^{64}Ni(p,γ) 1979Er10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 2425 (2010)	1-Aug-2009

1979Er10: E(p)=2050-2550 keV; averaged p resonance spectre; measured Eγ, Iγ; Hauser-Feshbach model, deduced J^π; average γ-ray strength function; Ge(Li), NaI detectors.
1978Kr09: E(p)=3100-3300 keV (E(res)=3219); measured Eγ, Iγ, Γ_γ; Ge(Li) detector.
1973Ho42: E(p)=1000-1850 keV; measured Eγ, Iγ, $\gamma(\theta)$.
Others: 2001Fe06, 2000Ra35, 1980Ne10, 1983Ne03.

^{65}Cu Levels

E(level)[†]	J$^\pi$[‡]	Comments
0	$3/2^-$	
770.6 *2*	$1/2^-$	
1115.5 *2*	$5/2^-$	
1481.8 *2*	$7/2^-$	
1623.3 *2*	$5/2^-$	
1725.0 *2*	$3/2^-$	
2094.3 *2*	$(7/2)^-$	J$^\pi$: $(7/2^-)$ from Hauser-Feshbach (H-F) analysis (1979Er10).
2107.4 *2*	$(5/2)^-$	J$^\pi$: $(5/2^-)$ from H-F analysis (1979Er10).
2212.8 *2*	$(1/2)^-$	J$^\pi$: $(1/2^-)$ from H-F analysis (1979Er10).
2282.6 *4*	$(7/2)^-$	J$^\pi$: $(7/2^-)$ from H-F analysis (1979Er10).
2329.0 *2*	$3/2^-$	J$^\pi$: (3/2,5/2) from $\gamma(\theta)$ (1973Ho42).
2533.0 *2*	$1/2,3/2,5/2^-$	
2533.8 *3*	$(7/2^+,9/2^+)$	
2594 *2*	$(1/2^-,5/2^-)$	J$^\pi$: $(1/2^-,5/2^-)$ from H-F analysis (1979Er10).
2649.6 *2*	$(5/2^-,7/2^-)$	E(level): possible doublet (1979Er10).
2656[#] *3*		
2753 *3*	$(7/2^+,9/2^+)$	J$^\pi$: $(7/2^+,9/2^+)$ from H-F analysis (1979Er10).
2839 *3*	$(7/2^+,9/2^+)$	J$^\pi$: $(7/2^+,9/2^+)$ from H-F analysis (1979Er10).
2862.7? *2*		
2866.8 *2*	$3/2^-,5/2,7/2^-$	
2874.4 *2*	$(3/2^-)$	
2894.4 *2*	$1/2^-,3/2,5/2^-$	
2902.4 *2*		
2977		
2990[#] *2*		
2996[#] *4*		
3079.6 *2*	$(3/2,5/2)^+$	J$^\pi$: $(1/2^+,3/2,5/2^+)$ from H-F analysis (1979Er10).
3154[#] *3*		
3243	$(1/2^+,3/2,5/2^+)$	J$^\pi$: $(1/2^+,3/2,5/2^+)$ from H-F analysis (1979Er10).
3261 *2*	$(1/2^-,5/2^-,7/2^-)$	J$^\pi$: $(1/2^-,5/2^-,7/2^-)$ from H-F analysis (1979Er10).
3325.4 *15*	(3/2,5/2)	E(level): from 1973Ho42. Level not populated in 1979Er10 data.
3449[#] *3*		
3506[#] *3*		
3632 *2*	$(1/2^+,3/2^+)$	J$^\pi$: $(1/2^+,3/2^+)$ from H-F analysis (1979Er10).
3740[#] *3*		
3895[#] *3*	$1/2^+$	
3923[#] *3*		
3964 *3*	$1/2^-,3/2^-$	
4054 *3*	$(1/2^+,3/2,5/2^+)$	J$^\pi$: $(1/2^+,3/2,5/2^+)$ from H-F analysis (1979Er10).
4089 *3*	$(1/2^+,3/2,5/2^+)$	J$^\pi$: $(1/2^+,3/2,5/2^+)$ from H-F analysis (1979Er10).
4117[#] *4*		

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^{64}Ni(p,γ) 1979Er10 (continued)

^{65}Cu Levels (continued)

E(level)[†]	Comments
4183[#] *4*	
4245[#] *4*	E(level): a possible doublet at E=4251 is reported in 1979Er10.

[†] For E<5000 E(level) is from 1979Er10 (uncertainties not always available), except as noted. For E>S(p) see 1973Ho42, 1979Er10.
[‡] From Adopted Levels; supporting arguments from this data set are indicated in comments.
[#] From 1978Kr09.

γ(^{65}Cu)

Uncertainties on $\Gamma(\gamma)$ are reported (1978Kr09) to be ≈ 30% for strong lines and up to 100% for weak lines.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
366.3 *3*	5.3	1481.8	$7/2^-$	1115.5	$5/2^-$	Branching=0.15.
382.4 *3*	0.5	2107.4	$(5/2)^-$	1725.0	$3/2^-$	
471.0 *3*	1.2	2094.3	$(7/2)^-$	1623.3	$5/2^-$	
487.8 *3*	1.3	2212.8	$(1/2)^-$	1725.0	$3/2^-$	
499.7[#] *21*	4.8	2594	$(1/2^-,5/2^-)$	2094.3	$(7/2)^-$	
507.8 *3*	7.3	1623.3	$5/2^-$	1115.5	$5/2^-$	I_γ: estimated from Iγ(852.7), Iγ(1623.3) and branchings (1973Ho42). Branching=0.32.
609.5 *3*	10.1	1725.0	$3/2^-$	1115.5	$5/2^-$	Branching=0.50.
625.6 *3*	4.9	2107.4	$(5/2)^-$	1481.8	$7/2^-$	
770.6 *2*	72.1	770.6	$1/2^-$	0	$3/2^-$	Branching=1.0.
808.0 *3*	1.2	2533.0	$1/2,3/2,5/2^-$	1725.0	$3/2^-$	
852.7 *3*	2.2	1623.3	$5/2^-$	770.6	$1/2^-$	Branching=0.14.
924.6 *3*	1.5	2649.6	$(5/2^-,7/2^-)$	1725.0	$3/2^-$	
978.8 *3*	9.8	2094.3	$(7/2)^-$	1115.5	$5/2^-$	
991.9 *3*	6.2	2107.4	$(5/2)^-$	1115.5	$5/2^-$	
1026.3 *3*	0.7	2649.6	$(5/2^-,7/2^-)$	1623.3	$5/2^-$	
1052.0 *4*	2.0	2533.8	$(7/2^+,9/2^+)$	1481.8	$7/2^-$	
1115.5 *2*	100	1115.5	$5/2^-$	0	$3/2^-$	Branching=1.0. δ: −0.09 *8* from $\gamma(\theta)$ data (1973Ho42).
1213.5 *3*	4.3	2329.0	$3/2^-$	1115.5	$5/2^-$	Branching=0.23 *5*.
1243.5 *3*	1.1	2866.8	$3/2^-,5/2,7/2^-$	1623.3	$5/2^-$	
1271[#] *3*	1.1	2753	$(7/2^+,9/2^+)$	1481.8	$7/2^-$	
1271.1 *3*	1.1	2894.4	$1/2^-,3/2,5/2^-$	1623.3	$5/2^-$	
1336.8 *3*	1.0	2107.4	$(5/2)^-$	770.6	$1/2^-$	
1442.2 *3*	8.8	2212.8	$(1/2)^-$	770.6	$1/2^-$	Branching=0.67 *7*.
1481.8 *2*	25.7	1481.8	$7/2^-$	0	$3/2^-$	Branching=0.85.
1534.1 *3*	1.5	2649.6	$(5/2^-,7/2^-)$	1115.5	$5/2^-$	
1558.4 *3*	5.4	2329.0	$3/2^-$	770.6	$1/2^-$	Branching=0.32 *5*.
1623.3 *2*	13.4	1623.3	$5/2^-$	0	$3/2^-$	Branching=0.54.
1725.0 *2*	26.5	1725.0	$3/2^-$	0	$3/2^-$	Branching=0.50.
1762.4 *3*	6.3	2533.0	$1/2,3/2,5/2^-$	770.6	$1/2^-$	Branching=0.60.
1879.0 *3*	7.6	2649.6	$(5/2^-,7/2^-)$	770.6	$1/2^-$	
1964.1 *3*	1.3	3079.6	$(3/2,5/2)^+$	1115.5	$5/2^-$	
2094.3 *2*	4.6	2094.3	$(7/2)^-$	0	$3/2^-$	
2107.4 *2*	3.2	2107.4	$(5/2)^-$	0	$3/2^-$	
2127.5[#]	3.9	3243	$(1/2^+,3/2,5/2^+)$	1115.5	$5/2^-$	

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^{64}Ni(p,γ) 1979Er10 (continued)

$\gamma(^{65}Cu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
2212.8 *2*	5.1	2212.8	$(1/2)^-$	0	$3/2^-$	Branching=0.33 *7*.
2282.6 *4*	0.9	2282.6	$(7/2)^-$	0	$3/2^-$	
2309.0 *3*	5.9	3079.6	$(3/2,5/2)^+$	770.6	$1/2^-$	
2329.0 *2*	8.9	2329.0	$3/2^-$	0	$3/2^-$	Branching=0.45 *7*.
2533.0 *2*	5.3	2533.0	$1/2,3/2,5/2^-$	0	$3/2^-$	Branching=0.40.
2649.6 *2*	2.1	2649.6	$(5/2^-,7/2^-)$	0	$3/2^-$	
2861[#] *2*	5.9	3632	$(1/2^+,3/2^+)$	770.6	$1/2^-$	
2862.7[#] *2*	2.9	2862.7?		0	$3/2^-$	
2866.8 *2*	4.3	2866.8	$3/2^-,5/2,7/2^-$	0	$3/2^-$	
2874.4 *2*	7.0	2874.4	$(3/2^-)$	0	$3/2^-$	
2894.4 *2*	2.7	2894.4	$1/2^-,3/2,5/2^-$	0	$3/2^-$	
2902.4 *2*	4.5	2902.4		0	$3/2^-$	
3261 *2*	3.0	3261	$(1/2^-,5/2^-,7/2^-)$	0	$3/2^-$	
3325.4 *15*		3325.4	(3/2,5/2)	0	$3/2^-$	
3632 *2*	1.7	3632	$(1/2^+,3/2^+)$	0	$3/2^-$	
3964 *3*	2.7	3964	$1/2^-,3/2^-$	0	$3/2^-$	
4054 *3*	3.2	4054	$(1/2^+,3/2,5/2^+)$	0	$3/2^-$	
4089 *3*	2.0	4089	$(1/2^+,3/2,5/2^+)$	0	$3/2^-$	

[†] From level energy difference.

[‡] Relative intensity; for Eγ<5000, Iγ are given (1979Er10), except as noted and branchings (1973Ho42) where available are given in comments. For primary γ's the Iγ are averages of spectra from E(p)=2.05 to 2.55 MeV in steps of 19 keV. For the secondary γ's, they are the averages of E(p)=2.0 to 2.1 MeV in 17 keV steps. Uncertainties of 1979Er10 range from 1% for the strong, well-resolved lines, to 40% for some of the weakest lines.

[#] Placement of transition in the level scheme is uncertain.

^{64}Ni(p,γ) 1979Er10

Level Scheme

Intensities: Relative I_γ

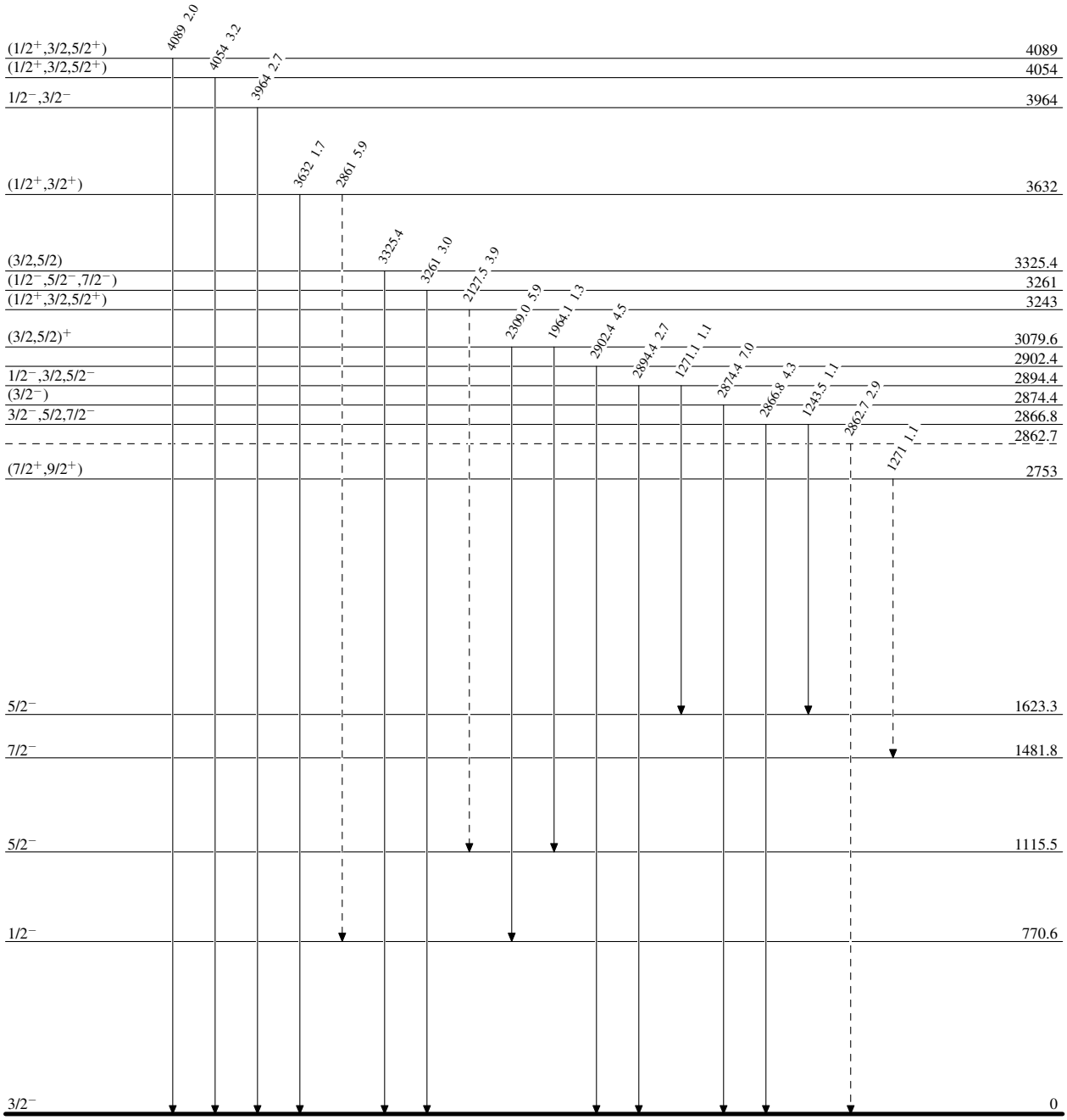
Legend

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

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

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

γ Decay (Uncertain)



$^{65}_{29}Cu_{36}$

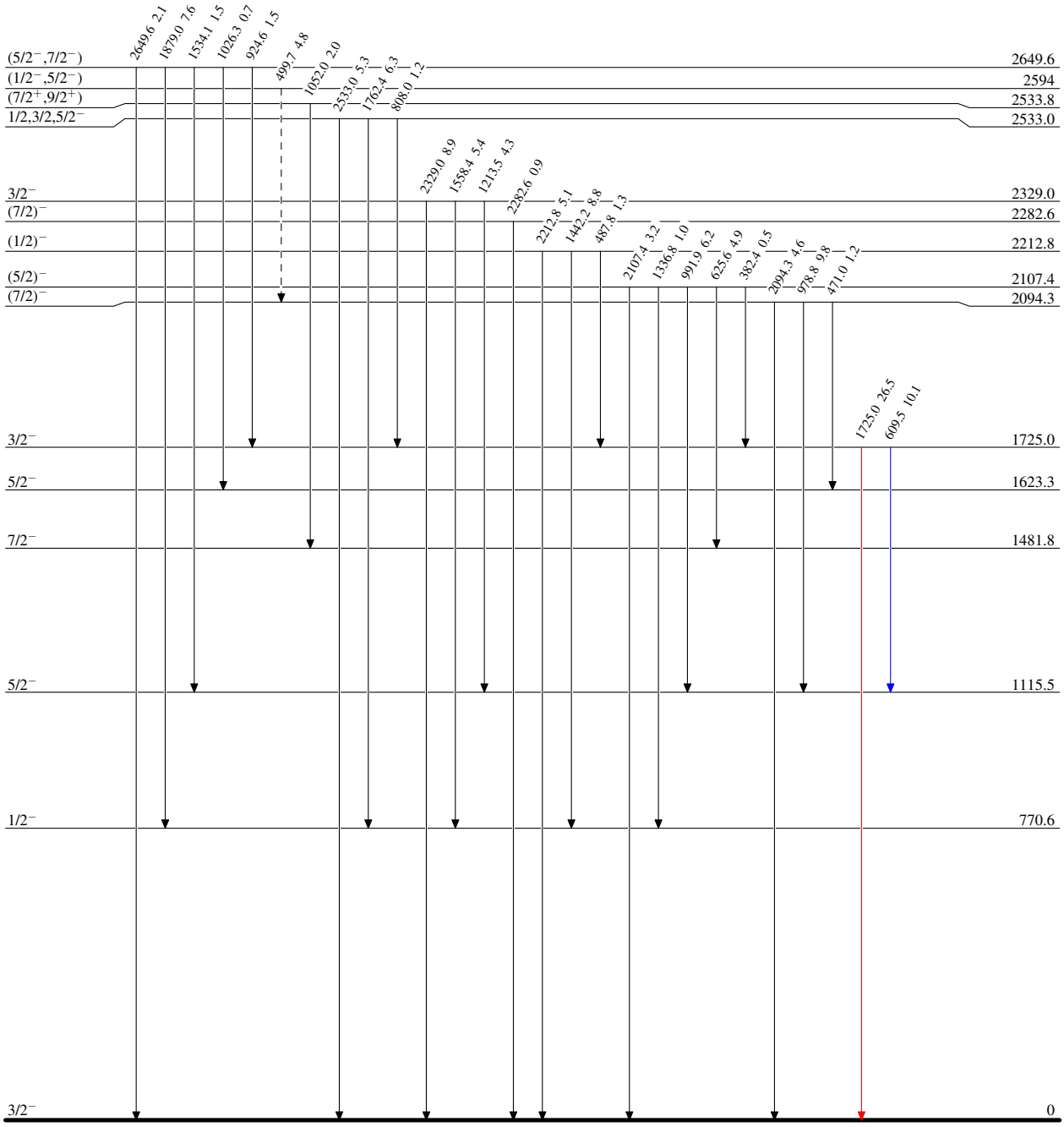
^{64}Ni(p,γ) 1979Er10

Level Scheme (continued)

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)



$^{65}_{29}Cu_{36}$

^{64}Ni(p,γ) 1979Er10

Level Scheme (continued)

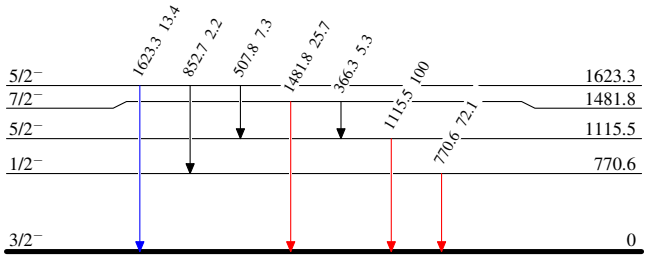
Intensities: Relative I_γ

Legend

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

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

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



$^{65}_{29}Cu_{36}$