, 30, 34
$6.886 \pm 8$	$\frac{3}{2}^+$	$115 \pm 5$	p	6, 7, 9, 14, 25, 30
$7.155 \pm 5$	$\frac{7}{2}^+$	$9 \pm 0.5$	p	6, 7, 9, 14, 25, 30
$7.376 \pm 9$	$\frac{5}{2}^-$	$75 \pm 5$	p	6, 7, 9, 14, 25, 27, 28, 29, 30, 34
7.9	$\frac{3}{2}^+$	$\approx 1500$	p	9, 14
$8.918 \pm 11$	$\frac{1}{2}^-$	230	p	7, 9, 14, 27, 28, 29, 34
9.00	$\frac{9}{2}^+$	$280 \pm 30$		6, 14, 24, 25, 29
$9.476 \pm 8$	$\frac{3}{2}^-$	30	p	6, 7, 9, 14, 25, 27, 29
$10.25 \pm 150$	$(\frac{1}{2}^+)$	$\approx 280$	$\gamma, p$	8
10.36	$\frac{5}{2}^-$	30	p	6, 7, 9, 14, 25, 27
10.36	$\frac{7}{2}^-$	76	p	6, 7, 9, 14, 25
$10.833 \pm 9$	$\frac{1}{2}^-$			6, 7, 14, 25, 34
$11.530 \pm 12$	$\frac{5}{2}^+$	$430 \pm 35$	p	6, 7, 9
$11.70 \pm 30$	$\frac{5}{2}^-$	$115 \pm 30$	p	9

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$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\Gamma_{\text{c.m.}}$ (keV)	Decay	Reactions
11.74 $\pm$ 40	$\frac{3}{2}^+$	240 $\pm$ 30	$\gamma, p$	8, 9
11.74 $\pm$ 50	$\frac{3}{2}^-$	530 $\pm$ 80	p	7, 9, 28, 29, 34
11.86 $\pm$ 40	$\frac{1}{2}^+$	380 $\pm$ 50	p	9, 28
12.13 $\pm$ 50	$\frac{7}{2}^-$	250 $\pm$ 30	p	9, 35
12.558 $\pm$ 23		> 400		7
12.937 $\pm$ 24		> 400		7
13.5 $\pm$ 200	$\frac{3}{2}^+$	$\approx$ 6500	$\gamma, p$	8, 9
14.05 $\pm$ 20	$\frac{3}{2}^+; \frac{1}{2}$	165 $\pm$ 20	$\gamma, p, \alpha$	8, 9, 12
15.06457 $\pm$ 0.4 <sup>b</sup>	$\frac{3}{2}^-; \frac{3}{2}$	0.86 $\pm$ 0.12	$\gamma, p, \alpha$	7, 8, 9, 12, 18, 24, 25, 34
15.3 $\pm$ 200	$(\frac{3}{2}^+)$	350 $\pm$ 150	$\gamma, p$	8
15.99 $\pm$ 30	$\frac{7}{2}^+; \frac{1}{2}$	135 $\pm$ 90	p, $\alpha$	9, 12, 25
16.0		$\approx$ 500	p	9
17.5			$\gamma, p$	8, 9
18.15 $\pm$ 30	$\frac{3}{2}^+; \frac{1}{2}$	320 $\pm$ 80	p	9
18.17 $\pm$ 20	$\frac{1}{2}^-; \frac{1}{2}$	225 $\pm$ 50	p, $\alpha$	9, 12
18.406 $\pm$ 5	$\frac{3}{2}^+; \frac{3}{2}$	66 $\pm$ 8	p, $\alpha$	7, 9, 12
18.961 $\pm$ 10	$\frac{3}{2}^-$ or $\frac{7}{2}^+; \frac{3}{2}$	23 $\pm$ 5	p, $\alpha$	7, 9, 12
19.83	$\frac{5}{2}^-; \frac{1}{2}$	1000	p, $\alpha$	9, 12
19.88	$\frac{7}{2}^+; \frac{1}{2}$	750	p	9
20.2	$\frac{5}{2}^-$	1000	p	9
20.9 $\pm$ 300	$\frac{1}{2}^+$	1200	$\gamma, p$	8, 9
21.4	$\frac{5}{2}^-$	750	p	9
21.7	$\frac{3}{2}^+$		p	9
22.4 $\pm$ 500	$\frac{1}{2}^+$		p	9
23			$\gamma, p$	8
23.3	$(\frac{3}{2}^-)$	400	p, $^3\text{He}$	3, 4
23.83 $\pm$ 50	$(\frac{3}{2}^-)$	350 $\pm$ 50	p, $^3\text{He}$	3, 4
(23.9)	$(\frac{11}{2}^-)$	20	$^3\text{He}$	4
(24.4)		700	p, $^3\text{He}$	3

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$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$\Gamma_{\text{c.m.}}$ (keV)	Decay	Reactions	
(24.6)	$(\frac{3}{2}^-)$	120	p, $^3\text{He}$	3	
$25.6 \pm 100$		$240 \pm 80$	p, $^3\text{He}$	3, 9	
25.9		1000	(n), p, d, $^3\text{He}$ , $\alpha$	3, 4	
26.84			p	9	
28			$(\gamma)$ , p, $^3\text{He}$ , $(\alpha)$	2, 3, 4	
(31)				p	9
32		$\approx 2000$		$\gamma$ , d, $^3\text{He}$ , $\alpha$	2, 4, 8

<sup>a</sup> See also footnotes <sup>b,f</sup> in Table 13.17.

<sup>b</sup> See also Table 13.6.