

Table 14.3 from (1981AJ01): Energy levels of  $^{14}\text{C}$  <sup>a</sup>

| $E_x$ in $^{14}\text{C}$<br>(MeV $\pm$ keV) | $J^\pi; T$ | $\tau$ or $\Gamma_{\text{c.m.}}$                    | Decay               | Reactions   |
|---|------------|---|---------------------|---|
| g.s.  | $0^+; 1$   | $\tau_{1/2} = 5730 \pm 40 \text{ y}$                | $\beta^-$           | 1, 3, 4, 5, 9, 10, 11, 12, 15, 16, 19, 20, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 50, 51 |
| $6.0942 \pm 1.6$                            | $1^-$      | $\tau_{\text{m}} < 10 \text{ fsec}$                 | $\gamma$            | 3, 4, 5, 6, 10, 11, 19, 20, 22, 27, 37, 40, 42, 49  |
| $6.5898 \pm 1.6$                            | $0^+$      | $4.3 \pm 0.6 \text{ psec}$                          | $\gamma$            | 3, 4, 5, 10, 11, 20, 40   |
| $6.7282 \pm 1.3$                            | $3^-$      | $96 \pm 11 \text{ psec}$<br>$ g  = 0.272 \pm 0.007$ | $\gamma$            | 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 20, 22, 23, 27, 30, 33, 37, 40, 42, 44, 49  |
| $6.9023 \pm 1.8$                            | $0^-$      | $36 \pm 4 \text{ fsec}$                             | $\gamma$            | 3, 4, 5, 6, 10, 11, 20, 40, 44  |
| $7.0120 \pm 4.2$                            | $2^+$      | $13 \pm 2 \text{ fsec}$                             | $\gamma$            | 3, 4, 5, 9, 10, 11, 20, 29, 30, 36, 40, 42, 45  |
| $7.3414 \pm 3.1$                            | $2^-$      | $160 \pm 60 \text{ fsec}$                           | $\gamma$            | 3, 4, 5, 9, 10, 11, 20, 23, 29, 42  |
| $8.3179 \pm 0.8$                            | $2^+$      | $\Gamma = 3.4 \pm 0.6 \text{ keV}$                  | $\gamma, \text{ n}$ | 3, 4, 5, 10, 11, 16, 17, 19, 20, 29, 36, 42, 45   |
| $9.746 \pm 7$                               | $0^+$      | 18  |                     | 11  |
| $9.801 \pm 6$                               | $(1^-)$    | $45 \pm 12$   | n                   | 3, 5, 10, 11, 17, 20, 29, 42  |
| $10.425 \pm 5$                              | $2^+$      | 15  | n                   | 10, 11, 17, 20, 42, 45  |
| $10.449 \pm 7$                              | $\geq 1$   | 9   | n                   | 3, 10, 11, 17, 20, 42, 45   |
| $10.498 \pm 4$                              | $(3^-)$    | $26 \pm 8$  |                     | 3, 10, 11, 20, 29   |
| $10.736 \pm 5$                              | $4^+$      | $20 \pm 7$  |                     | 3, 10, 11, 12, 13, 15, 36, 40   |
| $11.306 \pm 15^{\text{b}}$                  | $1^+$      | $46 \pm 12$   | $\gamma$            | 3, 10, 29, 42   |
| $11.395 \pm 8$                              | $1^-$      | $22 \pm 7$  |                     | 3, 10, 11   |
| $11.666 \pm 10$                             | $(5^-)$    | $20 \pm 7$  |                     | 3, 10, 11, 42   |

Table 14.3 from (1981AJ01): Energy levels of  $^{14}\text{C}$  <sup>a</sup> (continued)

| $E_x$ in $^{14}\text{C}$<br>(MeV $\pm$ keV) | $J^\pi; T$                               | $\tau$ or $\Gamma_{\text{c.m.}}$ | Decay        | Reactions     |
|---|--|----------------------------------|--------------|---------------|
| 11.730 $\pm$ 10                             | (5 <sup>-</sup> )                        |                                  |              | 3, 11         |
| 11.9 $\pm$ 300                              |  | 950 $\pm$ 300                    | n            | 11, 20        |
| 12.583 $\pm$ 10                             |  | 95 $\pm$ 15                      |              | 3, 11, 20, 42 |
| 12.863 $\pm$ 8                              |  | 30 $\pm$ 10                      |              | 3, 11, 20     |
| 12.963 $\pm$ 9                              | (1 <sup>-</sup> )                        | 30 $\pm$ 10                      |              | 3, 11, 20, 29 |
| 14.667 $\pm$ 20                             | 2 <sup>+</sup> , 3, 4, 5, 6 <sup>+</sup> | 57 $\pm$ 15                      |              | 3, 29         |
| 14.867 $\pm$ 25                             |  |                                  |              | 3, 12, 19, 42 |
| 15.19 $\pm$ 30                              |  |                                  |              | 3             |
| (15.37 $\pm$ 30)                            |  |                                  |              | 3             |
| 15.44 $\pm$ 40                              |  |                                  |              | 3             |
| (16.02 $\pm$ 50)                            |  |                                  |              | 3             |
| 16.411 $\pm$ 20                             |  |                                  |              | 3             |
| (16.57 $\pm$ 40)                            |  |                                  |              | 3             |
| 16.715 $\pm$ 30                             |  |                                  | $\gamma$ , n | 3             |
| (17.28 $\pm$ 40)                            |  |                                  | $\gamma$     | 3             |
| 17.95 $\pm$ 40                              |  |                                  |              | 3             |
| 18.10 $\pm$ 40                              |  |                                  |              | 4             |

<sup>a</sup> See also [Tables 14.4](#) and [14.5](#).

<sup>b</sup> ([1977CR02](#)) [see [reaction 29](#)] identify a state with  $E_x = 11.31 \pm 0.02$  MeV,  $J^\pi = 1^+$ ,  $\Gamma = 207 \pm 13$  keV,  $\Gamma_{\gamma_0} = 6.8 \pm 1.4$  keV. It is difficult to understand the large  $\Gamma$  difference with that reported in [reaction 3](#).  $1^+$  is consistent with the state not being reported in  [\$^{12}\text{C}\(t, p\)\$](#) .