

$^{13}\text{C}(\gamma, \gamma')$

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell		NDS 198,1 (2024)	1-Aug-2024

1968Ro02: $^{13}\text{C}(\gamma, \gamma')$; measured the mean lifetime of $^{13}\text{C}^*(3089)$, $\tau_m=1.5$ fs 2.

1969Ra20: $^{13}\text{C}(\gamma, \gamma')$ E<3.8 MeV; measured $\sigma(E\gamma', \theta)$. Deduced level-width. Resonance fluorescence.

1975Ra22: $^{13}\text{C}(\gamma, \gamma')$ E_{brems.}=3.19 MeV; measured $\Gamma(^{13}\text{C}^*(3.086))=0.39$ eV 6 using nuclear resonant scattering.

1991Li12: $^{13}\text{C}(\gamma, \gamma')$ E=4.1 MeV bremsstrahlung; measured E_γ , I_γ . Nuclear resonance fluorescence technique, Monte Carlo simulations.

1993Mo23: $^{13}\text{C}(\gamma, \gamma')$ E=4.7 MeV bremsstrahlung; measured precise E_γ , I_γ . Deduced Γ_0 . Self-absorption technique, enriched target, amorphous ^{13}C absorbers. They give some commentary on the thermal corrections that were overlooked by other reports.

2000Ka08: $^{13}\text{C}(\gamma, \gamma')$ E=6.7 MeV bremsstrahlung; measured E_γ , I_γ , γ polarization.

 ^{13}C Levels

E(level)	J^π	$T_{1/2}$	Comments
0	$1/2^-$		J^π : From Adopted Levels.
3080 30	$1/2$	0.98 fs 9	E(level): From (1975Ra22); see also $E_x=3089$ keV (1968Ro02 , 1991Li12 , 1993Mo23). J^π : See (1993Mo23). $T_{1/2}$: From $\tau=1.42$ fs 13 corresponding to $\Gamma=0.464$ eV 42 which is the weighted average of 0.463 eV 56 and 0.413 eV 50 from (1968Ro02), 0.537 eV 42 (1993Mo23 : using $\Gamma_0/\Gamma=1$ and $T_e=930$ K) and 0.39 eV 6 (1975Ra22).
3685.041 20	$3/2$	1.12 fs 6	E(level): deduced from the measured E_γ (1991Li12); see also (1969Ra20 , 1993Mo23). J^π : See (1993Mo23). $T_{1/2}$: From $\tau=1.61$ fs 9 obtained from the average of $\tau=1.59$ fs 13 (1991Li12 : $\Gamma_0^2/\Gamma=0.408$ eV 26) and $\tau=1.63$ fs 12 (1993Mo23 : $\Gamma=0.403$ eV 30 using $\Gamma_0/\Gamma=1$, $T_e=930$ K). See also $\tau=1.50$ fs 14 (1969Ra20 : $\Gamma=0.44$ eV 4), but this value is omitted because the authors neglected thermal effects; see (1993Mo23) and footnote 20 in (1969Ra20).

 $\gamma(^{13}\text{C})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
3080	$1/2$	3089	100	0	$1/2^-$		
3685.041	$3/2$	3684.48 2	99.3 7	0	$1/2^-$	M1+E2	E_γ, I_γ : (1991Li12). Mult.: From angular distribution, $A_2=0.104$ (1969Ra20).

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Level Scheme

Intensities: % photon branching from each level

