^{58}Ni(γ,γ'),(pol γ,γ') 2000Ba63,1981Ac02,1970Me18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh	NDS 111,897 (2010)	12-Jan-2010

2000Ba63: (γ,γ') and (pol γ,γ'): Bremsstrahlung beam. E=6.5, 10 MeV for unpolarized beam, 12 MeV for partially linearly polarized photon beams. Measured Eγ, Iγ, $\gamma(\theta)$, polarization asymmetry.
1981Ac02: (γ,γ') E=6-10 MeV. Measured Eγ, Iγ, $\gamma(\theta)$, deduced widths for 10 levels from 6030 to 9842 keV.
1970Me18: (γ,γ') E<4.5 MeV. Measured Eγ, Iγ, deduced widths for six levels from 1453 to 4108.
Others:
1998Is13: E<6.7 MeV. Measured parameters for 6030 state.
1981Ca10: E<1.65 MeV, first 2^+ state.
1972ArZD (thesis): measured resonance fluorescence for first 2^+ state.

^{58}Ni Levels

All half-lives listed in this dataset are deduced from measured Γ_0^2/Γ and branching ratios from Adopted Levels, gammas dataset.

E(level)[†]	J$^\pi$[d]	Γ_0 (eV)[b]	I$_s$ eV.b[c]	Comments
0.0	0^+			
1454.0[@&] *1*	2^+[@]	0.00065 eV *4*		$T_{1/2}$=0.70 ps 4 from weighted averaged Γ=0.00065 eV *4* from the following measurements: 0.00074 eV *10* (1981Ca10), 0.000613 eV *43* (1972ArZD), 0.00067 *6* (1970Me18), 0.00106 *35* (1964Bo22).
2014.9?[‡a] *4*		0.0079[a] eV *11*	23[a] *3*	
2034.6?[‡a] *3*	2	0.014[a] eV *1*	67[a] *5*	
2385.1?[‡] *9*	(2)	0.0017 eV *4*	5.9 *13*	
2598.4?[‡a] *3*		0.078[a] eV *9*	134[a] *15*	
2632.8?[‡] *13*	(1)	0.0040 eV *11*	6.7 *18*	
2741.8?[‡a] *7*	(2)	0.0046[a] eV *10*	12[a] *3*	
2775.2[@] *2*	2^+[@]			
2901.8[@] *2*	1^+[@]			
2942.4[@] *2*	0^+[@]			
3037.8[&] *7*	2	0.00156 eV *34*	3.2 *8*	Γ: from 1970Me18. Other: Γ_0=0.0015 eV *4* (2000Ba63), from which Γ_0^2/Γ=0.00060 eV *16* using adopted Γ_0/Γ=0.402 *14*, which is in disagreement with value from 1970Me18. It appears that in this case value listed as Γ_0 in 2000Ba63 actually corresponds to Γ_0^2/Γ. $T_{1/2}$=47 fs *+13−9* from average Γ_0^2/Γ=0.00156 eV *34* and Γ_0/Γ=0.402 *14* from adopted gammas.
3202.2?[‡a] *3*		0.027[a] eV *4*	30[a] *4*	
3253.7?[‡a] *4*		0.075[a] eV *4*	82[a] *4*	
3263.9[&] *6*	2	0.012 eV *3*	10 *1*	Γ_0^2/Γ=0.0056 eV *7* deduced from Γ_0=0.012 eV *3* and Γ_0/Γ=0.47 *10* in 2000Ba63 compared with Γ_0^2/Γ=0.0053 eV *8* from 1970Me18, average value=0.0055 eV *7*. Note that Uncertainty of 0.10 for Γ_0/Γ is from table III of 2000Ba63, 0.01 in authors; table IV seems a misprint; the former seems more realistic in view of weak population of this level. Also uncertainty for Γ_0 is from table III, it is 0.002 in table IV. $T_{1/2}$=30 fs *4* from Γ_0^2/Γ=0.0055 eV *7* and adopted Γ_0/Γ=0.598 *11*.
3269.1[a] *8*	(2)	0.0067[a] eV *11*	12[a] *2*	$T_{1/2}$>57 fs.
3273.7[a] *7*	(2)	0.0078[a] eV *11*	14[a] *2*	$T_{1/2}$>50 fs.
3450.9[a] *5*		0.037[a] eV *4*	36[a] *4*	$T_{1/2}$>11 fs.
3595.2[&] *9*		0.0073 eV *13*	6.9 *14*	E(level): this level is assumed to be the same as a nearby level

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^{58}Ni(γ,γ'),(pol γ,γ') 2000Ba63,1981Ac02,1970Me18 (continued)

^{58}Ni Levels (continued)

E(level)[†]	J$^{\pi}$[d]	Γ_0 (eV)[b]	I$_s$ eV.b[c]	Comments
				populated in ^{58}Cu decay, (n,n′γ) and (p,p′g). The measured branching Γ_0/Γ=0.24 *3* in 2000Ba63 is in severe disagreement with 0.63 *3* in adopted gammas. It seems that the branching in 2000Ba63 is in error, it would be in better agreement if 0.24 refers to branching for γ ray to the excited state.
				Γ: from Γ_0^2/Γ=0.0046 eV *8* (1970Me18) and adopted Γ_0/Γ=0.63 *3*. Other: 0.033 eV *8* (2000Ba63).
				$T_{1/2}$=39 fs *7* from Γ_0^2/Γ=0.0046 eV *8* and adopted Γ_0/Γ=0.63 *3*.
3898	2$^+$			E(level): from 1970Me18, not reported by 2000Ba63.
				$T_{1/2}$=13 fs *+10−5* for Γ_0/Γ=0.24 *2*, Γ_0^2/Γ=0.0021 eV *9* (1970Me18).
3943.6[a] *12*		0.016[a] eV *3*	12[a] *3*	$T_{1/2}$>24 fs.
4106.4[&a] *10*		0.0022[a] eV *13*	[a]	Γ: from Γ_0^2/Γ=0.0010 eV *6* (1970Me18) and adopted Γ_0/Γ=0.465 *22*. Other: 0.027 eV *2* (2000Ba63) with feeding effects.
				$T_{1/2}$=0.10 ps *+16−4* for J=2, from Γ_0^2/Γ=0.0010 eV *6* (1970Me18) and adopted Γ_0/Γ=0.465 *22*.
4574.1?[#] *5*	1	0.022 eV *3*	12 *2*	$T_{1/2}$=21 fs *3*.
4954.0 *8*	1	0.032 eV *5*	15 *2*	$T_{1/2}$=14 fs *2*.
5359.3?[#a] *16*		0.012[a] eV *3*	4.8[a] *12*	$T_{1/2}$>29 fs.
5394.0 *9*		0.011 eV *2*	4.2 *10*	$T_{1/2}$=41 fs *8*.
5452.2?[#a] *4*	1	0.030[a] eV *4*	12[a] *2*	$T_{1/2}$>13 fs.
5528.0[a] *4*	(1)	0.056[a] eV *8*	21[a] *3*	$T_{1/2}$>7 fs.
5905.3[a] *7*	1$^+$	0.018[a] eV *3*	10[a] *2*	$T_{1/2}$=25 fs *4*. B(M1)(↑)=0.023 *4* (2000Ba63).
6027.3[&] *7*	1	0.435 eV *22*	112 *3*	Γ_0^2/Γ=0.352 eV *11* deduced from Γ_0=0.435 eV *22* and Γ_0/Γ=0.81 *3* in 2000Ba63.
				Γ: uncertainty of 0.012 in 2000Ba63 increased to 0.022 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63.
				$T_{1/2}$=0.85 fs *5* from Γ_0 and Γ_0/Γ=0.81 *3* of 2000Ba63; ; 1.4 fs *+8−4* for Γ_0=0.33 eV *12*, Γ_0/Γ=1 (1981Ac02).
				Note that Γ_0^2/Γ=0.173 eV *20* (1998Is13) is in disagreement with values from 1981Ac02 and 2000Ba63 by a factor of ≈2.
6424.9?[#] *9*	1	0.049 eV *7*	14 *2*	$T_{1/2}$=9.3 fs *13*.
6430.7?[#] *10*	1	0.066 eV *7*	18 *2*	$T_{1/2}$=6.9 fs *7*.
6685.0?[#] *9*	1	0.126 eV *14*	33 *4*	$T_{1/2}$=3.6 fs *4*.
6892.9?[#] *15*	(1)	0.040 eV *20*	10 *5*	$T_{1/2}$=11 fs *5*.
7048.2[&] *9*	1$^-$	0.552 eV *17*	128 *4*	$T_{1/2}$=0.83 fs *3* from Γ_0 of 2000Ba63; 0.67 fs *+41−18* for Γ_0=0.69 eV *26*, Γ_0/Γ=1 (1981Ac02).
				B(E1)(↑)=4.55×10^{-5} *14* (2000Ba63).
7249.6 *11*	(1)	0.049 eV *17*	11 *4*	$T_{1/2}$=9 fs *3*.
7271.7 *7*	1	0.46 eV *5*	100 *10*	$T_{1/2}$=0.99 fs *11*.
7388.8 *4*	1$^+$	0.457 eV *24*	97 *5*	$T_{1/2}$=1.00 fs *5*.
7585.1 *6*		0.09 eV *4*	18 *8*	
7595.9 *6*	(2)	0.088 eV *13*	29 *5*	$T_{1/2}$=5.2 fs *8*.
7616.0?[#] *10*	(1)	0.048 eV *20*	10 *4*	$T_{1/2}$=9.5 fs *40*.
7709.7[&] *6*	1$^+$	0.632 eV *23*	123 *5*	$T_{1/2}$=0.72 fs *3* for Γ_0 from 2000Ba63; 0.94 fs *+65−27* for Γ_0=0.49 eV *20* (1981Ac02).
				B(M1)(↑)=0.358 *13* (2000Ba63).
7766.0 *7*	(1)	0.122 eV *20*	23 *4*	$T_{1/2}$=3.7 fs *6*.
7807.3 *5*	1$^-$	0.56 eV *7*	107 *13*	$T_{1/2}$=0.81 fs *10*.
				B(E1)(↑)=3.4×10^{-5} *4* (2000Ba63).
7876.7 *26*	1	0.34 eV *16*	44 *13*	Γ_0^2/Γ=0.24 eV *7* deduced from Γ_0=0.34 eV *16* and Γ_0/Γ=0.69 *25* in 2000Ba63.

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^{58}Ni(γ,γ'),(pol γ,γ') 2000Ba63,1981Ac02,1970Me18 (continued)

^{58}Ni Levels (continued)

E(level)[†]	J$^{\pi}$[d]	Γ_0 (eV)[b]	I_s eV.b[c]	Comments
				Γ: uncertainty of 0.07 in 2000Ba63 increased to 0.16 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63. $T_{1/2}$=0.9 fs *5*. Γ_0/Γ=0.69 *25* (2000Ba63).
8068.6?[#] *12*	(1$^-$)	0.33 eV *4*	59 *8*	$T_{1/2}$=1.38 fs *17*. B(E1)(↑)=1.81×10^{-5} *23* (2000Ba63).
8096.3 *6*	1	0.28 eV *5*	50 *9*	$T_{1/2}$=1.6 fs *3*.
8237.3[&] *4*	1$^-$	3.59 eV *6*	610 *9*	$T_{1/2}$=0.127 fs *2* for Γ_0 from 2000Ba63; 0.15 fs *+3−2* for Γ_0=3.0 eV *5*. B(E1)(↑)=18.5×10^{-5} *3* (2000Ba63).
8317.1 *17*	1	0.24 eV *4*	40 *6*	$T_{1/2}$=1.9 fs *3*.
8395.1 *12*	1$^-$	0.84 eV *16*	101 *12*	Γ_0^2/Γ=0.62 eV *8* deduced from Γ_0=0.84 eV *16* and Γ_0/Γ=0.74 *11* in 2000Ba63. Γ: uncertainty of 0.08 in 2000Ba63 increased to 0.16 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63. $T_{1/2}$=0.40 fs *8*. Γ_0/Γ=0.74 *11*, B(E1)(↑)=4.1×10^{-5} *4* (2000Ba63).
8461.0 *7*	1$^+$	0.89 eV *5*	144 *8*	$T_{1/2}$=0.51 fs *3*. B(M1)(↑)=0.383 *21* (2000Ba63).
8514.1 *4*	1$^-$	0.69 eV *5*	109 *8*	$T_{1/2}$=0.66 fs *5*. B(E1)(↑)=3.20×10^{-5} *24* (2000Ba63).
8552.7 *13*	(1)	0.47 eV *4*	74 *7*	$T_{1/2}$=0.97 fs *8*.
8600.5 *7*	1$^+$	0.80 eV *8*	125 *12*	$T_{1/2}$=0.57 fs *6*. B(M1)(↑)=0.33 *3* (2000Ba63).
8679.3[&] *8*	1$^+$	2.05 eV *10*	314 *16*	$T_{1/2}$=0.223 fs *11* for Γ_0 from 2000Ba63; $T_{1/2}$=0.40 fs *+21−11* for Γ_0=1.2 eV *4* (1981Ac02). B(M1)(↑)=0.82 *4* (2000Ba63).
8857.4 *6*	1	0.75 eV *15*	110 *22*	$T_{1/2}$=0.61 fs *12*.
8880.2 *6*	1$^-$	1.17 eV *5*	171 *7*	$T_{1/2}$=0.390 fs *17*. B(E1)(↑)=4.81×10^{-5} *18* (2000Ba63).
8934.6 *5*	1	1.47 eV *5*	213 *8*	$T_{1/2}$=0.310 fs *11*.
8961.3 *7*	1	0.38 eV *4*	54 *6*	$T_{1/2}$=1.20 fs *13*.
9073.4 *6*	1$^{(+)}$	0.89 eV *6*	124 *9*	$T_{1/2}$=0.51 fs *3*. B(M1)(↑)=0.309 *21* (2000Ba63).
9156.9 *7*	1$^+$	0.59 eV *8*	82 *11*	$T_{1/2}$=0.77 fs *10*. B(M1)(↑)=0.20 *3* (2000Ba63).
9190.7[&] *5*	1$^-$	0.79 eV *8*	108 *11*	$T_{1/2}$=0.58 fs *6* for Γ_0 from 2000Ba63; $T_{1/2}$=0.46 fs *+30−13* for Γ_0=1.0 eV *4* (1981Ac02). B(E1)(↑)=2.9×10^{-5} *3* (2000Ba63).
9326.4 *8*	1	0.98 eV *11*	93 *6*	Γ_0^2/Γ=0.71 eV *5* deduced from Γ_0=0.98 eV *11* and Γ_0/Γ=0.72 *7* in 2000Ba63. Γ: uncertainty of 0.06 in 2000Ba63 increased to 0.11 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63. $T_{1/2}$=0.33 fs *5*. Γ_0/Γ=0.72 *7* (2000Ba63).
9368.5[&] *6*	1$^{(-)}$	1.24 eV *12*	163 *15*	$T_{1/2}$=0.37 fs *4* for Γ_0 from 2000Ba63; $T_{1/2}$=0.36 fs *+22−10* for Γ_0=1.3 eV *5* (1981Ac02). B(E1)(↑)=4.3×10^{-5} *4* (2000Ba63).
9455.4 *18*	1	0.22 eV *4*	29 *5*	$T_{1/2}$=2.1 fs *4*.
9523.3 *13*	1$^-$	2.25 eV *24*	165 *10*	Γ_0^2/Γ=1.31 eV *8* deduced from Γ_0=2.25 eV *24* and Γ_0/Γ=0.58 *5* in 2000Ba63. Γ: uncertainty of 0.15 in 2000Ba63 increased to 0.024 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63.

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^{58}Ni(γ,γ'),(pol γ,γ') 2000Ba63,1981Ac02,1970Me18 (continued)

^{58}Ni Levels (continued)

E(level)[†]	J$^\pi$[d]	Γ_0 (eV)[b]	I$_s$ eV.b[c]	Comments
				$T_{1/2}$=0.118 fs *13*. Γ_0/Γ=0.58 *5*, B(E1)(↑)=7.5×10^{-5} *5* (2000Ba63).
9554.0[&] *21*	1	1.36 eV *8*	172 *11*	$T_{1/2}$=0.335 fs *20* for Γ_0 from 2000Ba63; 0.30 fs *+20−8* for Γ_0=1.5 eV *6* (1981Ac02). Γ_0^2/Γ=0.45 eV *5* deduced from Γ_0=1.19 eV *23* and Γ_0/Γ=0.38 *6* in 2000Ba63. Γ: uncertainty of 0.12 in 2000Ba63 increased to 0.23 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63.
9630.5 *24*	1	1.19 eV *23*	57 *6*	$T_{1/2}$=0.15 fs *3*. Γ_0/Γ=0.38 *6* (2000Ba63), 7595.9γ not included.
9667.8[&] *15*	1	0.81 eV *26*	68 *12*	Γ_0^2/Γ=0.54 eV *10* deduced from Γ_0=0.81 eV *26* and Γ_0/Γ=0.67 *18* in 2000Ba63. Γ: uncertainty of 0.17 in 2000Ba63 increased to 0.26 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63. $T_{1/2}$=0.38 fs *13* for Γ_0 and Γ_0/Γ from 2000Ba63; 0.24 fs *+13−6* for Γ_0=1.9 eV *7*, Γ_0/Γ=1 (1981Ac02). Γ_0/Γ=0.67 *18* (2000Ba63).
9723.0 *9*	1$^{(-)}$	1.76 eV *26*	90 *8*	Γ_0^2/Γ=0.74 eV *7* deduced from Γ_0=1.76 eV *26* and Γ_0/Γ=0.42 *5* in 2000Ba63. Γ: uncertainty of 0.13 in 2000Ba63 increased to 0.26 using uncertainties in Γ_0/Γ and in cross section as in 2000Ba63. $T_{1/2}$=0.109 fs *16*. B(E1)(↑)=5.5×10^{-5} *4* (2000Ba63).
9843 *5*	1,2			E(level): from 1981Ac02. This level is not reported by 2000Ba63, too high an energy to be detected near the end-point energy. $T_{1/2}$=0.26 fs *+27−10* for J=1 and Γ_0=1.8 eV *9*, 0.49 fs +0.53−17 for J=2 and Γ_0=0.9 eV *4*; in both cases Γ_0/Γ=1 assumed (1981Ac02).

[†] From 2000Ba63, unless otherwise stated.
[‡] The transition to g.s. shown from this level may be an inelastic transition, thus the existence of this level is considered as uncertain and not included in 'Adopted Levels'. Levels at 2014.9, 2034.6, 2385.1, 2598.4, 2632.8, 2741.8, 3037.8, 3202.2 and 3253.7 are especially questionable in view of the well-known level structure from other experiments.
[#] The transition to g.s. shown from this level may be an inelastic transition, thus the existence of this level is considered as uncertain here as well as in Adopted Levels.
[@] From 'Adopted Levels'.
[&] Level reported in earlier studies (1981Ac02,1970Me18).
[a] Observed only in E(γ)=10 MeV data (2000Ba63); strengths include feeding effects, thus the listed widths are upper limits.
[b] Values are from 2000Ba63, unless otherwise stated. These values must have been deduced by the authors from their measured Γ_0^2/Γ values. When a level deexcites only to the ground state, Γ_0/Γ=1, and $\Gamma_0^2/\Gamma=\Gamma_0$.
[c] Integrated cross section from 2000Ba63.
[d] As proposed by 2000Ba63 based on $\gamma(\theta)$ and (pol γ,γ') measurements.

γ(^{58}Ni)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	E$_f$	J$_f^\pi$
1454.0	2$^+$	1454.28[a] *10*	0.0	0$^+$
2014.9?		2014.9[&d] *4*	0.0	0$^+$
2034.6?	2	2034.6[&d] *3*	0.0	0$^+$
2385.1?	(2)	2385.1[&d] *9*	0.0	0$^+$

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^{58}Ni(γ,γ′),(pol γ,γ′) 2000Ba63,1981Ac02,1970Me18 (continued)

γ(^{58}Ni) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[b]	Comments
2598.4?		2598.4[&d] *3*		0.0	0^+		
2632.8?	(1)	2632.8[&d] *13*		0.0	0^+		
2741.8?	(2)	2741.8[&d] *7*		0.0	0^+		
2775.2	2^+	1321.2[a] *2*		1454.0	2^+		
2901.8	1^+	1448.2[a] *4*		1454.0	2^+		
2942.4	0^+	40.3[a] *4*		2901.8	1^+		
		167.2[a] *2*		2775.2	2^+		
		1488.3[a] *3*		1454.0	2^+		
3037.8	2	3037.8[&] *7*		0.0	0^+		
3202.2?		3202.2[&d] *3*		0.0	0^+		
3253.7?		3253.7[&d] *4*		0.0	0^+		
3263.9	2	1809.8 *11*	53 *10*	1454.0	2^+		
		3263.9 *6*	47 *10*	0.0	0^+		I_γ: using Γ_0/Γ=0.47 *10*.
3269.1	(2)	3269.1 *8*		0.0	0^+		
3273.7	(2)	3273.7 *7*		0.0	0^+		
3450.9		3450.9 *5*		0.0	0^+		
3595.2		2140.6 *1*		1454.0	2^+		
		3595.2 *9*		0.0	0^+		I_γ: Γ_0/Γ=0.24 *3* in 2000Ba63 seems in error, assuming that the 3595 level observed here is the same as the one reported in ^{58}Cu decay, (p,p′γ) and (n,n′γ). It should be 0.63 *3* according to adopted gammas.
3898	2^+	3898		0.0	0^+		
3943.6		3943.6 *12*		0.0	0^+		
4106.4		4106.4 *10*		0.0	0^+		
4574.1?	1	4574.1[c&d] *5*		0.0	0^+		
4954.0	1	4954.0 *8*		0.0	0^+		
5359.3?		5359.3[c&d] *16*		0.0	0^+		
5394.0		5394.0 *9*		0.0	0^+		
5452.2?	1	5452.2[c&d] *4*		0.0	0^+		
5528.0	(1)	5528.0 *4*		0.0	0^+		
5905.3	1^+	5905.3 *7*		0.0	0^+	M1	
6027.3	1	4574.1[c] *5*	19 *3*	1454.0	2^+		
		6027.3 *7*	81 *3*	0.0	0^+		Iγ(90°)/Iγ(125°)=0.97 *31* (1981Ac02).
6424.9?	1	6424.9[c&d] *9*		0.0	0^+		
6430.7?	1	6430.7[c&d] *10*		0.0	0^+		
6685.0?	1	6685.0[c&d] *9*		0.0	0^+		
6892.9?	(1)	6892.9[c&d] *15*		0.0	0^+		
7048.2	1^-	7048.2 *9*		0.0	0^+	E1	Iγ(90°)/Iγ(125°)=0.70 *23* (1981Ac02).
7249.6	(1)	7249.6 *11*		0.0	0^+		
7271.7	1	7271.7 *7*		0.0	0^+		
7388.8	1^+	7388.8 *4*		0.0	0^+	M1	
7585.1		7585.1 *6*		0.0	0^+		
7595.9	(2)	7595.9[c] *6*		0.0	0^+		
7616.0?	(1)	7616.0[c&d] *10*		0.0	0^+		
7709.7	1^+	7709.7 *6*		0.0	0^+	M1	Iγ(90°)/Iγ(125°)=1.1 *4* (1981Ac02).
7766.0	(1)	7766.0 *7*		0.0	0^+		
7807.3	1^-	7807.3 *5*		0.0	0^+	E1	
7876.7	1	6424.9[c] *9*	31 *25*	1454.0	2^+		
		7876.7 *26*	69 *25*	0.0	0^+		
8068.6?	(1^-)	8068.6[c&d] *12*		0.0	0^+	(E1)	

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^{58}Ni(γ,γ′),(pol γ,γ′) 2000Ba63,1981Ac02,1970Me18 (continued)

γ(^{58}Ni) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[b]	Comments
8096.3	1	8096.3 *6*		0.0	0^+		
8237.3	1^-	8237.3 *4*		0.0	0^+	(E1)	Iγ(90°)/Iγ(125°)=0.66 *9* (1981Ac02).
8317.1	1	8317.1 *17*		0.0	0^+		
8395.1	1^-	5359.3[c] *16*	#	3037.8	2		
		5452.2[c] *4*	#	2942.4	0^+		
		8395.1 *12*	74 *11*	0.0	0^+	(E1)	
8461.0	1^+	8461.0 *7*		0.0	0^+	M1	
8514.1	1^-	8514.1 *4*		0.0	0^+	E1	
8552.7	(1)	8552.7 *13*		0.0	0^+		
8600.5	1^+	8600.5 *7*		0.0	0^+	M1	
8679.3	1^+	8679.3 *8*		0.0	0^+	M1	Iγ(90°)/Iγ(125°)=0.95 *26* (1981Ac02).
8857.4	1	8857.4 *6*		0.0	0^+		
8880.2	1^-	8880.2 *6*		0.0	0^+	E1	
8934.6	1	8934.6 *5*		0.0	0^+		
8961.3	1	8961.3 *7*		0.0	0^+		
9073.4	$1^{(+)}$	9073.4 *6*		0.0	0^+	(M1)	
9156.9	1^+	9156.9 *7*		0.0	0^+	M1	
9190.7	1^-	9190.7 *5*		0.0	0^+	E1	Iγ(90°)/Iγ(125°)=1.2 *5* (1981Ac02).
9326.4	1	6424.9[c] *9*	28 *7*	2901.8	1^+		
		9326.4 *8*	72 *7*	0.0	0^+		
9368.5	$1^{(-)}$	9368.5 *6*		0.0	0^+	(E1)	Iγ(90°)/Iγ(125°)=0.8 *3* (1981Ac02).
9455.4	1	9455.4 *18*		0.0	0^+		
9523.3	1^-	8068.6[c] *12*	42 *5*	1454.0	2^+		
		9523.3 *13*	58 *5*	0.0	0^+	E1	
9554.0	1	9554.0 *21*		0.0	0^+		Iγ(90°)/Iγ(125°)=1.4 *5* (1981Ac02).
9630.5	1	6430.7[cd] *10*	@	3202.2?			
		7595.9[cd] *6*	@	2034.6?	2		
		7616.0[cd] *10*	@	2014.9?			
		9630.5 *24*	38 *6*	0.0	0^+		
9667.8	1	6892.9[c] *15*	33 *18*	2775.2	2^+		
		9667.8 *15*	67 *18*	0.0	0^+		Iγ(90°)/Iγ(125°)=0.8 *3* (1981Ac02).
9723.0	$1^{(-)}$	6685.0[c] *9*	58 *5*	3037.8	2		
		9723.0 *9*	42 *5*	0.0	0^+	(E1)	
9843	1,2	9842 *5*		0.0	0^+		Iγ(90°)/Iγ(125°)=2.8 *18* (1981Ac02).

[†] From level-energy differences, unless otherwise stated. The recoil correction has not been applied, it is at most 1 keV which is almost within the quoted uncertainty.
[‡] Branching ratios deduced by the evaluators from Γ_0/Γ values of 2000Ba63 in tables III and IV.
[#] 26 *11* for 5359γ+5452γ, if the other possible placements carry negligible intensities.
[@] 62 *6* for 6430.7γ+7616.0γ, assuming that 6431γ and 7616γ are mainly placed from 9630 level, and 7595.9γ is mainly placed from 7596 level.
[&] May be an inelastic transition.
[a] From 'adopted gammas'.
[b] From measured polarization asymmetries (2000Ba63).
[c] Multiply placed.
[d] Placement of transition in the level scheme is uncertain.

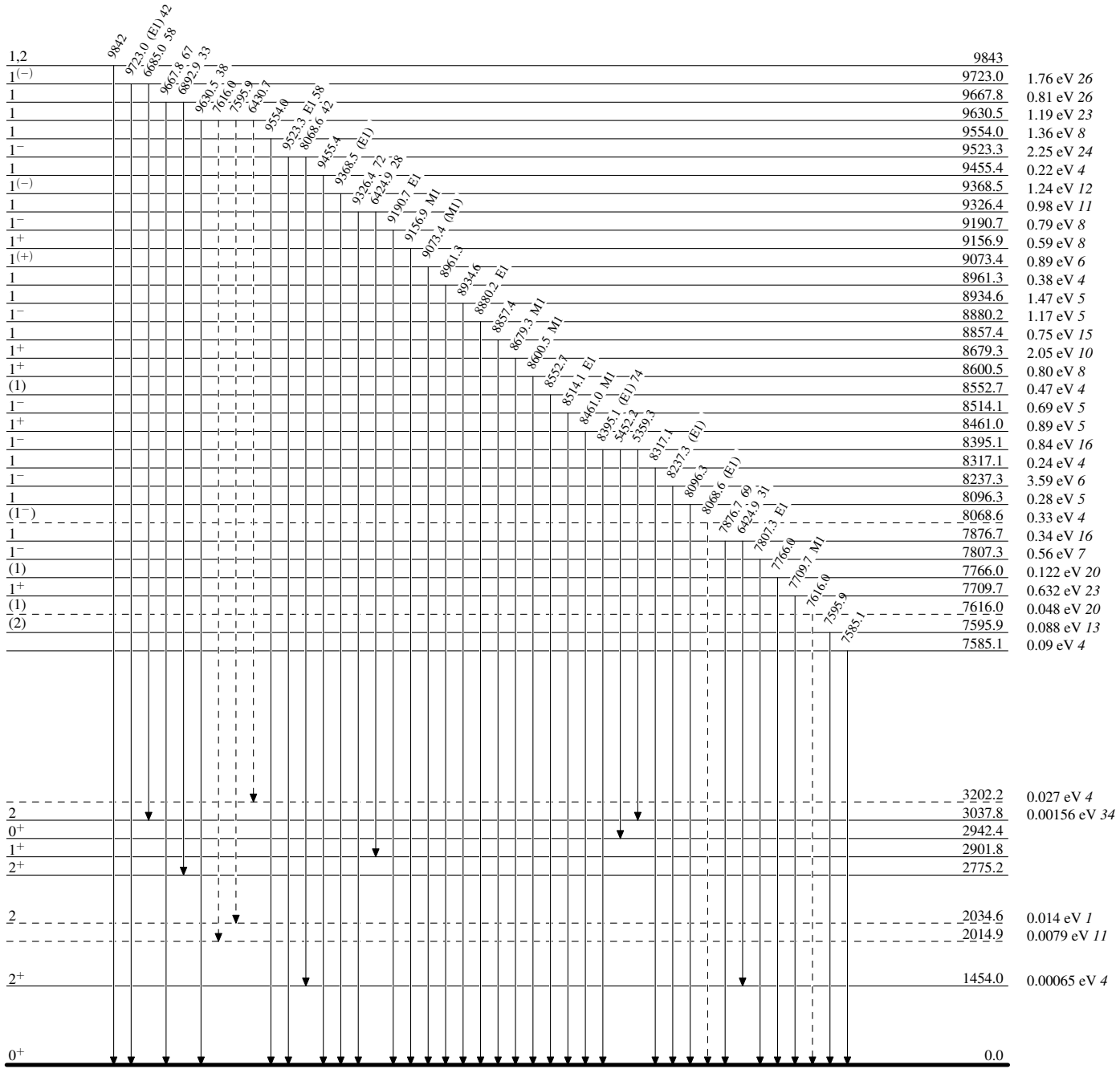
^{58}Ni(γ,γ'),(pol γ,γ') 2000Ba63,1981Ac02,1970Me18

Legend

Level Scheme

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{58}_{28}Ni_{30}$

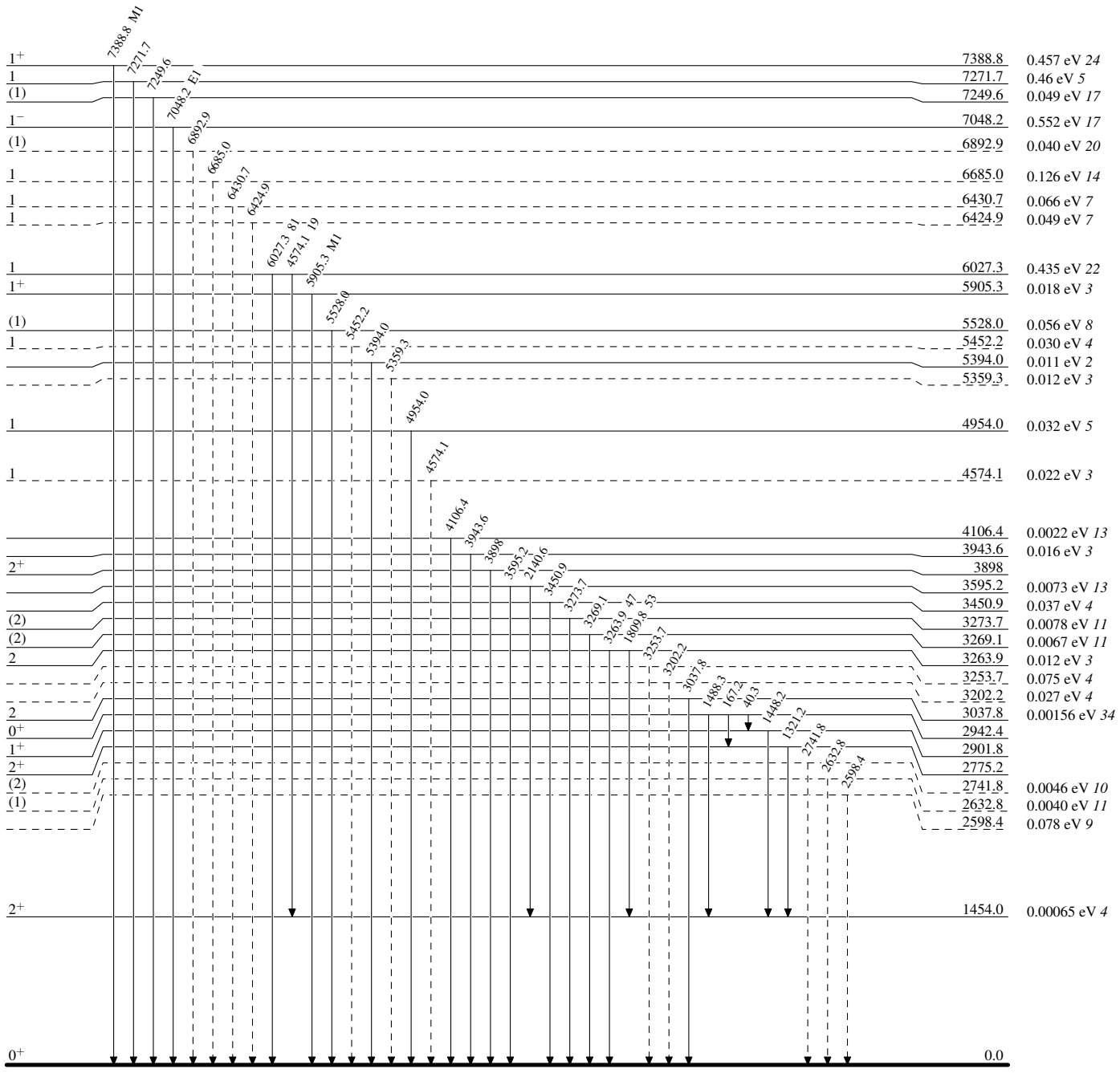
^{58}Ni(γ,γ′),(pol γ,γ′) 2000Ba63,1981Ac02,1970Me18

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{58}_{28}Ni_{30}$

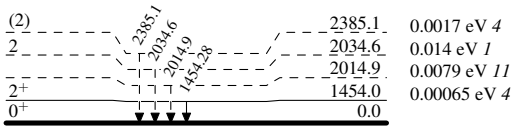
^{58}Ni(γ,γ′),(pol γ,γ′) 2000Ba63,1981Ac02,1970Me18

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{58}_{28}Ni_{30}$