^{58}Ni(α,2pγ) 1984Ts02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 114, 1849 (2013)	31-Dec-2012

Eα=23-40 MeV. Measured Eγ, $\gamma(\theta)$, $\gamma\gamma$, excit, DSA, pulsed beam γ(t). Ge(Li) detectors (1984Ts02).
Others: 1974Ba03, 1975Ki16.

^{60}Ni Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	L	Comments
0.0	0$^+$			
1332.6 *7*	2$^+$			
2158.8 *8*	2$^+$			
2505.8 *11*	4$^+$			
2626.1 *9*	3$^+$			
3119.8 *11*	4$^+$			
3124.1 *8*	2$^+$			
3670.3 *12*	4$^+$			
4165.3 *13*	5$^+$	1.4[@] ps *+14−6*		
4265.0 *12*	6$^+$			
4407.3 *12*				T$_{1/2}$: 3 ps<T$_{1/2}$<2 ns.
4986.1 *12*	(6$^+$)	1.0 ps *+25−7*		
5015.0 *12*	4$^+$	0.21 ps *+256−1*	4	J$^\pi$: J$^\pi$=(5$^-$) in Adopted Levels consistent with 334γ (E2).
5148.7 *13*				T$_{1/2}$: 3 ps<T$_{1/2}$<2 ns.
5349.0 *12*	7$^-$			
5662.5 *14*	5,7	0.7[@] ps *+21−3*		
6460.5 *17*		1.2 ps *+16−5*		
6810.9 *15*	9$^-$	0.6 ps *+4−2*		
6836.8 *14*		0.6 ps *+5−2*		
7430.9?				
8044.0 *14*		0.04 ps *+31−4*		
8520.8 *15*		0.5 ps *+6−2*		
9132.4 *18*		0.18 ps *+10−8*		
9989.7 *21*		0.21[@] ps *+21−7*		

[†] As given by 1984Ts02.
[‡] From Adopted Levels data set.
[#] By DSAM; values are geometric mean of the lower and upper limits.
[@] Upper limits extracted from comparison between Doppler behavior in spectra performed with either self-supporting or Bi backed target.

γ(^{60}Ni)

E$_\gamma$[‡]	I$_\gamma$[@]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[&]	δ[&]	Comments
200.3	1.4	5349.0	7$^-$	5148.7				δ: - 0.17 *+20−50*.
242.0	1.5	4407.3		4165.3	5$^+$			
334.0	6.1	5349.0	7$^-$	5015.0	4$^+$	Q(+O)	−0.10 *+10−15*	
362.9	3.1	5349.0	7$^-$	4986.1	(6$^+$)	D(+Q)	−0.07 *+30−50*	
467.2		2626.1	3$^+$	2158.8	2$^+$			
476.8	5.3	8520.8		8044.0		D(+Q)	−0.03 *10*	
498.0		3124.1	2$^+$	2626.1	3$^+$			
611.6	4.4	9132.4		8520.8		D(+Q)	−0.10 *15*	
676.4		5662.5	5,7	4986.1	(6$^+$)			

Continued on next page (footnotes at end of table)

^{58}Ni(α,2pγ) 1984Ts02 (continued)

$\gamma(^{60}Ni)$ (continued)

E_γ[‡]	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ[&]	α[†]	Comments
721.0	≈2.2	4986.1	(6^+)	4265.0	6^+				
737.0	≈3.5	4407.3		3670.3	4^+				
741.3	≈4	5148.7		4407.3					
798.0[#]	6.1	6460.5		5662.5	5,7				
826		2158.8	2^+	1332.6	2^+				
857.3	4	9989.7		9132.4					
970.6[b]		7430.9?		6460.5					
1083.9	30.5	5349.0	7^-	4265.0	6^+	D(+Q)	−0.1 *+1−3*		
1145.2		4265.0	6^+	3119.8	4^+				
1164.5		3670.3	4^+	2505.8	4^+				
1173.2	100	2505.8	4^+	1332.6	2^+	Q(+O)	−0.09 *+50−30*		
1207.2	2	8044.0		6836.8					
1293.5		2626.1	3^+	1332.6	2^+				
1332.5		1332.6	2^+	0.0	0^+				
1344.6	0.5	5015.0	4^+	3670.3	4^+				
1397.4	3.3	5662.5	5,7	4265.0	6^+	D+Q	−0.3 *+2−5*		
1461.9	21.4	6810.9	9^-	5349.0	7^-	E2(+M3)[a]	−0.10 *+20−15*	0.000179 *9*	α=0.000179 *9*; α(K)=9.6×10^{-5} *11*; α(L)=9.3×10^{-6} *10*; α(M)=1.31×10^{-6} *15*; α(N+..)=7.3×10^{-5} *4* α(N)=5.7×10^{-8} *7*; α(IPF)=7.3×10^{-5} *4*
1487.8	4.7	6836.8		5349.0	7^-				
1659.5	5.3	4165.3	5^+	2505.8	4^+	D(+Q)	−1.0 *+5−4*		
1709.9	1.5	8520.8		6810.9	9^-				
1759.2	45.0	4265.0	6^+	2505.8	4^+	Q(+O)	−0.1 *+4−2*		
1787.2	11	3119.8	4^+	1332.6	2^+	Q(+O)	−0.16 *+50−20*		
1791.5		3124.1	2^+	1332.6	2^+				
1895.1	2.4	5015.0	4^+	3119.8	4^+				δ: - 0.18 *+50−20*.
1901.5	1	4407.3		2505.8	4^+				
2158.8		2158.8	2^+	0.0	0^+				
2480.2	8.7	4986.1	(6^+)	2505.8	4^+	Q(+O)	0.0 *+3−1*		
2509.2		5015.0	4^+	2505.8	4^+				
2642.8	2.9	5148.7		2505.8	4^+	Q(+O)	0.0 *+3−2*		
2695.0	2	8044.0		5349.0	7^-				
2843.1	0.8	5349.0	7^-	2505.8	4^+				δ: - 0.15 *+50−20*.
2856[b]		5015.0	4^+	2158.8	2^+				E_γ: placement not adopted.
3124.0		3124.1	2^+	0.0	0^+				

† Additional information 1.
‡ From 1984Ts02.
# Placed differently from 1980Ke06 on account of coin with 676γ and 1397γ.
@ From $\gamma(\theta)$ at 32 MeV.
& From $\gamma(\theta)$ analysis, except as noted.
a Q+O from $\gamma(\theta)$, parity from RUL.
b Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

Legend

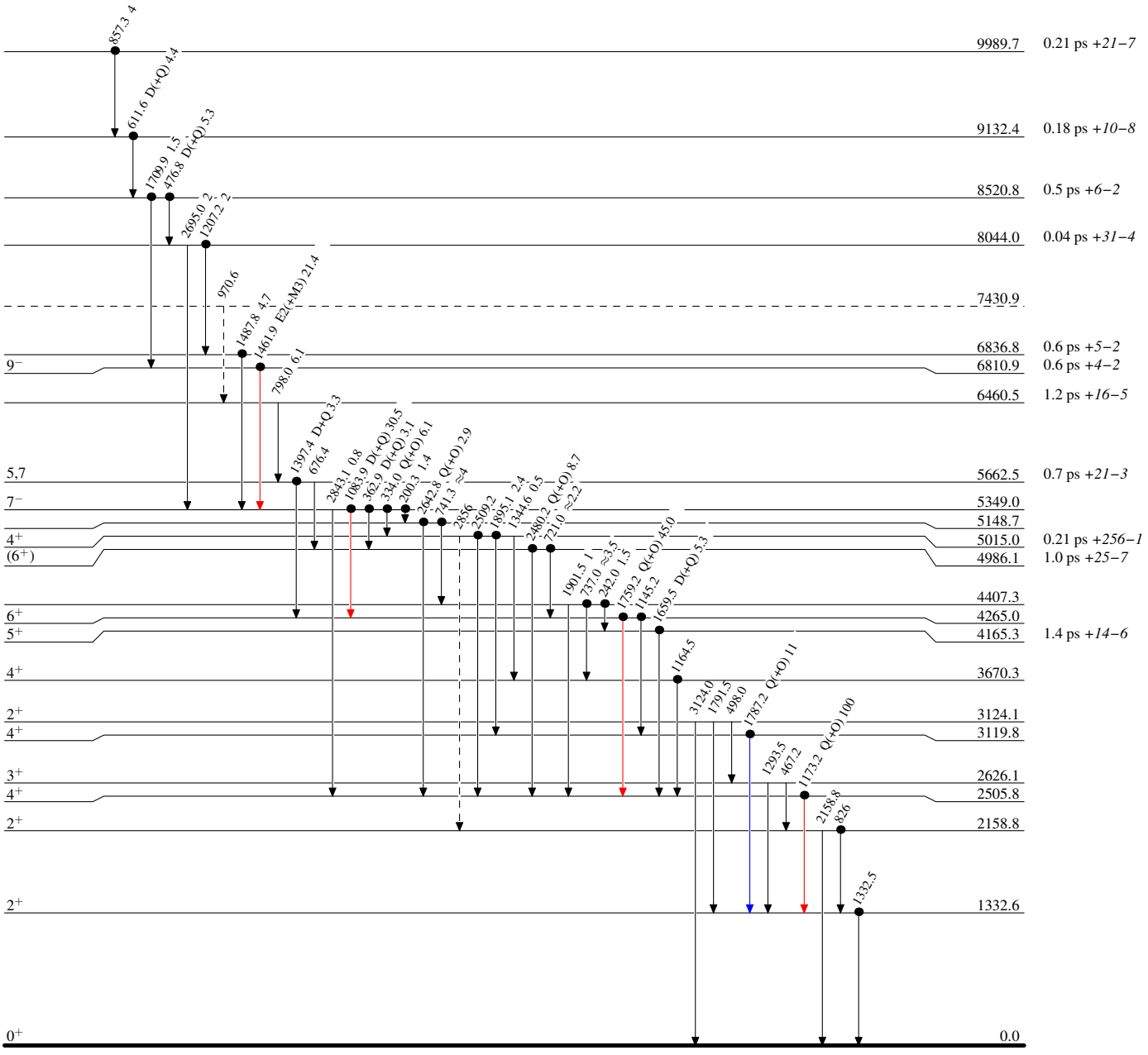
$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)

Coincidence



$^{60}_{28}Ni_{32}$