

Table 12.4 from (1959AJ76): Energy levels of  $^{12}\text{C}$ 

| $E_x$<br>(MeV $\pm$ keV) | $J^\pi; T$ | $\Gamma$<br>(keV)          | Decay               | Reactions  |
|--------------------------|------------|----------------------------|---------------------|--|
| 0                        | $0^+; 0$   | — <sup>a</sup>             | stable              | 1, 3, 10, 11, 16, 17, 19, 20, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 37, 39, 40, 41, 42 |
| $4.433 \pm 5$            | $2^+; 0$   | $0.01 - 0.02 \text{ eV}^b$ | $\gamma$            | 3, 10, 16, 19, 20, 24, 25, 26, 27, 29, 30, 34, 39, 41  |
| $7.656 \pm 7$            | $0^+; 0$   | $< 25$                     | $\alpha, (\gamma)$  | 3, 10, 16, 19, 24, 25, 26, 29, 30, 39  |
| $9.63 \pm 14$            | $(1^-); 0$ | $30 \pm 8^a$               | $\alpha$            | 10, 16, 24, 25, 26, 27, 29, 39, 42   |
| $10.1 \pm 200$           | $0^+; 0$   | $\approx 2000$             | $\alpha$            | 19, 25, 42   |
| $10.84 \pm 50$           |            |                            |                     | 10, 16, 26   |
| $11.1 \pm 100$           |            |                            |                     | 16   |
| $11.81 \pm 50$           |            |                            |                     | 10, 16   |
| $12.73 \pm 50$           | $(1^+); 0$ |                            | $(\alpha), \gamma$  | 10, 16, 26, 29, 30   |
| $(13.21 \pm 50)$         |            |                            |                     | 16   |
| $13.30 \pm 50$           |            |                            |                     | 10, 16   |
| $14.05 \pm 60$           |            |                            |                     | 10, 16   |
| $15.11 \pm 10$           | $1^+; 1$   | 0.069                      | $(\alpha), \gamma$  | 3, 10, 16, 20, 23, 25, 26, 34, 39  |
| $15.62 \pm 60$           |            |                            |                     | 10, 16   |
| $16.11 \pm 2$            | $2^+; 1$   | 6                          | $\alpha, p, \gamma$ | 10, 12, 14, 16, 23   |
| $16.58 \pm 15$           | $2^-; (1)$ | 295                        | $\alpha, p, \gamma$ | 10, 12, 23   |
| 17.23                    | $1^-; (1)$ | 1160                       | $\alpha, p, \gamma$ | 12, 14, 22, 23   |
| 17.77                    | $(0^+)$    | 140                        | $\alpha, p$         | 12   |
| 18.37                    | $(2^+)$    | 280                        | $\alpha, p, \gamma$ | 12, 23   |
| 18.40                    |            | 46                         | $p, p'$             | 14   |
| 18.85                    |            | 90                         | $n, p, \gamma$      | 12, 13, 14   |
| 19.26                    |            | 450                        | $n, p, \gamma$      | 12, 13, 14, 21   |
| 19.42                    |            | 45                         | $p$                 | 14   |
| 19.67                    |            | 180                        | $n, p, (\gamma)$    | 13, 21   |
| 19.88                    |            | 90                         | $p, p'$             | 14   |
| 20.27                    |            | 180                        | $n, p, (\gamma)$    | 13, 14, 21   |
| 20.49                    |            | 180                        | $(n), p, \gamma$    | 12, 21   |
| 20.65                    |            | 180                        | $n, p, \gamma$      | 12, 13, 14, 21, 22, 26   |
| 21.34                    |            |                            | $n, p, (\gamma)$    | 12, 13, 21, 22   |

Table 12.4 from (1959AJ76): Energy levels of  $^{12}\text{C}$  (continued)

| $E_x$<br>(MeV $\pm$ keV) | $J^\pi; T$ | $\Gamma$<br>(keV) | Decay                                | Reactions              |
|--------------------------|------------|-------------------|--------------------------------------|------------------------|
| 21.80                    |            | $\approx 4000$    | n, ( $\alpha$ ), p, ( $\gamma$ )     | 12, 13, 21, 22, 23     |
| 22.55 $\pm$ 100          |            |                   | n, p, $\gamma$                       | 12, 13, 20, 21, 22, 23 |
| (22.8)                   |            |                   | (n), ( $\alpha$ ), (p), ( $\gamma$ ) | 21, 22                 |
| (24.3)                   |            |                   | n, ( $\alpha$ ), ( $\gamma$ )        | 13, 23                 |
| (25.4)                   |            |                   | n, p, d                              | 6, 13                  |
| (26.0)                   |            |                   | n, $\alpha$ , (p), d, ( $\gamma$ )   | 5, 6, 8, 22            |
| (26.4)                   |            |                   | ( $\alpha$ ), p, d                   | 6, 8                   |
| (26.8)                   |            |                   | $\alpha$ , p, d                      | 6, 8                   |
| (27.0)                   |            |                   | p, d                                 | 6                      |
| (27.2)                   |            |                   | p, d                                 | 6                      |
| (27.4)                   |            |                   | p, d                                 | 6                      |
| (29.4)                   |            |                   | ( $\alpha$ ), ( $\gamma$ )           | 23                     |

<sup>a</sup> For reduced width, see  $^{11}\text{B}(\text{d}, \text{n})^{12}\text{C}$  and Table 12.8.

<sup>b</sup> See reactions 3, 20 and 24.