

Table 15.23 from (1981AJ01): Resonances in  $^{14}\text{N} + \text{p}$  <sup>a</sup>

$E_p$ (keV)	$\Gamma_{\text{lab}}$ (keV)	$\omega\Gamma_\gamma$ (eV)	Particles out	$J^\pi$	$E_x$ (MeV)	Refs.
278.1 ± 0.4	1.7 ± 0.5	0.014	$\gamma$	$\frac{1}{2}^+$	7.5565	A
1058.0 ± 0.5 <sup>b</sup>	3.9 ± 0.7 <sup>b</sup>	0.95	$\gamma$	$\frac{3}{2}^+$	8.2840	A
1550 ± 6	34	0.16	$\gamma$	$\frac{1}{2}^+$	8.743	A
1742 ± 2	3.5 ± 0.3	0.16	$\gamma, \text{p}_0$	$\frac{5}{2}^+$	8.922	A, (1977DR02)
1742 ± 2	8	0.06	$\gamma, \text{p}_0$	$\frac{1}{2}^+$	8.922	A
1806.4 ± 1.5	4.2 ± 0.4	0.52	$\gamma$	$(\frac{3}{2})^-$	8.9821	A
2348 ± 3	10.8 ± 0.5	2.4	$\gamma$	$\frac{5}{2}^-$	9.488	A
2368 ± 32	300 ± 26		$\gamma$	$(\frac{3}{2})^+$	9.506	A
2479 ± 1.7	9.4 ± 0.5	3.3	$\gamma$	$\frac{3}{2}^-$	9.609	A
2537 ± 4	2 ± 1		$\text{p}_0$	$(\frac{7}{2}, \frac{9}{2})^-$	9.664	A
3209	3 ± 1		$\text{p}_0$	$(\frac{5}{2})^-$	10.291	A
3215	12 ± 2		$\text{p}_0$	$\frac{5}{2}^+$	10.296	A
3392 ± 5	< 2	0.029 ± 0.010	$\gamma_2, \gamma_6$	$(\frac{9}{2})^+$	10.461	(1977KU03)
3410	27 ± 5		$\gamma_0, \gamma_2, \text{p}_0$	$(\frac{3}{2})^-$	10.478	A, (1977KU03)
3440	150 ± 45		$\gamma, \text{p}_0$	$(\frac{3}{2})^+$	10.506	A
3880 ± 15	97		$\text{p}_0$	$\frac{7}{2}^+$	10.916	A
		$\Gamma_{\gamma_0}$ (eV)				A
3903 ± 3	106 ± 5	14 ± 3	$\gamma, \text{p}_0, \text{p}_1$	$\frac{1}{2}^+$	10.938	A
3996 ± 3	27 ± 2	1.4 ± 0.4	$\gamma, \text{p}_0, \text{p}_1$	$\frac{1}{2}^-$	11.025	A
4130 ± 15	< 10		$\text{p}_0$		11.150	A
4203 ± 3	43 ± 4	5.2 ± 0.4	$\gamma, \text{p}_0$	$\frac{3}{2}^+$	11.218	A
4575 ± 15	< 10		$\text{p}_0$		11.565	A
4580 ± 15	21 ± 15	0.7 ± 0.2	$\gamma, \text{p}_0$	$\frac{5}{2}^-$	11.569	A
4580	150		$\gamma$		11.57	A
4630 ± 15	86 ± 50		$\gamma, \text{p}_0$	$(\frac{3}{2}, \frac{1}{2})^-$	11.616	A
4740 ± 15	< 10		$\text{p}_0$		11.718	A
4772 ± 3	106 ± 5		$\gamma, \text{p}_0, \text{p}_1$	$\frac{5}{2}^+$	11.748	A
4877 ± 3	70 ± 3		$\gamma, \text{p}_0, \text{p}_1$	$\frac{5}{2}^-$	11.846	A
5025 ± 15	21 ± 5		$\text{p}_0, \text{p}_1$	$\frac{5}{2}^-$	11.984	A
5180 ± 15	214 ± 50		$\text{p}_0, \text{p}_1$	$\frac{5}{2}^+$	12.129	A
5280 ± 20	106 ± 50		$\text{p}_1$ <sup>c</sup>		12.222	A
5547 ± 3	82 ± 4		$\text{p}_1, \text{p}_2$	$\frac{5}{2}^- (\frac{3}{2})^-$	12.471	A
5900	≈ 250		$\gamma$		12.80	A
5937 ± 3	17 ± 1		$\text{p}_2$ <sup>d</sup>		12.835	A
(6100)	30		$\text{p}_0 \rightarrow \text{p}_2, \alpha_0$	$\frac{5}{2}^+$	(12.99)	A
6123 ± 3	230 ± 30		$\text{p}_2$ <sup>d</sup>		13.008	A
6141 ± 3	43 ± 30		$\text{p}_2$ <sup>d</sup>		13.025	A
6600	≈ 1000		$\gamma, (\text{p}_2, \alpha_0)$	$(\frac{1}{2}, \frac{3}{2})^+$	13.45	A

Table 15.23 from (1981AJ01): Resonances in  $^{14}\text{N} + \text{p}$  <sup>a</sup> (continued)

$E_p$ (keV)	$\Gamma_{\text{lab}}$ (keV)	$\omega\Gamma_\gamma$ (eV)	Particles out	$J^\pi$	$E_x$ (MeV)	Refs.
6640			(p <sub>0</sub> ), (p <sub>2</sub> )	$(\frac{3}{2}^+)$	13.49	A
6760			$\alpha_0$	$\frac{5}{2}^+$	13.60	A
6870			p <sub>2</sub>	$\frac{3}{2}^-$	13.70	A
6960			p <sub>1</sub> , p <sub>2</sub> , p <sub>4</sub> , $\alpha_0$	$\frac{3}{2}^-$	13.79	A
7050	$\approx 150$		$\gamma$		13.87	A
7370			$\alpha_0$	$\frac{5}{2}^-$	14.17	A
7500	$\approx 500$		n, p <sub>0</sub> $\rightarrow$ p <sub>2</sub> , $^3\text{He}$ , $\alpha$		14.29	A
7550			$\alpha_0$	$\frac{5}{2}^+$	14.34	A
7700			n, p <sub>0</sub> , $\alpha_0$		14.48	A
7950	$170 \pm 50$		n		14.71	A
8200			n, p <sub>2</sub> $\rightarrow$ p <sub>6</sub> , $^3\text{He}$ , $\alpha_0$ , $\alpha_1$		14.94	A
8400	$\approx 1000$		$\gamma$	$(\frac{1}{2}, \frac{3}{2})^+$	15.1	A
9050			n		15.74	A
e						
$9370 \pm 20$	$\approx 200$		n, p <sub>2</sub> , p <sub>8</sub> , $\alpha_1$		16.04	A
$9580 \pm 20$	$\approx 150$		p <sub>0</sub> , p <sub>1</sub> , p <sub>3</sub> $\rightarrow$ p <sub>7</sub> , p <sub>9</sub> , $^3\text{He}$ , $\alpha_1$		16.23	A
$9850 \pm 50$	$600 \pm 100$		n, $^3\text{He}$		16.48	A
10300	$\approx 1000$		$\gamma$	$(\frac{1}{2}, \frac{3}{2})^+$	16.9	A
10600			p <sub>4</sub> $\rightarrow$ p <sub>9</sub> , $\alpha_0$ , $\alpha_1$		17.2	A
11900	$\approx 1000$		$\gamma$	$(\frac{1}{2}, \frac{3}{2})^+$	18.4	A
14200	$\approx 2000$		$\gamma$	$(\frac{1}{2}, \frac{3}{2})^+$	20.5	A
15800	$\approx 2000$		$\gamma$	$(\frac{1}{2}, \frac{3}{2})^+$	22.0	A

A: See earlier references for this resonance in (1970AJ04) and Table 15.25 of (1976AJ04).

<sup>a</sup> See also Table 15.19.

<sup>b</sup> (1978LA1M; prelim.) report  $E_p = 1057.7 \pm 0.5$  keV,  $\Gamma = 3.5 \pm 0.5$  keV.

<sup>c</sup> Weak.

<sup>d</sup> Strong.

<sup>e</sup> (1974HU02) report three large structures in the  $\alpha_0$  yield [ $E_p = 9$  to 12 MeV] corresponding to excitations of 16.2, 17.2 and 17.8 MeV in  $^{15}\text{O}$ : these appear to be composed of substructures. For instance  $^{15}\text{O}^*(16.2)$  appears to have components at  $E_x = 15.9, 16.1$  and 16.25 MeV;  $^{15}\text{O}^*(17.2)$  appears to involve  $E_x = 17.0$  and a sharper peak at 17.25 MeV;  $^{15}\text{O}^*(17.8)$  involves  $E_x = 17.7$  and 17.9 MeV. It appears that this region is better studied via the  $^{12}\text{C} + ^3\text{He}$  reaction: see Table 15.20.