

Table 13.8 from (1981AJ01): Resonances in ${}^9\text{Be}(\alpha, n){}^{12}\text{C}$

| E_α ^a (MeV) | E_α ^b (MeV) | E_α ^c (MeV) | Γ_{cm} (keV) | J^π | ${}^{13}\text{C}^*$ ^d (MeV) | Refs. |
|-------------------------------|-------------------------------|-------------------------------|----------------------------|----------------------------------|--|---------------|
| 0.52 | 0.52 | | ≈ 55 ^e | $(\frac{1}{2}^+)$ | 11.01 | A |
| 0.60 | 0.60 | | < 4 ^c | | 11.06 | A |
| 1.9 | 1.905 | 1.92 | 130 | $(\frac{7}{2}^-)$ | 11.97 | A |
| 2.24 | | 2.25 | 280 | | 12.20 | A |
| 2.58 | 2.6 | 2.58 | ≈ 200 | $(\frac{1}{2}^-)$ | 12.43 | A |
| 4.00 | 3.98 | 4.00 | 35 ± 3 ^g | | 13.41 | A |
| 4.18 | | | 570 | $(\frac{3}{2}^+)$ | 13.54 | A, (1973DE14) |
| 4.50 | 4.47 | 4.50 | ≈ 350 | $(\frac{5}{2}^+)$ | 13.76 | A, (1973DE14) |
| 5.0 | 5.02 | 5.0 | ≈ 200 | | 14.12 | A |
| 5.40 ± 0.10 | 5.3 ^f | | 260 | $(\frac{1}{2}^-, \frac{5}{2}^-)$ | 14.39 ± 0.1 | A, (1973DE14) |
| | 5.75 | 5.75 | 210 | | 14.63 | A |
| 6.20 ± 0.05 | | | 380 | $(\frac{3}{2}^+)$ | 14.94 ± 0.05 | A, (1973DE14) |
| | 6.44 ^h | | | $\frac{3}{2}^-; T = \frac{3}{2}$ | 15.109 | (1978HI06) |
| 7.10 ± 0.05 | 7.00 | | 220 | | 15.56 ± 0.05 | A |
| | 7.75 | 7.8 | 210 | | 16.01 | A |
| 7.95 ± 0.05 | | | 230 | | 16.15 ± 0.05 | A |
| 9.10 ± 0.05 | | 9.1 | 330 | | 16.95 ± 0.05 | A |
| 9.7 ± 0.10 | 9.70 | | 190 | | 17.36 ± 0.1 | A |
| 10.2 ± 0.05 | | | 170 | | 17.71 ± 0.05 | A |
| 11.05 ± 0.05 | | | 300 | | 18.30 ± 0.05 | A |
| 11.70 ± 0.03 | 11.60 | | 70 | | 18.75 ± 0.03 | A |

A: References for this resonance are displayed in [Table 13.8 \(1976AJ04\)](#).

^a Resonances in total neutron yield.

^b Resonances in n_1 group and for 4.4 MeV γ -rays.

^c Resonances in total cross section.

^d Not corrected for effects of Coulomb barrier penetration.

^e $\omega\gamma = 3.79$ and 0.88 eV, respectively (1968DA05).

^f (1973DE14) suggest the possibility that ${}^{13}\text{C}^*(14.4)$ is composed of two states with the same J^π .

^g J.L. Weil, private communication.

^h Anomalies in n_0 and n_1 yields at $E_\alpha = 6443.5 \pm 2.0$ keV: see [Table 13.7](#) for parameters of 15.11 MeV state (1978HI06).