

$^{60}\text{Ni}(\text{pol } \gamma, \gamma'):\text{res}$ 2013Sc08

Type	Author	History Citation	Literature Cutoff Date
Update	E. Browne, J. K. Tuli		1-Dec-2013

This dataset is taken (without modifications) from XUNDL after the $\alpha=60$ evaluation was published in Nuclear Data Sheets. Compiled by E. Thiagalingam and B. Singh (McMaster); May 30, 2013 $E_\gamma=7.65\text{-}9.66$ MeV provided by the High Intensity γ -ray Source (HI γ S) at the TUNL facility. Target= ^{60}Ni , 99.8% enriched. Measured E_γ , I_γ , M1 and E1 strengths using four HPGe detectors. Deduced levels, J, π , partial widths. Comparison with the quasiparticle phonon model (QPM).

 ^{60}Ni Levels

E(level) [†]	J $^\pi$ [†]	Comments
0.0	0 ⁺	
1332.5	2 ⁺	
2158.6	2 ⁺	
2284.9	0 ⁺	
3124.0	2 ⁺	
3194.0	1 ⁺	
3269.4	2 ⁺	
3318.7	0 ⁺	
3393.5	2 ⁺	
3736.3	2 ⁺	
3887.8	2 ⁺	
4007.9	2 ⁺	
4020.5	1 ⁺	
4319.0	1 ⁺ , 2 ⁺	
7650 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=4/2, I(0,1 ⁻)/I(0,1 ⁺)=7.0 16.
8086	1 ⁻	
8124 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=5/8, I(0,1 ⁻)/I(0,1 ⁺)=5.2 6.
8460 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=9/7, I(0,1 ⁻)/I(0,1 ⁺)=3.0 5.
8760 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=5/7, I(0,1 ⁻)/I(0,1 ⁺)=1.4 2.
9110 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=15/10, I(0,1 ⁻)/I(0,1 ⁺)=2.3 3.
9310 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=18/10, I(0,1 ⁻)/I(0,1 ⁺)=1.3 2.
9663 [‡]	1	E(level): N(1 ⁻)/N(1 ⁺)=10/2, I(0,1 ⁻)/I(0,1 ⁺)=41 12.

[†] Levels and J $^\pi$ values for levels below 4.4 MeV are from ^{60}Ni Adopted Levels in ENSDF database.

[‡] Composite energy region, not a discrete level.

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

$E_i(\text{level})$	J $_i^\pi$	E_γ	$\Gamma_f/\Gamma_{\text{total}} (\%)$	E_f	J $_f^\pi$	$E_i(\text{level})$	J $_i^\pi$	E_γ	$\Gamma_f/\Gamma_{\text{total}} (\%)$	E_f	J $_f^\pi$
7650	1	5365	3.5 26	2284.9	0 ⁺	8460	1	6175	10.2 52	2284.9	0 ⁺
		5491	5.0 35	2158.6	2 ⁺			6301	10.9 49	2158.6	2 ⁺
		6317	11.4 60	1332.5	2 ⁺			7127	19.5 72	1332.5	2 ⁺
		7650	80.1 70	0.0	0 ⁺			8460	56.1 81	0.0	0 ⁺
8086	1 ⁻	5800.2		2284.9	0 ⁺	8760	1	5366	2.4 20	3393.5	2 ⁺
8124	1	4805	1.4 7	3318.7	0 ⁺			5441	1.7 15	3318.7	0 ⁺
		5000	2.1 15	3124.0	2 ⁺			5566	5.6 32	3194.0	1 ⁺
		5839	7.6 34	2284.9	0 ⁺			5636	3.6 28	3124.0	2 ⁺
		5965	6.4 29	2158.6	2 ⁺			6475	8.8 41	2284.9	0 ⁺
		6791	8.2 32	1332.5	2 ⁺			6601	9.7 36	2158.6	2 ⁺
		8124	74.2 57	0.0	0 ⁺			7427	19.5 65	1332.5	2 ⁺
8460	1	5336	3.3 26	3124.0	2 ⁺	8760	48.6 73	0.0	0 ⁺		

Continued on next page (footnotes at end of table)

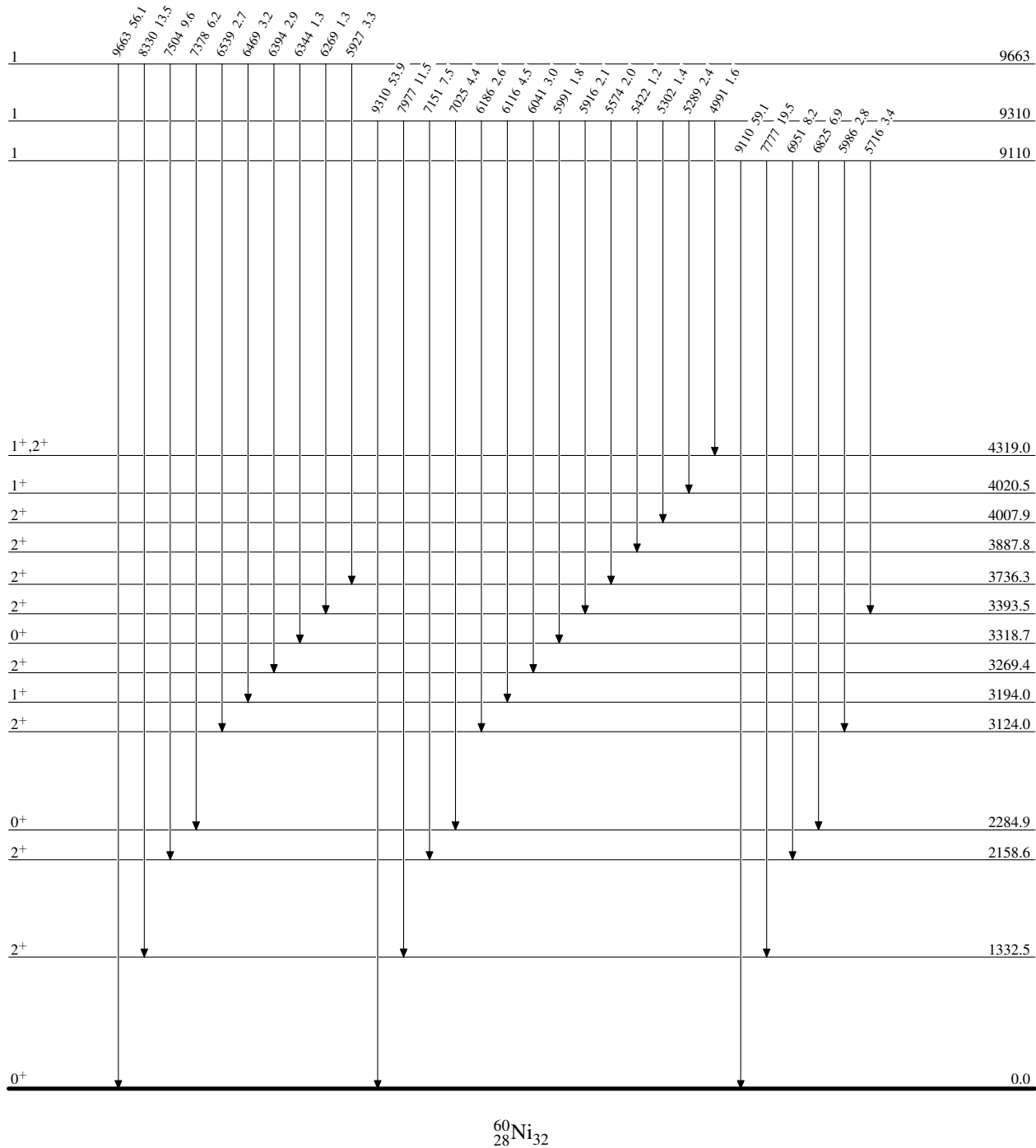
$^{60}\text{Ni}(\text{pol } \gamma, \gamma'):\text{res}$ 2013Sc08 (continued) $\gamma(^{60}\text{Ni})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$\Gamma_f/\Gamma_{\text{total}} (\%)$	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ	$\Gamma_f/\Gamma_{\text{total}} (\%)$	E_f	J_f^π
9110	1	5716	3.4 22	3393.5	2 ⁺	9310	1	6186	2.6 17	3124.0	2 ⁺
		5986	2.8 18	3124.0	2 ⁺			7025	4.4 22	2284.9	0 ⁺
		6825	6.9 29	2284.9	0 ⁺			7151	7.5 37	2158.6	2 ⁺
		6951	8.2 27	2158.6	2 ⁺			7977	11.5 40	1332.5	2 ⁺
		7777	19.5 59	1332.5	2 ⁺			9310	53.9 69	0.0	0 ⁺
		9110	59.1 66	0.0	0 ⁺	9663	1	5927	3.3 24	3736.3	2 ⁺
9310	1	4991	1.6 14	4319.0	1 ⁺ , 2 ⁺			6269	1.3 12	3393.5	2 ⁺
		5289	2.4 16	4020.5	1 ⁺			6344	1.3 9	3318.7	0 ⁺
		5302	1.4 14	4007.9	2 ⁺			6394	2.9 24	3269.4	2 ⁺
		5422	1.2 10	3887.8	2 ⁺			6469	3.2 25	3194.0	1 ⁺
		5574	2.0 17	3736.3	2 ⁺			6539	2.7 17	3124.0	2 ⁺
		5916	2.1 16	3393.5	2 ⁺			7378	6.2 25	2284.9	0 ⁺
		5991	1.8 11	3318.7	0 ⁺			7504	9.6 31	2158.6	2 ⁺
		6041	3.0 22	3269.4	2 ⁺			8330	13.5 44	1332.5	2 ⁺
		6116	4.5 22	3194.0	1 ⁺			9663	56.1 67	0.0	0 ⁺

$^{60}\text{Ni}(\text{pol } \gamma, \gamma): \text{res}$ 2013Sc08

Level Scheme

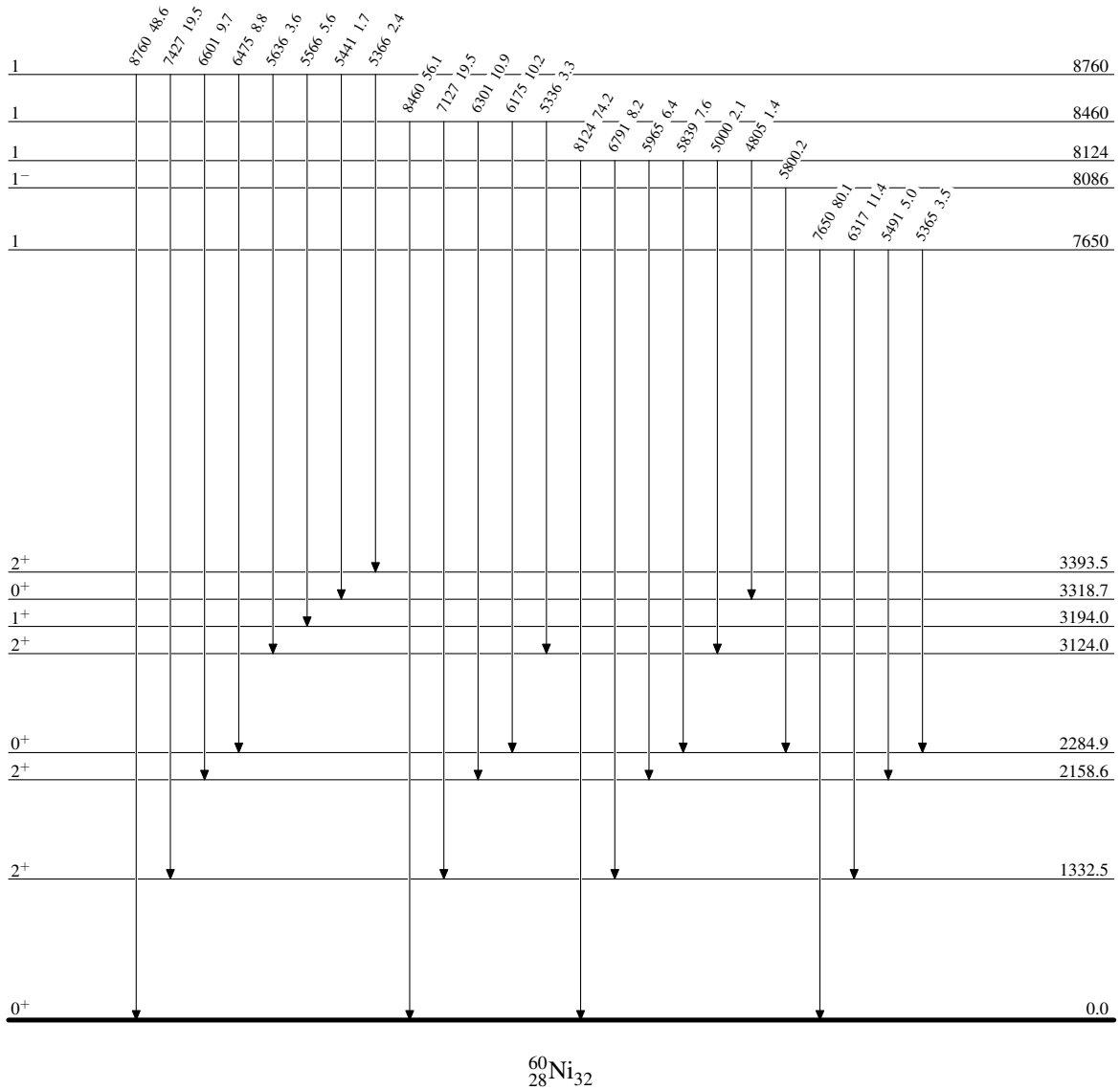
Intensities: % photon branching from each level

 $^{60}_{28}\text{Ni}_{32}$

$^{60}\text{Ni}(\text{pol } \gamma, \gamma'):\text{res}$ 2013Sc08

Level Scheme (continued)

Intensities: % photon branching from each level

 $^{60}_{28}\text{Ni}_{32}$