

$^{12}\text{C}(^{12}\text{C},2n\gamma)$ **2005Se02**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 127, 69(2015)	1-Apr-2015

Other reference: [2007Je03](#).

2005Se02: $^{12}\text{C}(^{12}\text{C},2n\gamma)$, E=52 MeV; GAMMASPHERE array of Ge detectors, Argonne fragment mass analyzer; Measured E_γ , I_γ , $\gamma\gamma$, (^{22}Mg residues)(γ) coin, $\gamma(\theta)$ in coincidence with A=22. ^{22}Mg , ^{22}Na , ^{21}Ne ions were resolved using ΔE -E information from an ionization chamber. No evidence was found for a 5006 keV state decaying by a 604.6 γ , proposed earlier.

2007Je03: $^{12}\text{C}(^{12}\text{C},2n\gamma)$, E=50 MeV; Measured E_γ using three clover detectors surrounded by BGO shields for Compton suppression. Reported E_γ 's, listed as comments, are 1 to 3 keV lower compared to those in [2005Se02](#).

 ^{22}Mg Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0 [#]	0 ⁺	4402.0 3	2 ⁺	5293.11 16	4 ⁺	5711.4 7	2 ⁺
1247.02 [#] 3	2 ⁺	5035.4 5	2 ⁺	5296.0 4	2 ⁻	6254.23 21	6 ⁺
3308.22 [#] 6	4 ⁺	5089.3 8	1 ⁺	5452.4 4	3 ⁺		

[†] From a least squares fit to γ -ray energies.

[‡] Assigned in [2005Se02](#) based on γ ray feeding and transition characteristics.

[#] Band(A): g.s. band.

 $\gamma(^{22}\text{Mg})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
893.98 9	5.4 3	5296.0	2 ⁻	4402.0	2 ⁺	D	$A_2=0.15$ 6, $A_4=0.09$ 7 (2005Se02).
1246.98 3	100.0 8	1247.02	2 ⁺	0.0	0 ⁺	Q	$A_2=0.17$ 3, $A_4=-0.07$ 3 (2005Se02).
1984.80 14	8.3 3	5293.11	4 ⁺	3308.22	4 ⁺	D+Q	E_γ : Other: 1246 keV 1 (2007Je03). $A_2=0.33$ 10, $A_4=0.13$ 12 (2005Se02). E_γ : Other: 1982.8 keV 10 (1282.8 in 2007Je03 , probably a typo).
2061.09 5	54.7 7	3308.22	4 ⁺	1247.02	2 ⁺	Q	$A_2=0.34$ 4, $A_4=-0.15$ 5 (2005Se02). E_γ : Other: 2059.9 keV 10 (2007Je03).
2143.5 6	1.2 2	5452.4	3 ⁺	3308.22	4 ⁺		
2945.8 2	22.1 5	6254.23	6 ⁺	3308.22	4 ⁺	Q	$A_2=0.30$ 7, $A_4=-0.07$ 8 (2005Se02). E_γ : Other: 2945 keV 1 (2007Je03).
3154.7 3	10.0 4	4402.0	2 ⁺	1247.02	2 ⁺		E_γ : Other: 3153.8 keV 10 (2007Je03).
3788.0 5	3.9 3	5035.4	2 ⁺	1247.02	2 ⁺		E_γ : Other: 3788 keV 3 (2007Je03).
3841.0 10	0.94 15	5089.3	1 ⁺	1247.02	2 ⁺		E_γ : Other: 3842 keV 3 (2007Je03).
4205.4 5	4.2 3	5452.4	3 ⁺	1247.02	2 ⁺	D	$A_2=-0.31$ 18, $A_4=-0.06$ 23 (2005Se02). E_γ : Other: 4203.6 keV 30 (2007Je03).
4463.5 10	3.1 4	5711.4	2 ⁺	1247.02	2 ⁺		E_γ : Other: 4463.3 keV 30 (2007Je03).
5089.9 12	1.70 17	5089.3	1 ⁺	0.0	0 ⁺		E_γ : Other: 5093.4 keV 30 (2007Je03).
5711 1	0.49 12	5711.4	2 ⁺	0.0	0 ⁺		

[†] From angular distribution coefficients.

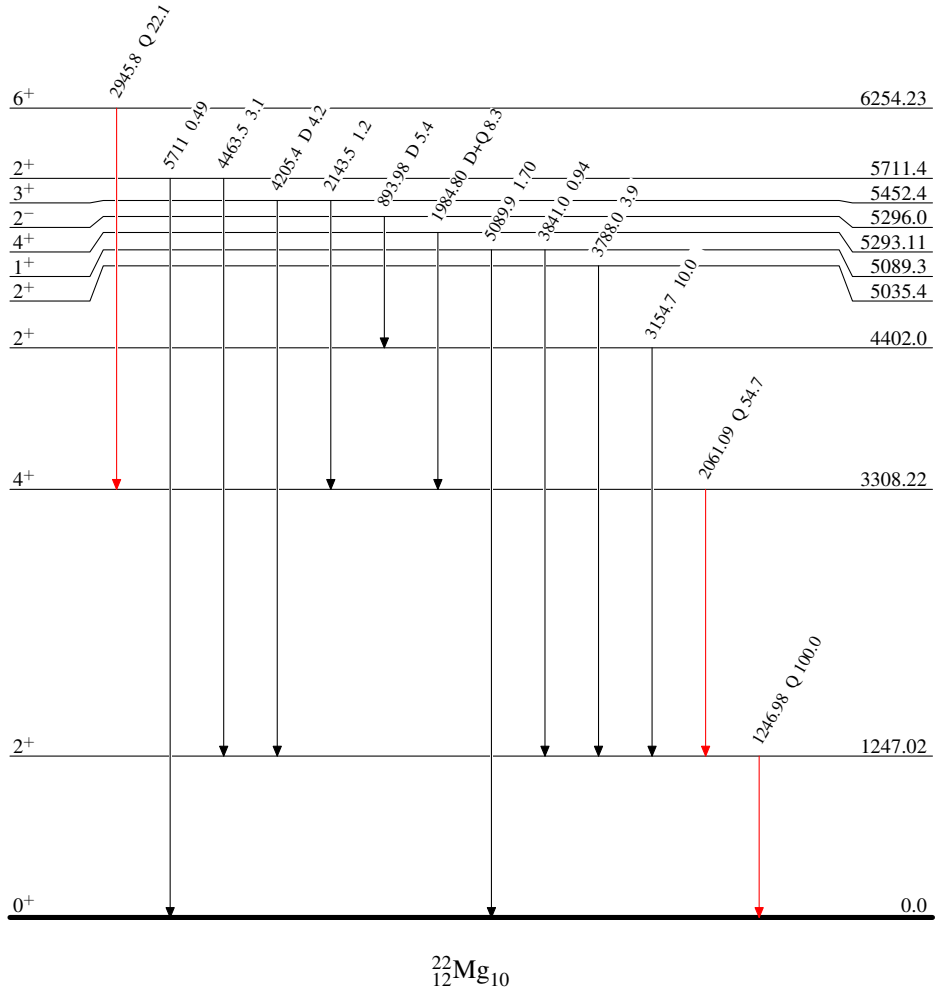
$^{12}\text{C}(^{12}\text{C},2n\gamma)$ 2005Se02

Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



${}^{12}\text{C}({}^{12}\text{C}, 2n\gamma)$ 2005Se02

Band(A): g.s. band

 4^+ 3308.22

2061

 2^+ 1247.02

1247

 0^+ 0.0 ${}^{22}_{12}\text{Mg}_{10}$