

Table 14.24 from (1986AJ01):  $^{14}\text{N}$  levels from  $^{14}\text{N}(\text{p}, \text{p}')$ ,  $(\text{d}, \text{d}')$ ,  $(^3\text{He}, ^3\text{He}')$  and  $(\alpha, \alpha')$  <sup>a</sup>

$^{14}\text{N}^*(\text{MeV} \pm \text{keV})$				$L$	Dominant config.	$J^\pi; T$
$(\text{p}, \text{p}')$ <sup>b</sup>	$(\text{d}, \text{d}')$	$(^3\text{He}, ^3\text{He}')$	$(\alpha, \alpha')$			
2.31 <sup>c</sup>	see text	e	see text		$(\text{p}_{\frac{1}{2}})^2$	$0^+; 1$
3.95	e	e	e	2	$(\text{p}_{\frac{1}{2}})^2 + \text{c.e.}$ <sup>i</sup>	$1^+; 0$
4.92	e	e	e,h	1	$\text{p}_{\frac{1}{2}}\text{s}_{\frac{1}{2}}$	$0^-; 0$
5.11	e	e	e,h	3	$\text{p}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$2^-; 0$
5.69	e	e	e,h	1	$\text{p}_{\frac{1}{2}}\text{s}_{\frac{1}{2}}$	$1^-; 0$
5.83	e	e	e,h	3	$\text{p}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$3^-; 0$
6.20 <sup>d</sup>	e	e	e,f		$(\text{s}_{\frac{1}{2}})^2$	$1^+; 0$
6.45 <sup>d</sup>	e		e,f		$\text{s}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$3^+; 0$
7.03	e	e	e	2	c.e. <sup>i</sup>	$2^+; 0$
7.97			e,h	1	$\text{p}_{\frac{1}{2}}\text{d}_{\frac{3}{2}}$	$2^-; 0$
8.06 <sup>c</sup>		$8.0 \rightarrow 11.0$ <sup>g</sup>			$\text{p}_{\frac{1}{2}}\text{s}_{\frac{1}{2}}$	$1^-; 1$
8.49			e,h	3		$4^-; 1$
8.62					$(\text{s}_{\frac{1}{2}})^2$	$0^+; 1$
8.91					$\text{p}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$3^-; 0$
			9.12 <sup>h</sup>	3		$2^-; 0$ <sup>j</sup>
9.17					c.e. <sup>i</sup>	$2^+; 1$
9.39			e,h	3		$2^-, 3^-; 0$
9.51					$\text{p}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$1^+; 0$
9.70					$(\text{p}_{\frac{1}{2}})^2$	$1^+; 0$
10.1					$\text{s}_{\frac{1}{2}}\text{d}_{\frac{5}{2}}$	$2^+, 1^+; 0$
			10.98 <sup>h</sup>	3		
11.2 $\pm$ 200	f	11.22 $\pm$ 50	11.21 <sup>h</sup>	3		$(3^-)$
			12.59 <sup>h</sup>	3		$3^-$
12.8 $\pm$ 400	f	12.77 $\pm$ 50	12.78 <sup>h</sup>	3		$4^-$
			13.13 <sup>h</sup>	3		$2^-$
			15.41 <sup>h</sup>	3		$\pi = -$
17						
21.5						

<sup>a</sup> For references see [Table 14.20 in \(1981AJ01\)](#) and [14.27 in \(1976AJ04\)](#). Most of the  $L$ -values shown here are from the  $(\alpha, \alpha')$  work of [\(1982PE05\)](#).

<sup>b</sup> See text of [reaction 47 in \(1981AJ01\)](#) and [reaction 45](#) here.

<sup>c</sup> Not observed at  $E_p = 800$  MeV ([1982BL08](#)).

<sup>d</sup> Weakly populated at  $E_p = 800$  MeV ([1982BL08](#)).

<sup>e</sup> Observed.

<sup>f</sup> Relatively low cross section due to two-nucleon transition.

<sup>g</sup> Unresolved structure.

<sup>h</sup> ([1982PE05](#)):  $E_\alpha = 34.85$  MeV.

<sup>i</sup> c.e. = compound elastic.

<sup>j</sup> See, however, [Table 14.12](#).