^{64}Ni(p,p′γ) 1969Be20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178,41 (2021).	12-Nov-2021

1969Be20: E=12 MeV proton beam from the CEN Saclay-SPNBE tandem. γ rays were detected with a NaI crystal; protons were detected with a semiconductor detector. Measured Eγ, pγ-coin. Deduced levels.

Others:

1972De32: E=12, 17 MeV. Measured γ-ray multiplicity.

1971Be06: E=5.6, 6.2 MeV. Measured pγ(θ) for first 2^+ state.

^{64}Ni Levels

E(level)†	Jπ#	E(level)†	Jπ#	E(level)†	Jπ#	E(level)†	Jπ#
0	0^+	3740	2^+	4640	2^+	5770‡	0^+
1340	2^+	3800	2^+	4730	4^+	5870‡	
2270	2^+	3860	5^-	4770	(1,2)	5910‡	$(1^-,2^-)$
2610	4^+	3970		4920		6070‡	$1^-,2^-$
2870	0^+	4080	$5^{(-)}$	4970		6460	$(1,2)^+$
2980	(3^+)	4180	(1,2)	5000	2^+	6740‡	
3020	0^+	4220	4^+	5090	4^+	7020	(1,2)
3160	4^+	4260	0^+	5160		7130‡	
3270	2^+	4350		5220	4^+	7220	
3400	4^+	4400		5290		7730	(1,2)
3480		4460		5390		8240	(1,2)
3560	3^-	4510‡		5490	(3^-)		
3650‡	2^+	4570	2^+	5550‡			

† Estimated uncertainty ≈10 keV (evaluator).

‡ Probably from proton spectrum since no γ transitions shown from this level.

From the Adopted Levels, listed for only those levels, where J^π assignment is restricted to a one or two values.

γ(^{64}Ni)

Eγ†	Ei(level)	J_i^π	E_f	J_f^π	Eγ†	Ei(level)	J_i^π	E_f	J_f^π
690	5090	4^+	4400		2140	3480		1340	2^+
710	2980	(3^+)	2270	2^+	2190	4460		2270	2^+
790#	3400	4^+	2610	4^+	2220@	3560	3^-	1340	2^+
870	3480		2610	4^+	2300	4570	2^+	2270	2^+
930	2270	2^+	1340	2^+	2400	3740	2^+	1340	2^+
1130	3740	2^+	2610	4^+	2460	3800	2^+	1340	2^+
1250	3860	5^-	2610	4^+	2520	3860	5^-	1340	2^+
1270	2610	4^+	1340	2^+	2630	3970		1340	2^+
1340	1340	2^+	0	0^+	2680	5290		2610	4^+
1470	4080	$5^{(-)}$	2610	4^+	2890	5160		2270	2^+
1530	2870	0^+	1340	2^+	2920	4260	0^+	1340	2^+
1610	4220	4^+	2610	4^+	2950	5220	4^+	2270	2^+
1640	2980	(3^+)	1340	2^+	3120	5390		2270	2^+
1680	3020	0^+	1340	2^+	3220	5490	(3^-)	2270	2^+
1740	4350		2610	4^+	3230	4570	2^+	1340	2^+
1820	3160	4^+	1340	2^+	3270a	3270	2^+	0	0^+
1930	3270	2^+	1340	2^+	3300&	4640	2^+	1340	2^+
1960	4570	2^+	2610	4^+	3390	4730	4^+	1340	2^+
2060	3400	4^+	1340	2^+	3430	4770	(1,2)	1340	2^+
2130	4400		2270	2^+	3560	3560	3^-	0	0^+

Continued on next page (footnotes at end of table)

^{64}Ni(p,p′γ) 1969Be20 (continued)

γ(^{64}Ni) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
3580	4920		1340	2^+	4180	4180	(1,2)	0	0^+
3630	4970		1340	2^+	4640	4640	2^+	0	0^+
3660	5000	2^+	1340	2^+	4770	4770	(1,2)	0	0^+
3750	5090	4^+	1340	2^+	6460	6460	$(1,2)^+$	0	0^+
3820	5160		1340	2^+	7020	7020	(1,2)	0	0^+
3880[‡]	5220	4^+	1340	2^+	7220	7220		0	0^+
3950	5290		1340	2^+	7730	7730	(1,2)	0	0^+
4050	5390		1340	2^+	8240	8240	(1,2)	0	0^+
4150	5490	(3^-)	1340	2^+					

[†] Approximate values from level energy differences (evaluator).
[‡] Shown (incorrectly) by 1969Be20 with 5190 level.
[#] Iγ(790γ)/Iγ(2060γ)=60/40.
[@] Iγ(2220γ)/Iγ(3560γ)=90/10.
[&] Iγ(3300γ)/Iγ(4640γ)=40/60.
[a] Placement of transition in the level scheme is uncertain.

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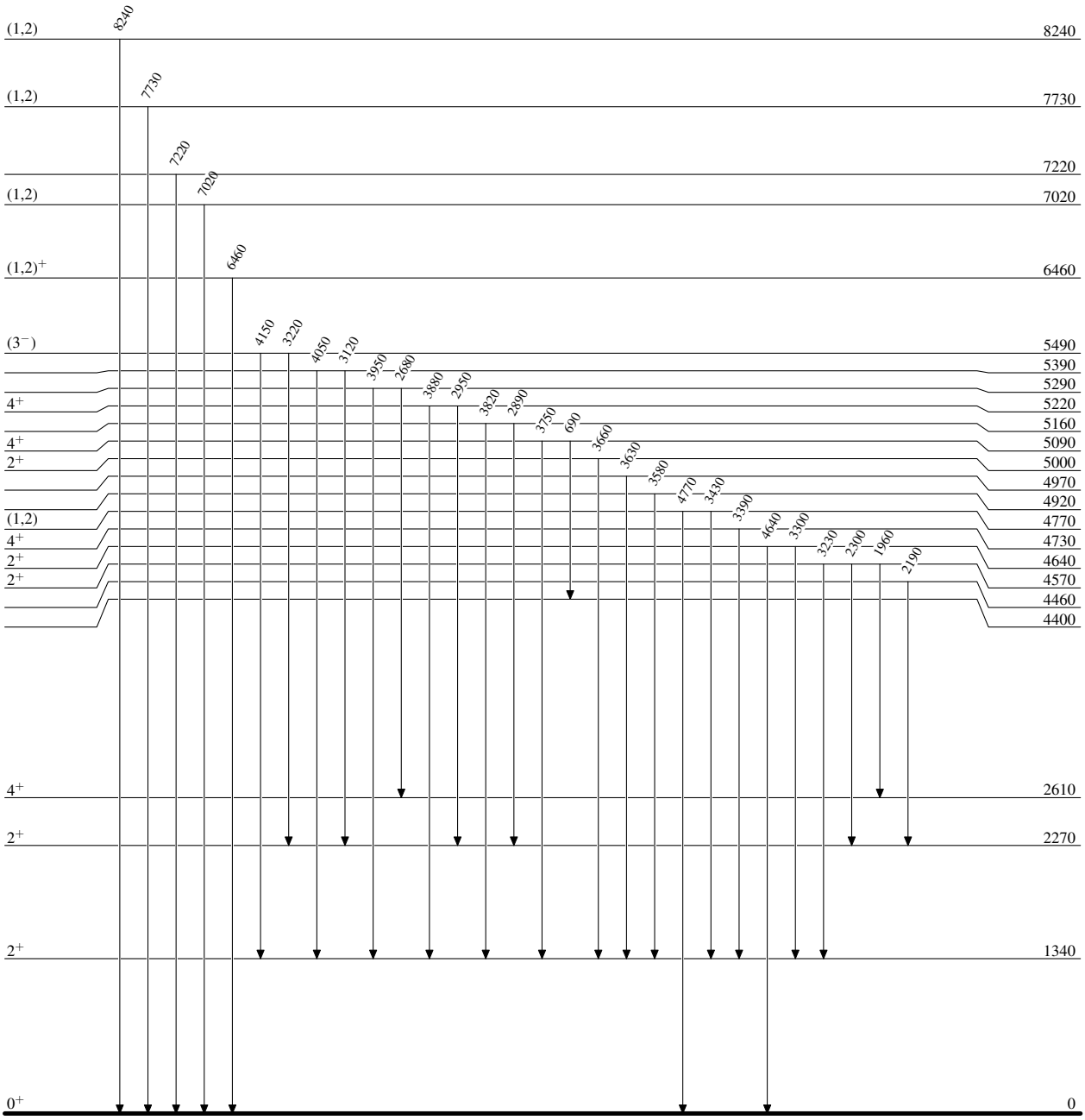
Level Scheme



$^{64}_{28}Ni_{36}$

Legend

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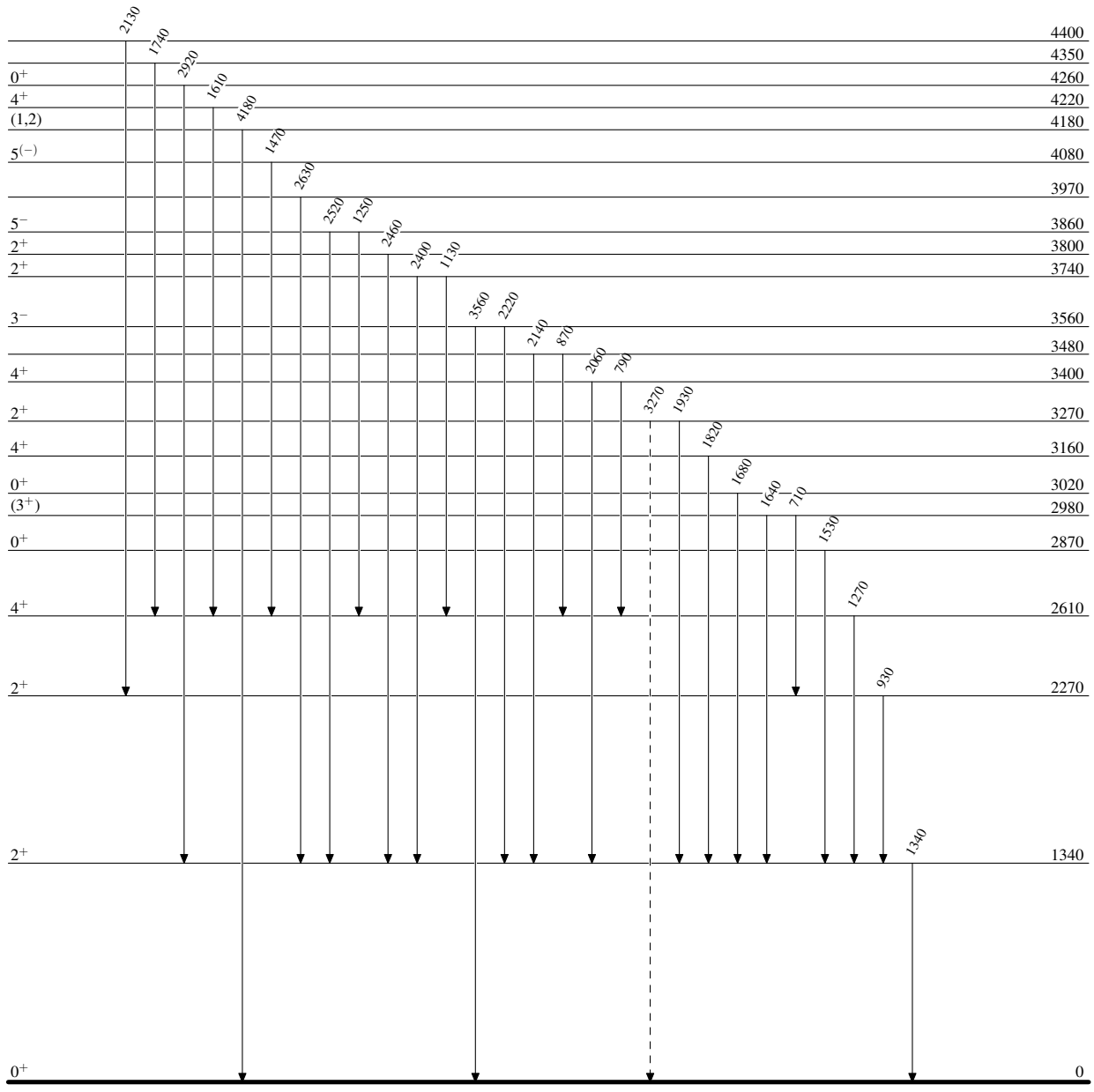
Level Scheme (continued)

– – – – – – ► γ Decay (Uncertain)



$^{64}_{28}Ni_{36}$