# $^{23}$Na(e,e′) 1965Ba28,1969Sa16

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. S. Basunia[#], A. Chakraborty[##] | NDS 171,1 (2021) | 1-Jun-2020 |

Other references: 1968Sa24, 1969Ti06, 1977OkZV.

1965Ba28: $^{23}$Na(e,e′) E=58.5 MeV; $^{23}$Na target (thickness 0.230 g/cm$^2$) between thin Mylar foils; Measured $\sigma$(Ee′) at 180°, deduced level spin/parity, $\Gamma_0$.

1969Sa16,1968Sa24: $^{23}$Na, $^{39}$K(e,e′), E=100-230 MeV; measured s(E;Ee′,$\theta$); deduced elastic, inelastic form factors, deduced B(EL).

## $^{23}$Na Levels

| E(level) | J$^\pi$ | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0.0 | 3/2$^+$ | | |
| 2080 | 7/2$^+$ | 46 fs *7* | B(E2)↑=0.0080 *11*<br>E(level): From 1969Sa16.<br>J$^\pi$: From Adopted Levels.<br>$T_{1/2}$: Using B(E2)↑ and $\gamma$-ray properties in the Adopted Gammas.<br>B(E2)↑ – from 1969Sa16, model independent value. |
| 4.5×10$^3$ *1* | 1/2$^+$ | 0.65 fs *6* | E(level): From 1965Ba28.<br>J$^\pi$: 4500$\gamma$ M1 to 3/2$^+$ based on $\sigma$(Ee′) measurements at 180° (1965Ba28). Spin 1/2 from literature.<br>$T_{1/2}$: From $\Gamma_0$=0.64 eV *6* (1965Ba28) and branching ratios in Adopted Gammas.<br>$\sigma(E_{e'})$ = 0.0048 $\mu$b/sr *5* (1965Ba28). |

## $\gamma$($^{23}$Na)

| $E_\gamma$[†] | $E_i$(level) | $J^\pi_i$ | $E_f$ | $J^\pi_f$ | Mult. | Comments |
|---|---|---|---|---|---|---|
| 2080 | 2080 | 7/2$^+$ | 0.0 | 3/2$^+$ | E2 | Mult.: From Adopted Gammas. |
| 4500 | 4.5×10$^3$ | 1/2$^+$ | 0.0 | 3/2$^+$ | M1 | Mult.: From a ratio of 0.954 *4* based on measured cross sections at 58.5 and 41.5 MeV and virtual photon theory (1965Ba28). |

[†] From level energy differences.

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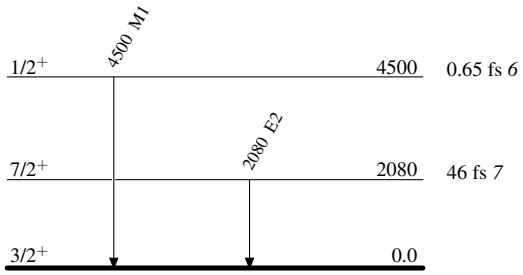
Level Scheme




$^{23}_{11}Na_{12}$