$^{62}\text{Ni}(\gamma,\gamma')$ **1974Mo09**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli	NDS 113, 973 (2012)	15-Apr-2012

1974Mo09, 1974Mo15, 1970Mo26: resonant scattering of capture γ rays from Fe(n,γ) by 7646 level of ^{62}Ni.
1972Mo03: linear polarization of resonantly scattered capture γ rays from Fe(n,γ) by 7646 level of ^{62}Ni.
1981Ca10, 1977Ca14: 1173 level excited by bremsstrahlung from 1.4-MeV betatron.
See 1974Ve13 for summary of earlier work.

^{62}Ni Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
0.0	0^+		
1172.91 9	2^+	1.5 ps 3	$T_{1/2}$: from $((2J+1)\,\Gamma^2_{\gamma 0}/\Gamma)\ast W(\theta)$=0.88 17 (meV) (1981Ca10). Other: 2.1 ps 5 (1977Ca14, same authors As 1981Ca10).
2049 3	0^+		
2303 3	2^+		
3159 3	2^+		
3271 3	$1^+,2^+$		
3373 3	$1^+,2^+$		
3517 3	2^+		
3848 3	$0^+,1^+,2^+$		J^{π}: assuming E1 decay from 7646 level.
3862 3	$1^+,2^+$		
3972 3	2^+		
4062 3	$1^+,2^+$		
4230 3	0^+		
7646 3	1^-		E(level): differs by 14.35 eV 15 from recoil-corrected Eγ of Fe capture γ ray (1974Mo15). J^{π}: J=1 from $\gamma(\theta)$ (1970Mo26); parity from polarization measurement (1972Mo03). Γ_{γ}=0.48 eV 5 (1970Mo26).

[†] Deduced from the scattered radiation spectrum by assuming that all high energy γ rays are emitted as primary transitions (1974Mo09), except for the 1173 level.
[‡] From Adopted Levels, except as noted.

$\gamma(^{62}\text{Ni})$

E_{γ}[†]	I_{γ}[‡]	E_i(level)	J^{π}_i	E_f	J^{π}_f	Comments
876		2049	0^+	1172.91	2^+	
1068		3373	$1^+,2^+$	2303	2^+	
1128		2303	2^+	1172.91	2^+	
1172.91 9		1172.91	2^+	0.0	0^+	E_{γ}: from 1981Ca10.
1814[#]		3862	$1^+,2^+$	2049	0^+	Evaluator sees no compelling reason to place this γ with the 3862 level (as advocated by 1974Mo09), particularly when data from ^{61}Ni(n,γ) do not indicate such a branch. An 1816γ is observed in (n,γ) and identified with a 4151 level, while in ^{59}Co(α,pγ) an 1818γ is defined as depopulating a 4154 level.
1987		3159	2^+	1172.91	2^+	
2015		4062	$1^+,2^+$	2049	0^+	
2098		3271	$1^+,2^+$	1172.91	2^+	
2305		2303	2^+	0.0	0^+	
2802		3972	2^+	1172.91	2^+	
3372		3373	$1^+,2^+$	0.0	0^+	
3416	1.9	7646	1^-	4230	0^+	
3585	3.3	7646	1^-	4062	$1^+,2^+$	

Continued on next page (footnotes at end of table)

^{62}Ni(γ,γ')   **1974Mo09 (continued)**

$\gamma(^{62}$Ni) (continued)

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	Comments
3671	4.9	7646	1$^-$	3972	2$^+$		
3783	3.3	7646	1$^-$	3862	1$^+$,2$^+$		
3798	0.6	7646	1$^-$	3848	0$^+$,1$^+$,2$^+$		
3860		3862	1$^+$,2$^+$	0.0	0$^+$		
3968		3972	2$^+$	0.0	0$^+$		
4062		4062	1$^+$,2$^+$	0.0	0$^+$		
4129	2.4	7646	1$^-$	3517	2$^+$		
4273	3.3	7646	1$^-$	3373	1$^+$,2$^+$		
4375	3.4	7646	1$^-$	3271	1$^+$,2$^+$		
4487	2.7	7646	1$^-$	3159	2$^+$		
5597	25.8	7646	1$^-$	2049	0$^+$		
6473	6.5	7646	1$^-$	1172.91	2$^+$		
7646	100	7646	1$^-$	0.0	0$^+$	E1	α(IPF)=0.00264 *4*
							Mult.: from polarization measurement (1972Mo03).

[†] From 1974Mo09, except for the 1173γ.
[‡] Relative intensity from the 7646 level, with Iγ(to g.s.)=100, corrected for $\gamma(\theta)$ (1974Mo09).
[#] Placement of transition in the level scheme is uncertain.

^{62}**Ni(γ,γ′)**　　**1974Mo09**

Legend

Level Scheme

Intensities: Relative Iγ from the 7646 level

→ $I_\gamma < 2\% \times I_\gamma^{max}$
→ $I_\gamma < 10\% \times I_\gamma^{max}$
→ $I_\gamma > 10\% \times I_\gamma^{max}$
⇢ γ Decay (Uncertain)

$^{62}_{28}$Ni$_{34}$