

$^{24}\text{Mg}(\gamma, \gamma')$ 1984Be26, 1981Ca10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty		NDS 186, 2 (2022)	31-Mar-2022

Other references: 1989Al01, 1986Gu04, 1982Gu16, 1977Ca14, 1975Be14, 1971Sw07, 1970He01, 1967Ku11, 1966Sk01, 1966Ti02, 1965Ka15, 1964Bo22.

1984Be26: $^{24}\text{Mg}(\text{pol } \gamma, \gamma')$. Nuclear resonance fluorescence, linearly polarized γ -beam. Shell model comparison. Ge(Li) detector.

1981Ca10: $^{24}\text{Mg}(\gamma, \gamma')$. Bremsstrahlung excitation.

1971Sw07, 1970He01, 1966Sk01: $^{24}\text{Mg}(\gamma, \gamma')$. Nuclear resonance fluorescence.

1982Gu16, 1986Gu04: $^{24}\text{Mg}(\gamma, \gamma')$. Resonance absorption.

 ^{24}Mg Levels

E(level) [†]	J ^π [†]	T _{1/2}	Comments
0	0 ⁺		
1368.667 5	2 ⁺	1.28 ps 10	T _{1/2} : From $\tau=1.86$ ps 15: weighted average of 1.76 ps 21 (1981Ca10), 1.8 ps 2 (1977Ca14), 1.92 ps 15 (1971Sw07), and 1.95 ps 26 (1966Sk01). Others: T _{1/2} =0.77 ps 9 from $\tau=1.11$ ps 13. All From DSA method. (1970He01), 0.76 ps 14 from $\tau=1.1$ ps 2 (1965Ka15).
9828.0 20	1 ⁺ [‡]	0.31 fs 11	T _{1/2} : From $\Gamma_0=1.1$ eV 4 (1984Be26) and adopted gamma branching.
9965.3 11	1 ⁺ [‡]	93 as 18	T _{1/2} : From weighted average of 100 as 18 from $\Gamma_0=3.3$ eV 6 (1984Be26), and 80 as 24 (1982Gu16). Others: 59 as 20 from $\Gamma_0=5.6$ eV 21 (1967Ku11), 42 as 6 from $\Gamma_0=7.95$ 12 (for doublet – 1966Ti02). All using adopted gamma branching.
10350 30		0.8 fs 2	E(level): From 1966Ti02.
			T _{1/2} : From $\Gamma_0=0.24$ eV 5 (1966Ti02) and adopted γ ray properties.
10712.2 2	1 ⁺ [‡]	22 as 3	E(level): Other: 10660 20 (1967Ku11).
			T _{1/2} : From unweighted average of 28 as 4 ($\Gamma_0=12.8$ eV 17 (1984Be26)) 21 as 3 ($\Gamma=21.3$ eV 27 using $\Gamma_0=17.0$ eV and $\Gamma_0/\Gamma=0.8$ 1 (1967Ku11)), 16 as 2 ($\Gamma_0=22.2$ eV 24 (1966Ti02)) and 23 as 3 (1986Gu04).
10930 40		0.6 fs 2	E(level): From 1966Ti02.
			From $\Gamma_0=0.26$ eV 11 (calculated value in 1966Ti02 using 10350 transition radius) and adopted γ ray properties.

[†] From Adopted Levels, except where otherwise noted.

[‡] From M1 excitation in (pol γ, γ') (1984Be26).

 $\gamma(^{24}\text{Mg})$

E _{γ} [†]	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
1368.625 5	1368.667	2 ⁺	0	0 ⁺	E _{γ} : From Adopted Gammas.
9826.2	9828.0	1 ⁺	0	0 ⁺	
9963.1	9965.3	1 ⁺	0	0 ⁺	
10709.6	10712.2	1 ⁺	0	0 ⁺	

[†] From level energy difference (recoil energy subtracted), except noted otherwise.

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Level Scheme

