## $^{62}$Ni(p,$\gamma$):E=res 1986De14

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Jun Chen | NDS 196,17 (2024) | 30-Sep-2023 |

1986De14: E=1.15-1.70 MeV protons were produced from the Utrecht 3 MV Van de Graaff accelerator. Target was metallic 97% enriched $^{62}$Ni on a tantalum backing. $\gamma$ rays were detected with a Compton-suppression spectrometer (CSS). Measured E$\gamma$, I$\gamma$. Deduced levels, $\gamma$-ray branching ratios for 10 resonances.

1979Vo01: E=3.766-3.865 MeV protons were produced from the 5.5 MeV Van de Graaff accelerator in Strasbourg and from the Demokritos Tll/25 Tandem Van de Graaff accelerator. Target was 30 $\mu$g/cm$^2$ 98% enriched $^{62}$Ni on a thick Ta backing. $\gamma$ rays were detected with a Ge(Li) detector. Measured E$\gamma$, I$\gamma$, $\gamma(\theta)$ for 9858 and 9863 IAS levels.

1978Br35: E=3.791 and 3.795 MeV protons were produced from the 7.5 MeV Van der Graaff accelerator of the Laboratori Nazionali di Legnaro (Padua). Target was 30 $\mu$g/cm$^2$ 98.7% enriched $^{62}$Ni on a Ta backing. Measured $\gamma(\theta)$ for primary $\gamma$ to 2510 level from 9856 and 9860 resonances. Deduced $\gamma$-ray mixing ratios.

1977Ek03: E=1.4-3.0 MeV protons. Measured $\gamma(\theta)$ for $\gamma$ rays from low-lying levels.

1977Kr05: E=2.481, 2.556, 2.659 MeV. Measured $\gamma(\theta)$. Deduced $\gamma$-ray mixing ratios.

1975Kr06,1975Kr10: E=2.481, 2.546, 2.512, 2.556, 2.659. Measured $\sigma$(E$_\gamma$). Deduced IAS levels, widths.

1974Ra01: E=2.48 MeV proton beam was from the Universite Laval CN Van de Graaff accelerator. $\gamma$ rays were detected with a Ge(Li) detector. Measured I$\gamma$, I$\gamma$. Deduced $\Gamma_\gamma$ of primary $\gamma$ transitions from E$_p$=2480 resonance.

1974Wi15: E=2.58-2.70 MeV protons. Measured E$\gamma$, I$\gamma$.

1972Ki15: E=1.298, 1.372, 1.413, 1.430, 1.507 MeV. Measured $\gamma(\theta)$. Deduced $\gamma$-ray mixing ratios.

1972Sz01: E=3.66-3.89 MeV. Measured $\sigma$(E$_\gamma$), $\gamma(\theta)$. Deduced IAS.

1968Tr04: E=1.215-1.848 MeV. Measured $\gamma\gamma(\theta)$.

1980Co02: E=2.48 MeV proton beam was produced from the KN 4000 Van de Graaff accelerator of Queen's University, Canada. Target was enriched $^{62}$Ni on water-cooled gold backings. $\gamma$ rays were detected with a Ge(Li) detector. Measured E$\gamma$, $\gamma$-ray yield, Doppler-shift attenuation. Deduced no T$_{1/2}$ for $^{63}$Cu.

Others: 1980Ne10, 1981Pa12, 1986Si09, 1988Iz02.

See 1975Kr10 for additional transitions from E(p)≈2660 multiplet.

### $^{63}$Cu Levels

| E(level)[†] | J$^\pi$[‡] | Comments |
|---|---|---|
| 0 | 3/2$^-$ | |
| 669.724 *6* | 1/2$^-$ | |
| 962.145 *8* | 5/2$^-$ | |
| 1327.014 *12* | 7/2$^-$ | |
| 1412.124 *13* | 5/2$^-$ | J$^\pi$: from $\gamma(\theta)$ and branching ratio of $\gamma$ decay from 7510 and 7527 resonance states (1972Ki15). |
| 1547.109 *11* | 3/2$^-$ | |
| 1861.34 *5* | 7/2$^-$ | |
| 2011.274 *19* | 3/2$^-$ | |
| 2062.186 *16* | (1/2)$^-$ | |
| 2081.32 *5* | 5/2$^{(-)}$ | |
| 2092.48 *5* | 7/2$^-$ | |
| 2336.55 *10* | 5/2$^-$ | |
| 2404.7 *4* | 7/2$^-$ | |
| 2497.26 *2* | (3/2$^-$) | |
| 2509 | | E(level): from 1979Vo01. |
| 2511.903 *18* | (1/2,3/2) | |
| 2535.93 *8* | (5/2)$^-$ | E(level): 1975Kr10 give a level at 2533.7 *20*. |
| 2678.6[#] *6* | | |
| 2682.45 *9* | | |
| 2696.69 *2* | (1/2$^-$,3/2$^-$) | |
| 2716.9 *4* | 3/2$^-$,5/2$^-$ | |
| 2780.36 *7* | (1/2$^-$,3/2$^-$) | |
| 2806.6 *5* | (3/2,5/2) | |

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## $^{62}$Ni(p,γ):E=res 1986De14 (continued)

### $^{63}$Cu Levels (continued)

| E(level)[†] | Jπ[‡] | Comments |
|---|---|---|
| 2831.3[#] *8* | | |
| 2857.27 *12* | | |
| 2889.29 *4* | (1/2⁻,3/2⁻) | E(level): other: 2887.1 *6* from 1972Ki15. |
| 2956.2[#] *8* | | |
| 2976.94 *6* | | |
| 3044.52 *9* | | |
| 3100.54 *4* | | |
| 3128.7[#] *8* | | |
| 3225.3[#] *6* | | |
| 3263.6[#] *6* | | |
| 3292.4[#] *6* | | |
| 3297.62 *10* | | |
| 3307.03 *7* | | |
| 3309.6[#] *5* | | |
| 3404.41 *9* | | |
| 3418.16 *4* | | |
| 3429.80 *8* | | |
| 3461.3[#] *8* | | |
| 3465.00 *11* | | |
| 3474.59 *12* | | |
| 3541.3 *2* | | |
| 3569.47 *10* | | |
| 3580.71 *12* | | |
| 3647.51 *7* | | |
| 3656.8[#] *8* | | |
| 3719.04 *8* | | |
| 3740.19 *13* | | |
| 3774.43 *9* | | |
| 3785.53 *4* | | |
| 3866.55 *10* | | |
| 3885.68 *11* | | |
| 3897.45 *8* | | |
| 3902.1[#] *10* | | |
| 3960.1[#] *10* | | |
| 3978.47 *11* | | |
| 4017.08 *11* | | |
| 4054.84 *11* | | |
| 4113.20 *16* | | |
| 4119.1[#] *10* | | |
| 4124.61 *14* | | |
| 4132.78 *14* | | |
| 4145.33 *8* | | |
| 4148.18 *14* | | |
| 4225.59 *14* | | |
| 4285.03 *10* | | |
| 4289.49 *10* | | |
| 4354.75 *15* | | |
| 4358.43 *14* | | |
| 4382.11 *14* | | |
| 4402.97 *10* | | |
| 4419.70 *10* | | |
| 4457.02 *9* | | |
| 4470.78 *9* | | |

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## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $^{63}$Cu Levels (continued)

| E(level)[†] | J$^{\pi}$[‡] | Comments |
|---|---|---|
| 4498.45 *12* | | |
| 4501.43 *10* | | |
| 4505.52 *9* | | |
| 4517.15 *13* | | |
| 4531.39 *9* | | |
| 4592.89 *13* | | |
| 4640.0 *5* | | |
| 4643.75 *12* | | |
| 4646.70 *14* | | |
| 4691.80 *12* | | |
| 4752.66 *12* | | |
| 4789.14 *10* | | |
| 4795.77 *10* | | |
| 4806.23 *10* | | |
| 4810.20 *16* | | |
| 4838.50 *15* | | |
| 4869.85 *14* | | |
| 4876.65 *25* | | |
| 4955.40 *10* | | |
| 5016.45 *11* | | |
| 5053.0 *2* | | |
| 5073.47 *9* | | |
| 5101.18 *10* | | |
| 5139.6 *2* | | |
| 5161.19 *13* | | |
| 5225.5 *3* | | |
| 5273.75 *11* | | |
| 5311.95 *13* | | |
| 5335.3 *3* | | |
| 5366.07 *14* | | |
| 5542.7 *2* | | |
| 5571.36 *10* | | |
| 5579.30 *13* | | |
| 5591.62 *11* | | |
| 5602.0 *3* | | |
| 5734.8 *3* | | |
| 5797.32 *10* | | |
| 5803.87 *10* | | |
| 5828.33 *14* | | |
| 5867.63 *15* | | |
| 6092.78 *11* | | |
| 6374.86 *10* | | |
| 7282.7 *9* | | E(level): from E(p)=1179.18 *6* (1986De14). |
| 7363.94 *9* | | E(level): from E(p)=1261.74 *7* (1986De14). |
| 7399.88 *11* | 1/2 | E(level): from E(p)=1298.27 *9* (1986De14). Other: 7400.0 *5* from E(p)=1298 in 1972Ki15.<br>J$^{\pi}$: from 1972Ki15. |
| 7475.27 *9* | 1/2 | E(level): from E(p)=1374.89 *7* (1986De14). Other: 7472.7 *5* from E(p)=1372 in 1972Ki15.<br>J$^{\pi}$: from 1972Ki15, 1968Tr04. |
| 7513.2 *4* | (3/2) | E(level): from 1972Ki15. E(p)=1413 (1972Ki15,1968Tr04).<br>J$^{\pi}$: from 1972Ki15. J=1/2 in 1968Tr04. |
| 7532.20 *22* | 1/2 | E(level): from E(p)=1432.74 *22* (1986De14). Other: 7529.8 *4* from E(p)=1430 in 1972Ki15.<br>J$^{\pi}$: from 1972Ki15. |
| 7607.80 *10* | (1/2) | E(level): from E(p)=1509.57 *8*, doublet (1986De14). Other: 7605.7 *4* from E(p)=1507 in 1972Ki15, 1968Tr04.<br>J$^{\pi}$: from 1972Ki15. |
| 7712.2 *2* | | E(level): from E(p)=1615.7 *2*, multiplet (1986De14). |
| 7732.60 *11* | (1/2) | E(level): from E(p)=1636.40 *9* (1986De14). Other: E(p)=1634 in 1968Tr04. |

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## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $^{63}$Cu Levels (continued)

| E(level)[†] | J$^\pi$[‡] | Comments |
|---|---|---|
| | | J$^\pi$: from 1968Tr04. |
| 7745.37 *13* | | E(level): from E(p)=1649.38 *12* (1986De14). |
| 7772.7 *5* | | E(level): from E(p)=1677.2 *5*, multiplet (1986De14). |
| 8564.66 *24* | 1/2$^-$ | E(level),J$^\pi$: E(p)=2481; IAS($^{63}$Ni g.s.); $\Gamma_\gamma$=1.5 eV (1975Kr10), 1.02 eV (1974Ra07). Probably includes J=3/2 or 5/2 resonance (1977Kr05). |
| 8628.8 *4* | (5/2$^-$) | E(level),J$^\pi$: E(p)=2546; IAS($^{63}$Ni 87 level); $\Gamma_\gamma$=0.13 eV (1975Kr10). |
| 8639.0 *3* | (5/2$^-$) | E(level),J$^\pi$: E(p)=2556; IAS($^{63}$Ni 87 level); $\Gamma_\gamma$=0.35 eV (1975Kr10). |
| 8693.7 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2612.3; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.13 eV (1974Wi15). |
| 8700.7 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2619.3; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.04 eV (1974Wi15). |
| 8718.6 *8* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2637.6; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.19 eV (1974Wi15). |
| 8719.1 *8* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2638.5; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.03 eV (1974Wi15). |
| 8719.2 *5* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2639.0; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.13 eV (1974Wi15). |
| 8727.5 *5* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2646.6; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.26 eV (1974Wi15). |
| 8731.7 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2650.8; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.15 eV (1974Wi15). |
| 8734.6 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2653.6; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.16 eV (1974Wi15). |
| 8738.6 *5* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2658.4; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.09 eV (1974Wi15). |
| 8743.2 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2661.7; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.34 eV (1974Wi15). |
| 8743.6 *5* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2663.1; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.38 eV (1974Wi15). |
| 8746.6 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2666.4; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.04 eV (1974Wi15). |
| 8747.6 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2667.5; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.09 eV (1974Wi15). |
| 8750.6 *6* | (3/2$^-$) | E(level),J$^\pi$: E(p)=2670.4; IAS($^{63}$Ni 156 level); $\Gamma_\gamma$=0.11 eV (1974Wi15). |
| 9811.2 *15* | | E(level): E(p)=3751 *4* (1972Sz01); not 9/2$^+$ (1976Ar01); 3749.8 (1978Br35).<br>$\Gamma_p\Gamma(7301\gamma)/\Gamma$=0.10 eV *4* (1972Sz01), 0.05 eV *3* (1978Br35). |
| 9834.2 *15* | | E(level): E(p)=3774 *4* (1972Sz01); 3774.7, doublet (1978Br35).<br>$\Gamma_p\Gamma(7324\gamma)/\Gamma$=0.21 eV *5* (1972Sz01), 0.08 eV *4* (1978Br35). |
| 9846.2 *15* | | E(level): E(p)=3786 *4* (1972Sz01), 3788.0 (1978Br35).<br>$\Gamma_p\Gamma(7336\gamma)/\Gamma$=0.45 eV *5* (1972Sz01), 0.11 eV *4* (1978Br35). |
| 9850.3 | 9/2 | $\Gamma_p\Gamma(7349\gamma)/\Gamma$=0.66 eV *6* (1972Sz01), 0.16 eV *5* (1978Br35).<br>E(level): E(p)=3790.8 (1978Br35), others: 3799 (1979Vo01), 3790 *4* (1972Sz01).<br>J$^\pi$: 9/2$^+$ IAS (1972Sz01,1978Br35); not 9/2$^+$ IAS (1979Vo01,1976Ar01). |
| 9857 | 9/2 | J$^\pi$: 9/2 from $\gamma(\theta)$ in 1978Br35; 9/2$^+$ IAS (1972Sz01,1978Br35).<br>$\Gamma_p\Gamma(7349\gamma)/\Gamma$=0.24 eV *7* (1978Br35).<br>E(level): E(p)=3795 (1978Br35). |
| 9865 | | E(level): E(p)=3804 (1979Vo01), E(p)=3806 *4* (1972Sz01), 3807 (1978Br35).<br>J$^\pi$: 9/2$^+$ IAS (1972Sz01).<br>$\Gamma_p\Gamma(7354\gamma)/\Gamma$=0.24 eV *4* (1972Sz01), 0.09 eV *5* (1978Br35). |

[†] E(level) up to 6375 are from 1986De14 based on their E$\gamma$ data (but precise E$\gamma$ values not listed by the authors) and E(level) above that are from E(p)(c.m.)+S(p)($^{63}$Cu), with S(p)=6122.40 *6* and E(p)(c.m.)=E(p)(lab)×m($^{62}$Ni)/[m(p)+m($^{62}$Ni)], unless otherwise noted.
[‡] As given in 1986De14, based on known assignments of low-lying levels, $\gamma$ decay patterns, unless otherwise noted.
[#] From 1975Kr10.

### $\gamma$($^{63}$Cu)

| E$_i$(level) | J$_i^\pi$ | E$_\gamma$[†] | I$_\gamma$[†] | E$_f$ | J$_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 669.724 | 1/2$^-$ | 669.720 | 100 | 0 | 3/2$^-$ | |
| 962.145 | 5/2$^-$ | 962.137 | 100 | 0 | 3/2$^-$ | |
| 1327.014 | 7/2$^-$ | 364.868 | 16.2 *3* | 962.145 | 5/2$^-$ | $\delta$: +0.073 *22* for J=7/2 (1977Ek03). |
| | | 1326.999 | 83.8 *3* | 0 | 3/2$^-$ | |
| 1412.124 | 5/2$^-$ | 449.977 | 21.8 *3* | 962.145 | 5/2$^-$ | $\delta$: −0.87 *+19−25* or −0.32 *+14−17* for J=5/2 (1977Ek03). |

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## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 1412.124 | 5/2$^-$ | 742.395[@] | 6.5 *3* | 669.724 | 1/2$^-$ | |
| | | 1412.107 | 71.7 *3* | 0 | 3/2$^-$ | $\delta$: −4.5 *+6−7* or −0.57 *+4−7* for J=5/2 (1977Ek03). |
| 1547.109 | 3/2$^-$ | 584.961[@] | 21.5 *4* | 962.145 | 5/2$^-$ | $\delta$: $\delta\leq-4$, or $\delta\geq9.5$, or −0.29 *+17−22* for J=3/2 (1977Ek03). |
| | | 877.378 | 2.2 *3* | 669.724 | 1/2$^-$ | |
| | | 1547.089 | 76.2 *4* | 0 | 3/2$^-$ | $\delta$: +0.3 *1* (1972Ki15); −3.7 *+7−10* or −0.01 *5* (1977Ek03). |
| 1861.34 | 7/2$^-$ | 899.19 | 45 *1* | 962.145 | 5/2$^-$ | |
| | | 1861.31 | 55 *1* | 0 | 3/2$^-$ | |
| 2011.274 | 3/2$^-$ | 464.163 | 2.2 *4* | 1547.109 | 3/2$^-$ | |
| | | 599.147 | 1.9 *5* | 1412.124 | 5/2$^-$ | |
| | | 1049.120 | 25.3 *5* | 962.145 | 5/2$^-$ | |
| | | 1341.535 | 22.2 *5* | 669.724 | 1/2$^-$ | |
| | | 2011.240 | 48 *1* | 0 | 3/2$^-$ | |
| 2062.186 | (1/2)$^-$ | 515.075 | 36.3 *6* | 1547.109 | 3/2$^-$ | |
| | | 1392.446 | 47.7 *5* | 669.724 | 1/2$^-$ | |
| | | 2062.150 | 15.9 *5* | 0 | 3/2$^-$ | |
| 2081.32 | 5/2$^{(-)}$ | 534.21 | 10 *1* | 1547.109 | 3/2$^-$ | |
| | | 754.30 | 27 *2* | 1327.014 | 7/2$^-$ | |
| | | 1119.16 | 24 *1* | 962.145 | 5/2$^-$ | |
| | | 2081.28 | 39 *1* | 0 | 3/2$^-$ | |
| 2092.48 | 7/2$^-$ | 680.35 | <5 | 1412.124 | 5/2$^-$ | |
| | | 765.46 | 40 *1* | 1327.014 | 7/2$^-$ | |
| | | 1130.32 | 52 *1* | 962.145 | 5/2$^-$ | |
| | | 2092.44 | 9 *1* | 0 | 3/2$^-$ | |
| 2336.55 | 5/2$^-$ | 475.21 | <5 | 1861.34 | 7/2$^-$ | |
| | | 924.42 | 8 *1* | 1412.124 | 5/2$^-$ | |
| | | 1374.39 | 22 *2* | 962.145 | 5/2$^-$ | |
| | | 1666.80 | <3 | 669.724 | 1/2$^-$ | |
| | | 2336.50 | 70 *1* | 0 | 3/2$^-$ | |
| 2404.7 | 7/2$^-$ | 323.4 | <6 | 2081.32 | 5/2$^{(-)}$ | |
| | | 342.5 | <6 | 2062.186 | (1/2)$^-$ | |
| | | 393.4 | <6 | 2011.274 | 3/2$^-$ | |
| | | 543.4 | <5 | 1861.34 | 7/2$^-$ | |
| | | 857.6 | <5 | 1547.109 | 3/2$^-$ | |
| | | 992.6 | 22 *3* | 1412.124 | 5/2$^-$ | |
| | | 1077.7 | 35 *3* | 1327.014 | 7/2$^-$ | |
| | | 1442.5 | 43 *4* | 962.145 | 5/2$^-$ | |
| | | 1735.0 | <6 | 669.724 | 1/2$^-$ | |
| | | 2404.7 | <10 | 0 | 3/2$^-$ | |
| 2497.26 | (3/2$^-$) | 1085.13 | 1.5 *2* | 1412.124 | 5/2$^-$ | |
| | | 1535.10 | 2.4 *2* | 962.145 | 5/2$^-$ | |
| | | 1827.51 | 14.0 *3* | 669.724 | 1/2$^-$ | |
| | | 2497.21 | 82.1 *3* | 0 | 3/2$^-$ | |
| 2511.903 | (1/2,3/2) | 1842.150 | 6.6 *2* | 669.724 | 1/2$^-$ | |
| | | 2511.849 | 93.4 *2* | 0 | 3/2$^-$ | |
| 2535.93 | (5/2)$^-$ | 1573.76 | 80[‡] | 962.145 | 5/2$^-$ | |
| | | 2535.88 | 20[‡] | 0 | 3/2$^-$ | |
| 2678.6 | | 1131.5 | 66[‡] | 1547.109 | 3/2$^-$ | |
| | | 1716.4 | 34[‡] | 962.145 | 5/2$^-$ | |
| 2682.45 | | 2012.69 | 72 *6* | 669.724 | 1/2$^-$ | |
| 2696.69 | (1/2$^-$,3/2$^-$) | 685.41 | 3.7 *5* | 2011.274 | 3/2$^-$ | |
| | | 1149.57 | 15.7 *5* | 1547.109 | 3/2$^-$ | |
| | | 2026.93 | 46 *1* | 669.724 | 1/2$^-$ | |
| | | 2696.63 | 34 *1* | 0 | 3/2$^-$ | |
| 2780.36 | (1/2$^-$,3/2$^-$) | 718.17 | 3.7 *3* | 2062.186 | (1/2)$^-$ | |

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## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 2780.36 | (1/2$^-$,3/2$^-$) | 1233.24 | 13 *1* | 1547.109 | 3/2$^-$ |
| | | 2110.60 | 26 *1* | 669.724 | 1/2$^-$ |
| | | 2780.29 | 57 *1* | 0 | 3/2$^-$ |
| 2806.6 | (3/2,5/2) | 1479.6 | 27 *3* | 1327.014 | 7/2$^-$ |
| | | 2806.5 | 73 *3* | 0 | 3/2$^-$ |
| 2831.3 | | 2831.2‡ | 100 | 0 | 3/2$^-$ |
| 2857.27 | | 1445.13 | 31 *1* | 1412.124 | 5/2$^-$ |
| | | 1895.09 | 11 *2* | 962.145 | 5/2$^-$ |
| | | 2187.51 | 22 *1* | 669.724 | 1/2$^-$ |
| | | 2857.20 | 35 *1* | 0 | 3/2$^-$ |
| 2889.29 | (1/2$^-$,3/2$^-$) | 807.96 | 10 *1* | 2081.32 | 5/2$^{(-)}$ |
| | | 1927.11 | 52 *2* | 962.145 | 5/2$^-$ |
| | | 2219.52 | 16 *1* | 669.724 | 1/2$^-$ |
| | | 2889.22 | 22 *2* | 0 | 3/2$^-$ |
| 2956.2 | | 2956.1‡ | 100 | 0 | 3/2$^-$ |
| 2976.94 | | 2307.17 | 15 *1* | 669.724 | 1/2$^-$ |
| | | 2976.86 | 85 *1* | 0 | 3/2$^-$ |
| 3044.52 | | 547.26 | 7 *1* | 2497.26 | (3/2$^-$) |
| | | 1497.39 | 8 *1* | 1547.109 | 3/2$^-$ |
| | | 2374.75 | 6 *1* | 669.724 | 1/2$^-$ |
| | | 3044.44 | 78 *1* | 0 | 3/2$^-$ |
| 3100.54 | | 2430.77 | 45 *1* | 669.724 | 1/2$^-$ |
| | | 3100.46 | 55 *1* | 0 | 3/2$^-$ |
| 3128.7 | | 1117.4‡ | 100 | 2011.274 | 3/2$^-$ |
| 3225.3 | | 2555.5 | 66‡ | 669.724 | 1/2$^-$ |
| | | 3225.2 | 34‡ | 0 | 3/2$^-$ |
| 3263.6 | | 2593.8 | 40‡ | 669.724 | 1/2$^-$ |
| | | 3263.5 | 60‡ | 0 | 3/2$^-$ |
| 3292.4 | | 3292.3‡ | 100 | 0 | 3/2$^-$ |
| 3297.62 | | 2627.84 | 78 *3* | 669.724 | 1/2$^-$ |
| | | 3297.53 | 22 *2* | 0 | 3/2$^-$ |
| 3307.03 | | 1244.83 | 29 *2* | 2062.186 | (1/2)$^-$ |
| | | 1295.74 | 14 *1* | 2011.274 | 3/2$^-$ |
| | | 2344.84 | 32 *2* | 962.145 | 5/2$^-$ |
| | | 2637.25 | 15 *1* | 669.724 | 1/2$^-$ |
| | | 3306.94 | 8 *2* | 0 | 3/2$^-$ |
| 3309.6 | | 1762.5 | 100‡ | 1547.109 | 3/2$^-$ |
| | | 3309.5 | 100 | 0 | 3/2$^-$ |
| 3404.41 | | 3404.31 | 98 *2* | 0 | 3/2$^-$ |
| 3418.16 | | 920.89 | 38 *1* | 2497.26 | (3/2$^-$) |
| | | 3418.06 | 62 *1* | 0 | 3/2$^-$ |
| 3429.80 | | 2467.60 | 19 *1* | 962.145 | 5/2$^-$ |
| | | 3429.70 | 81 *1* | 0 | 3/2$^-$ |
| 3461.3 | | 3461.2‡ | 100 | 0 | 3/2$^-$ |
| 3465.00 | | 2795.21 | 47 *1* | 669.724 | 1/2$^-$ |
| | | 3464.90 | 55 *2* | 0 | 3/2$^-$ |
| 3474.59 | | 3474.49 | 68 *5* | 0 | 3/2$^-$ |
| 3541.3 | | 2579.1 | 25 *4* | 962.145 | 5/2$^-$ |
| | | 3541.2 | 51 *7* | 0 | 3/2$^-$ |
| 3569.47 | | 3569.36 | 57 *6* | 0 | 3/2$^-$ |
| 3580.71 | | 2910.91 | 63 *3* | 669.724 | 1/2$^-$ |
| | | 3580.60 | 37 *3* | 0 | 3/2$^-$ |
| 3647.51 | | 1585.30 | 5.8 *4* | 2062.186 | (1/2)$^-$ |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 3647.51 | | 2977.71 | 71 *5* | 669.724 | 1/2$^-$ | |
| 3656.8 | | 3656.7‡ | 100 | 0 | 3/2$^-$ | |
| 3719.04 | | 2756.83 | 35 *1* | 962.145 | 5/2$^-$ | |
| | | 3049.24 | 38 *1* | 669.724 | 1/2$^-$ | |
| | | 3718.92 | 9 *1* | 0 | 3/2$^-$ | |
| 3740.19 | | 2193.04 | 36 *2* | 1547.109 | 3/2$^-$ | |
| | | 3740.07 | 64 *2* | 0 | 3/2$^-$ | |
| 3774.43 | | 1712.22 | 20 *2* | 2062.186 | (1/2)$^-$ | |
| | | 3774.31 | 49 *2* | 0 | 3/2$^-$ | |
| 3785.53 | | 1103.07 | 5.4 *4* | 2682.45 | | |
| | | 1774.23 | 2.9 *5* | 2011.274 | 3/2$^-$ | |
| | | 2373.36 | 19 *1* | 1412.124 | 5/2$^-$ | |
| | | 2823.32 | 14 *1* | 962.145 | 5/2$^-$ | |
| | | 3115.72 | 50 *1* | 669.724 | 1/2$^-$ | |
| 3866.55 | | 2904.33 | 75 *7* | 962.145 | 5/2$^-$ | The remaining 25% intensity is missing or unassigned in 1986De14. |
| 3897.45 | | 3897.32 | 94 *2* | 0 | 3/2$^-$ | The remaining 6% intensity is missing or unassigned in 1986De14. |
| 3902.1 | | 3902.0‡ | 100 | 0 | 3/2$^-$ | |
| 3960.1 | | 3960.0‡ | 100 | 0 | 3/2$^-$ | |
| 3978.47 | | 1916.25 | 14 *1* | 2062.186 | (1/2)$^-$ | |
| | | 1967.16 | 36 *3* | 2011.274 | 3/2$^-$ | The remaining 50% intensity is missing or unassigned in 1986De14. |
| 4017.08 | | 4016.94 | 51 *2* | 0 | 3/2$^-$ | The remaining 49% intensity is missing or unassigned in 1986De14. |
| 4054.84 | | 3385.02 | 31 *5* | 669.724 | 1/2$^-$ | |
| | | 4054.70 | 48 *4* | 0 | 3/2$^-$ | The remaining 21% intensity is missing or unassigned in 1986De14. |
| 4113.20 | | 4113.06 | 84 *7* | 0 | 3/2$^-$ | The remaining 16% intensity is missing or unassigned in 1986De14. |
| 4119.1 | | 4119.0‡ | 100 | 0 | 3/2$^-$ | |
| 4124.61 | | 2113.30 | 10 *2* | 2011.274 | 3/2$^-$ | |
| | | 2577.44 | 17 *2* | 1547.109 | 3/2$^-$ | |
| | | 4124.47 | 18 *2* | 0 | 3/2$^-$ | The remaining 55% intensity is missing or unassigned in 1986De14. |
| 4132.78 | | 3170.55 | 30 *2* | 962.145 | 5/2$^-$ | |
| | | 4132.63 | 18 *6* | 0 | 3/2$^-$ | The remaining 52% intensity is missing or unassigned in 1986De14. |
| 4145.33 | | 3183.10 | 44 *3* | 962.145 | 5/2$^-$ | |
| | | 4145.18 | 45 *3* | 0 | 3/2$^-$ | The remaining 11% intensity is missing or unassigned in 1986De14. |
| 4148.18 | | 3478.35 | 23 *6* | 669.724 | 1/2$^-$ | The remaining 77% intensity is missing or unassigned in 1986De14. |
| 4225.59 | | 2813.40 | 17 *2* | 1412.124 | 5/2$^-$ | |
| | | 3263.35 | 50 *3* | 962.145 | 5/2$^-$ | |
| | | 4225.44 | 12 *1* | 0 | 3/2$^-$ | The remaining 21% intensity is missing or unassigned in 1986De14. |
| 4285.03 | | 3322.79 | 27 *3* | 962.145 | 5/2$^-$ | The remaining 73% intensity is missing or unassigned in 1986De14. |
| 4289.49 | | 3327.25 | 16 *2* | 962.145 | 5/2$^-$ | |
| | | 4289.33 | 66 *3* | 0 | 3/2$^-$ | The remaining 18% intensity is missing or unassigned in 1986De14. |
| 4358.43 | | 3396.19 | 6 *1* | 962.145 | 5/2$^-$ | |
| | | 3688.59 | 64 *3* | 669.724 | 1/2$^-$ | |
| | | 4358.27 | 13 *2* | 0 | 3/2$^-$ | The remaining 17% intensity is missing or unassigned in 1986De14. |
| 4382.11 | | 4381.95 | 18 *5* | 0 | 3/2$^-$ | The remaining 82% intensity is missing or unassigned in 1986De14. |
| 4402.97 | | 3440.72 | 16 *3* | 962.145 | 5/2$^-$ | |
| | | 3733.13 | 17 *4* | 669.724 | 1/2$^-$ | The remaining 67% intensity is missing or unassigned in 1986De14. |
| 4419.70 | | 2408.38 | 25 *3* | 2011.274 | 3/2$^-$ | |
| | | 4419.53 | 49 *7* | 0 | 3/2$^-$ | The remaining 26% intensity is missing or unassigned in 1986De14. |
| 4457.02 | | 2394.79 | 11 *2* | 2062.186 | (1/2)$^-$ | |
| | | 3787.17 | 11 *2* | 669.724 | 1/2$^-$ | |
| | | 4456.85 | 18 *3* | 0 | 3/2$^-$ | The remaining 60% intensity is missing or unassigned in 1986De14. |
| 4498.45 | | 3828.60 | 54 *5* | 669.724 | 1/2$^-$ | |
| | | 4498.28 | 32 *9* | 0 | 3/2$^-$ | The remaining 14% intensity is missing or unassigned in 1986De14. |
| 4501.43 | | 4501.26 | 92 *13* | 0 | 3/2$^-$ | The remaining 8% intensity is missing or unassigned in 1986De14. |
| 4505.52 | | 3093.31 | 26 *1* | 1412.124 | 5/2$^-$ | The remaining 74% intensity is missing or unassigned in 1986De14. |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J^\pi_f$ | Comments |
|---|---|---|---|---|---|
| 4517.15 | 3847.30 | 31 *4* | 669.724 | $1/2^-$ | |
| | 4516.98 | 9 *3* | 0 | $3/2^-$ | The remaining 60% intensity is missing or unassigned in 1986De14. |
| 4531.39 | 3569.14 | 71 *9* | 962.145 | $5/2^-$ | The remaining 29% intensity is missing or unassigned in 1986De14. |
| 4592.89 | 3630.63 | 17 *2* | 962.145 | $5/2^-$ | The remaining 83% intensity is missing or unassigned in 1986De14. |
| 4640.0 | 4639.8 | 51 *9* | 0 | $3/2^-$ | The remaining 49% intensity is missing or unassigned in 1986De14. |
| 4643.75 | 3096.56 | 45 *5* | 1547.109 | $3/2^-$ | |
| | 4643.57 | 30 *2* | 0 | $3/2^-$ | The remaining 25% intensity is missing or unassigned in 1986De14. |
| 4646.70 | 4646.52 | 57 *5* | 0 | $3/2^-$ | The remaining 43% intensity is missing or unassigned in 1986De14. |
| 4752.66 | 3205.46 | 50 *13* | 1547.109 | $3/2^-$ | The remaining 50% intensity is missing or unassigned in 1986De14. |
| 4789.14 | 4788.95 | 18 *3* | 0 | $3/2^-$ | The remaining 82% intensity is missing or unassigned in 1986De14. |
| 4795.77 | 3833.50 | 30 *5* | 962.145 | $5/2^-$ | The remaining 70% intensity is missing or unassigned in 1986De14. |
| 4806.23 | 4136.36 | 80 *4* | 669.724 | $1/2^-$ | The remaining 20% intensity is missing or unassigned in 1986De14. |
| 4810.20 | 4810.00 | 47 *7* | 0 | $3/2^-$ | The remaining 53% intensity is missing or unassigned in 1986De14. |
| 4838.50 | 4838.30 | 59 *12* | 0 | $3/2^-$ | The remaining 41% intensity is missing or unassigned in 1986De14. |
| 4869.85 | 3457.62 | 33 *3* | 1412.124 | $5/2^-$ | |
| | 3907.58 | 50 *4* | 962.145 | $5/2^-$ | The remaining 17% intensity is missing or unassigned in 1986De14. |
| 4955.40 | 2874.01 | 29 *3* | 2081.32 | $5/2^{(-)}$ | |
| | 2944.05 | 25 *3* | 2011.274 | $3/2^-$ | |
| | 4955.19 | 10 *2* | 0 | $3/2^-$ | The remaining 36% intensity is missing or unassigned in 1986De14. |
| 5016.45 | 4054.17 | 51 *4* | 962.145 | $5/2^-$ | The remaining 49% intensity is missing or unassigned in 1986De14. |
| 5053.0 | 5052.8 | 38 *9* | 0 | $3/2^-$ | The remaining 62% intensity is missing or unassigned in 1986De14. |
| 5073.47 | 5073.25 | 79 *16* | 0 | $3/2^-$ | The remaining 21% intensity is missing or unassigned in 1986De14. |
| 5101.18 | 5100.96 | 84 *7* | 0 | $3/2^-$ | The remaining 16% intensity is missing or unassigned in 1986De14. |
| 5139.6 | 5139.4 | 16 *6* | 0 | $3/2^-$ | The remaining 84% intensity is missing or unassigned in 1986De14. |
| 5161.19 | 5160.96 | 42 *3* | 0 | $3/2^-$ | The remaining 58% intensity is missing or unassigned in 1986De14. |
| 5225.5 | 5225.3 | 20 *4* | 0 | $3/2^-$ | The remaining 80% intensity is missing or unassigned in 1986De14. |
| 5273.75 | 5273.51 | 36 *24* | 0 | $3/2^-$ | The remaining 64% intensity is missing or unassigned in 1986De14. |
| 5311.95 | 5311.71 | 28 *3* | 0 | $3/2^-$ | The remaining 72% intensity is missing or unassigned in 1986De14. |
| 5335.3 | 3323.9 | 27 *6* | 2011.274 | $3/2^-$ | The remaining 73% intensity is missing or unassigned in 1986De14. |
| 5366.07 | 5365.83 | 80 *8* | 0 | $3/2^-$ | The remaining 20% intensity is missing or unassigned in 1986De14. |
| 5542.7 | 4580.4 | 46 *8* | 962.145 | $5/2^-$ | The remaining 54% intensity is missing or unassigned in 1986De14. |
| 5571.36 | 4159.09 | 43 *5* | 1412.124 | $5/2^-$ | The remaining 57% intensity is missing or unassigned in 1986De14. |
| 5579.30 | 5579.04 | 78 *11* | 0 | $3/2^-$ | The remaining 22% intensity is missing or unassigned in 1986De14. |
| 5591.62 | 5591.35 | 47 *14* | 0 | $3/2^-$ | The remaining 53% intensity is missing or unassigned in 1986De14. |
| 5602.0 | 4932.1 | 34 *4* | 669.724 | $1/2^-$ | The remaining 66% intensity is missing or unassigned in 1986De14. |
| 5734.8 | 5734.5 | 84 *19* | 0 | $3/2^-$ | The remaining 16% intensity is missing or unassigned in 1986De14. |
| 5797.32 | 5797.03 | 55 *11* | 0 | $3/2^-$ | The remaining 45% intensity is missing or unassigned in 1986De14. |
| 5803.87 | 5803.58 | 69 *15* | 0 | $3/2^-$ | The remaining 31% intensity is missing or unassigned in 1986De14. |
| 5828.33 | 5828.04 | 44 *5* | 0 | $3/2^-$ | The remaining 56% intensity is missing or unassigned in 1986De14. |
| 6092.78 | 6092.46 | 31 *14* | 0 | $3/2^-$ | The remaining 69% intensity is missing or unassigned in 1986De14. |
| 6374.86 | 6374.51 | 76 *16* | 0 | $3/2^-$ | The remaining 24% intensity is missing or unassigned in 1986De14. |
| 7282.7 | 1478.8 | 0.6 | 5803.87 | | |
| | 1916.6 | 0.6 | 5366.07 | | |
| | 1947.4 | 0.2 | 5335.3 | | |
| | 2121.5 | 0.5 | 5161.19 | | |
| | 2181.5 | 1.0 | 5101.18 | | |
| | 2209.2 | 0.2 | 5073.47 | | |
| | 2327.3 | 0.1 | 4955.40 | | |
| | 2412.8 | 0.4 | 4869.85 | | |
| | 2486.9 | 0.5 | 4795.77 | | |
| | 2530.0 | 0.3 | 4752.66 | | |
| | 2638.9 | 0.2 | 4643.75 | | |
| | 2784.2 | 0.8 | 4498.45 | | |
| | 2825.6 | 0.2 | 4457.02 | | |
| | 2862.9 | 0.1 | 4419.70 | | |
| | 2879.7 | 1.0 | 4402.97 | | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,γ):E=res 1986De14 (continued)

### γ($^{63}$Cu) (continued)

| $E_i$(level) | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|
| 7282.7 | 2924.2 | 0.6 | 4358.43 | |
| | 2927.9 | 0.3 | 4354.75 | |
| | 2997.6 | 0.4 | 4285.03 | |
| | 3057.0 | 0.3 | 4225.59 | |
| | 3137.3 | 0.2 | 4145.33 | |
| | 3149.8 | 0.3 | 4132.78 | |
| | 3158.0 | 0.2 | 4124.61 | |
| | 3169.4 | 1.0 | 4113.20 | |
| | 3227.8 | 2.2 | 4054.84 | |
| | 3265.5 | 1.5 | 4017.08 | |
| | 3304.1 | 0.5 | 3978.47 | |
| | 3385.2 | 0.3 | 3897.45 | |
| | 3497.1 | 0.3 | 3785.53 | |
| | 3508.2 | 0.7 | 3774.43 | |
| | 3563.6 | 1.1 | 3719.04 | |
| | 3635.1 | 1.0 | 3647.51 | |
| | 3701.9 | 1.1 | 3580.71 | |
| | 3713.1 | 0.5 | 3569.47 | |
| | 3741.3 | 0.2 | 3541.3 | |
| | 3808.0 | 0.4 | 3474.59 | |
| | 3817.6 | 1.5 | 3465.00 | |
| | 3852.8 | 1.3 | 3429.80 | |
| | 3864.4 | 0.2 | 3418.16 | |
| | 3878.2 | 0.8 | 3404.41 | |
| | 3975.5 | 0.2 | 3307.03 | |
| | 3984.9 | 0.8 | 3297.62 | |
| | 4182.0 | 1.5 | 3100.54 | |
| | 4238.0 | 3.2 | 3044.52 | |
| | 4305.6 | 0.8 | 2976.94 | |
| | 4393.3 | 0.9 | 2889.29 | $(1/2^-,3/2^-)$ |
| | 4425.3 | 2.0 | 2857.27 | |
| | 4502.2 | 0.9 | 2780.36 | $(1/2^-,3/2^-)$ |
| | 4585.8 | 6.3 | 2696.69 | $(1/2^-,3/2^-)$ |
| | 4772.0 | 0.2 | 2511.903 | (1/2,3/2) |
| | 4785.2 | 3.2 | 2497.26 | $(3/2^-)$ |
| | 5201.2 | 0.5 | 2081.32 | $5/2^{(-)}$ |
| | 5220.3 | 1.6 | 2062.186 | $(1/2)^-$ |
| | 5271.2 | 0.9 | 2011.274 | $3/2^-$ |
| | 5735.3 | 6.4 | 1547.109 | $3/2^-$ |
| | 5870.3 | 2.9 | 1412.124 | $5/2^-$ |
| | 6320.2 | 0.7 | 962.145 | $5/2^-$ |
| | 6612.6 | 41 | 669.724 | $1/2^-$ |
| | 7282.3 | 2.5 | 0 | $3/2^-$ |
| 7363.94 | 989.07 | 0.3 | 6374.86 | |
| | 1271.15 | 0.6 | 6092.78 | |
| | 1496.29 | 0.5 | 5867.63 | |
| | 1560.05 | 0.2 | 5803.87 | |
| | 1566.60 | 0.4 | 5797.32 | |
| | 1792.55 | 0.6 | 5571.36 | |
| | 2202.71 | 0.4 | 5161.19 | |
| | 2262.72 | 1.9 | 5101.18 | |
| | 2290.43 | 0.1 | 5073.47 | |
| | 2408.49 | 0.4 | 4955.40 | |
| | 2525.39 | 0.2 | 4838.50 | |
| | 2557.65 | 0.1 | 4806.23 | |
| | 2568.11 | 0.6 | 4795.77 | |
| 7363.94 | 2611.22 | 0.9 | 4752.66 | |
| | 2672.08 | 1.0 | 4691.80 | |
| | 2717.18 | 0.7 | 4646.70 | |
| | 2720.13 | 0.5 | 4643.75 | |
| | 2770.99 | 0.1 | 4592.89 | |
| | 2832.48 | 0.7 | 4531.39 | |
| | 2858.35 | 0.9 | 4505.52 | |
| | 2862.44 | 0.4 | 4501.43 | |
| | 2865.42 | 0.9 | 4498.45 | |
| | 2893.09 | 0.3 | 4470.78 | |
| | 2906.85 | 0.5 | 4457.02 | |
| | 2960.90 | 0.7 | 4402.97 | |
| | 3005.43 | 1.1 | 4358.43 | |
| | 3074.37 | 0.2 | 4289.49 | |
| | 3138.27 | 2.2 | 4225.59 | |
| | 3215.67 | 0.9 | 4148.18 | |
| | 3346.77 | 2.4 | 4017.08 | |
| | 3385.37 | 1.0 | 3978.47 | |
| | 3466.39 | 5.1 | 3897.45 | |
| | 3589.40 | 0.1 | 3774.43 | |
| | 3623.64 | 2.7 | 3740.19 | |
| | 3716.31 | 10 | 3647.51 | |
| | 3783.11 | 1.3 | 3580.71 | |
| | 3794.35 | 1.3 | 3569.47 | |
| | 3889.22 | 0.2 | 3474.59 | |
| | 3945.65 | 0.3 | 3418.16 | |
| | 3959.40 | 3.9 | 3404.41 | |
| | 4056.77 | 1.5 | 3307.03 | |
| | 4066.18 | 0.1 | 3297.62 | |
| | 4319.26 | 1.1 | 3044.52 | |
| | 4386.84 | 3.7 | 2976.94 | |
| | 4583.40 | 0.4 | 2780.36 | $(1/2^-,3/2^-)$ |
| | 4667.06 | 0.2 | 2696.69 | $(1/2^-,3/2^-)$ |
| | 4852.74 | 2.9 | 2511.903 | (1/2,3/2) |
| | 4866.48 | 3.8 | 2497.26 | $(3/2^-)$ |
| | 5301.52 | 20 | 2062.186 | $(1/2)^-$ |
| | 5352.42 | 4.1 | 2011.274 | $3/2^-$ |
| | 5816.54 | 7.2 | 1547.109 | $3/2^-$ |
| | 6693.83 | 8.8 | 669.724 | $1/2^-$ |
| | 7363.48 | 0.2 | 0 | $3/2^-$ |
| 7399.88 | 1595.99 | 0.1 | 5803.87 | |
| | 1665.1 | 0.2 | 5734.8 | |
| | 2126.09 | 0.1 | 5273.75 | |
| | 2326.36 | 0.1 | 5073.47 | |
| | 2346.8 | 0.2 | 5053.0 | |
| | 2444.43 | 0.3 | 4955.40 | |
| | 2529.98 | 0.1 | 4869.85 | |
| | 2589.62 | 0.3 | 4810.20 | |
| | 2593.59 | 0.1 | 4806.23 | |
| | 2604.05 | 0.3 | 4795.77 | |
| | 2610.68 | 0.1 | 4789.14 | |
| | 2708.02 | 0.2 | 4691.80 | |
| | 2756.07 | 0.5 | 4643.75 | |
| | 2806.92 | 0.4 | 4592.89 | |
| | 2868.42 | 0.3 | 4531.39 | |
| | 2894.29 | 0.4 | 4505.52 | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 7399.88 | 1/2 | 2929.03 | 0.2 | 4470.78 | |
| | | 2980.10 | 0.2 | 4419.70 | |
| | | 2996.83 | 0.1 | 4402.97 | |
| | | 3017.69 | 0.4 | 4382.11 | |
| | | 3110.31 | 0.2 | 4289.49 | |
| | | 3114.77 | 0.5 | 4285.03 | |
| | | 3174.20 | 0.1 | 4225.59 | |
| | | 3254.46 | 1.2 | 4145.33 | |
| | | 3275.18 | 0.1 | 4124.61 | |
| | | 3344.95 | 0.2 | 4054.84 | |
| | | 3382.70 | 0.3 | 4017.08 | |
| | | 3502.33 | 1.0 | 3897.45 | |
| | | 3514.10 | 0.2 | 3885.68 | |
| | | 3625.34 | 0.1 | 3774.43 | |
| | | 3659.58 | 0.1 | 3740.19 | |
| | | 3680.73 | 0.3 | 3719.04 | |
| | | 3752.25 | 0.1 | 3647.51 | |
| | | 3819.05 | 0.3 | 3580.71 | |
| | | 3830.29 | 0.7 | 3569.47 | |
| | | 3858.5 | 0.3 | 3541.3 | |
| | | 3925.16 | 0.1 | 3474.59 | |
| | | 3934.75 | 0.1 | 3465.00 | |
| | | 3969.95 | 0.4 | 3429.80 | |
| | | 3995.33 | 1.1 | 3404.41 | |
| | | 4092.71 | 0.1 | 3307.03 | |
| | | 4102.12 | 0.1 | 3297.62 | |
| | | 4355.20 | 0.3 | 3044.52 | |
| | | 4510.42 | 0.4 | 2889.29 | $(1/2^-,3/2^-)$ |
| | | 4542.43 | 0.6 | 2857.27 | |
| | | 4619.34 | 0.1 | 2780.36 | $(1/2^-,3/2^-)$ |
| | | 4682.8 | 0.1 | 2716.9 | $3/2^-,5/2^-$ |
| | | 4703.00 | 1.2 | 2696.69 | $(1/2^-,3/2^-)$ |
| | | 4718.1 | 0.2 | 2682.45 | |
| | | 4863.48 | 1.0 | 2535.93 | $(5/2)^-$ |
| | | 4890.68 | 1.5 | 2511.903 | (1/2,3/2) |
| | | 4902.42 | 0.1 | 2497.26 | $(3/2^-)$ |
| | | 5063.11 | 0.1 | 2336.55 | $5/2^-$ |
| | | 5337.45 | 0.2 | 2062.186 | $(1/2)^-$ |
| | | 5388.36 | 3.1 | 2011.274 | $3/2^-$ |
| | | 5852.48 | 4.2 | 1547.109 | $3/2^-$ |
| | | 5987.45 | 1.6 | 1412.124 | $5/2^-$ |
| | | 6437.38 | 0.2 | 962.145 | $5/2^-$ |
| | | 6729.77 | 25 | 669.724 | $1/2^-$ |
| | | 7399.41 | 47 | 0 | $3/2^-$ |
| 7475.27 | 1/2 | 1671.38 | 0.4 | 5803.87 | |
| | | 1883.62 | 0.4 | 5591.62 | |
| | | 1895.94 | 2.6 | 5579.30 | |
| | | 2109.16 | 0.4 | 5366.07 | |
| | | 2139.9 | 0.5 | 5335.3 | |
| | | 2163.28 | 0.4 | 5311.95 | |
| | | 2201.48 | 0.8 | 5273.75 | |
| | | 2314.03 | 0.4 | 5161.19 | |
| | | 2401.75 | 0.7 | 5073.47 | |
| | | 2458.77 | 0.3 | 5016.45 | |
| | | 2605.36 | 0.9 | 4869.85 | |
| | | 2668.98 | 2.0 | 4806.23 | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 7475.27 | 1/2 | 2686.07 | 0.3 | 4789.14 | | |
| | | 2831.45 | 1.7 | 4643.75 | | |
| | | 2835.2 | 0.3 | 4640.0 | | |
| | | 2882.31 | 1.3 | 4592.89 | | |
| | | 2943.81 | 0.9 | 4531.39 | | |
| | | 2958.05 | 0.6 | 4517.15 | | |
| | | 2973.77 | 0.6 | 4501.43 | | |
| | | 3004.41 | 0.5 | 4470.78 | | |
| | | 3018.17 | 0.9 | 4457.02 | | |
| | | 3072.22 | 0.6 | 4402.97 | | |
| | | 3120.44 | 0.4 | 4354.75 | | |
| | | 3185.69 | 0.7 | 4289.49 | | |
| | | 3249.59 | 0.5 | 4225.59 | | |
| | | 3329.85 | 1.7 | 4145.33 | | |
| | | 3350.56 | 0.2 | 4124.61 | | |
| | | 3361.97 | 0.2 | 4113.20 | | |
| | | 3420.33 | 0.2 | 4054.84 | | |
| | | 3496.70 | 0.3 | 3978.47 | | |
| | | 3577.71 | 1.0 | 3897.45 | | |
| | | 3589.48 | 0.3 | 3885.68 | | |
| | | 3689.62 | 3.7 | 3785.53 | | |
| | | 3700.72 | 0.2 | 3774.43 | | |
| | | 3756.11 | 0.2 | 3719.04 | | |
| | | 3827.64 | 2.0 | 3647.51 | | |
| | | 3905.67 | 0.5 | 3569.47 | | |
| | | 4000.54 | 0.7 | 3474.59 | | |
| | | 4045.33 | 1.0 | 3429.80 | | |
| | | 4168.09 | 3.1 | 3307.03 | | |
| | | 4374.57 | 4.4 | 3100.54 | | |
| | | 4588.0 | 1.8 | 2889.29 | $(1/2^-,3/2^-)$ | |
| | | 4694.72 | 2.2 | 2780.36 | $(1/2^-,3/2^-)$ | |
| | | 4793.5 | 0.8 | 2682.45 | | |
| | | 4964.06 | 2.0 | 2511.903 | (1/2,3/2) | |
| | | 4977.80 | 6.5 | 2497.26 | $(3/2^-)$ | |
| | | 5412.83 | 0.4 | 2062.186 | $(1/2)^-$ | |
| | | 5463.74 | 0.3 | 2011.274 | $3/2^-$ | |
| | | 5927.86 | 12 | 1547.109 | $3/2^-$ | |
| | | 6805.15 | 1.1 | 669.724 | $1/2^-$ | |
| | | 7474.79 | 34 | 0 | $3/2^-$ | |
| 7513.2 | (3/2) | 4412.5 | 8[#] | 3100.54 | | |
| | | 4623.7 | 3[#] | 2889.29 | $(1/2^-,3/2^-)$ | |
| | | 4732.7 | 7[#] | 2780.36 | $(1/2^-,3/2^-)$ | |
| | | 5015.7 | 6[#] | 2497.26 | $(3/2^-)$ | |
| | | 5965.8 | 20[#] | 1547.109 | $3/2^-$ | |
| | | 6100.8 | 4[#] | 1412.124 | $5/2^-$ | |
| | | 6550.7 | 2[#] | 962.145 | $5/2^-$ | |
| | | 6843.1 | 43[#] | 669.724 | $1/2^-$ | $\delta$: −5 *2* or +0.3 *1* (1972Ki15). |
| | | 7512.7 | 7[#] | 0 | $3/2^-$ | |
| 7532.20 | 1/2 | 1728.31 | 0.3 | 5803.87 | | |
| | | 1940.55 | 0.3 | 5591.62 | | |
| | | 2258.41 | 0.2 | 5273.75 | | |
| | | 2306.7 | 0.8 | 5225.5 | | |
| | | 2370.96 | 0.2 | 5161.19 | | |
| | | 2392.6 | 0.5 | 5139.6 | | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|
| 7532.20 | 2662.29 | 0.3 | 4869.85 | |
| | 2725.91 | 0.2 | 4806.23 | |
| | 2743.00 | 0.3 | 4789.14 | |
| | 2885.43 | 0.5 | 4646.70 | |
| | 2939.24 | 0.1 | 4592.89 | |
| | 3000.73 | 0.2 | 4531.39 | |
| | 3014.97 | 0.8 | 4517.15 | |
| | 3030.69 | 0.2 | 4501.43 | |
| | 3033.67 | 0.6 | 4498.45 | |
| | 3075.10 | 0.9 | 4457.02 | |
| | 3129.15 | 0.4 | 4402.97 | |
| | 3150.01 | 0.1 | 4382.11 | |
| | 3173.68 | 0.8 | 4358.43 | |
| | 3177.36 | 0.2 | 4354.75 | |
| | 3242.62 | 2.1 | 4289.49 | |
| | 3247.08 | 0.4 | 4285.03 | |
| | 3306.52 | 0.7 | 4225.59 | |
| | 3386.77 | 0.5 | 4145.33 | |
| | 3399.32 | 0.1 | 4132.78 | |
| | 3515.02 | 0.7 | 4017.08 | |
| | 3634.64 | 0.4 | 3897.45 | |
| | 3646.41 | 0.4 | 3885.68 | |
| | 3665.54 | 0.2 | 3866.55 | |
| | 3746.55 | 0.1 | 3785.53 | |
| | 3757.65 | 1.0 | 3774.43 | |
| | 3791.89 | 0.3 | 3740.19 | |
| | 3813.04 | 0.6 | 3719.04 | |
| | 3884.56 | 1.2 | 3647.51 | |
| | 3951.36 | 0.2 | 3580.71 | |
| | 3962.60 | 0.4 | 3569.47 | |
| | 3990.8 | 0.4 | 3541.3 | |
| | 4057.47 | 0.6 | 3474.59 | |
| | 4067.06 | 0.7 | 3465.00 | |
| | 4102.26 | 0.2 | 3429.80 | |
| | 4113.90 | 1.1 | 3418.16 | |
| | 4127.65 | 0.2 | 3404.41 | |
| | 4225.02 | 0.6 | 3307.03 | |
| | 4234.43 | 1.0 | 3297.62 | |
| | 4431.49 | 0.7 | 3100.54 | |
| | 4487.51 | 0.1 | 3044.52 | |
| | 4555.08 | 0.4 | 2976.94 | |
| | 4644.9 | 1.0 | 2889.29 | $(1/2^-,3/2^-)$ |
| | 4674.74 | 0.4 | 2857.27 | |
| | 4725.4 | 0.5 | 2806.6 | (3/2,5/2) |
| | 4751.65 | 2.8 | 2780.36 | $(1/2^-,3/2^-)$ |
| | 4815.1 | 0.2 | 2716.9 | $3/2^-,5/2^-$ |
| | 4850.4 | 0.5 | 2682.45 | |
| | 5020.99 | 0.2 | 2511.903 | (1/2,3/2) |
| | 5034.72 | 7.3 | 2497.26 | $(3/2^-)$ |
| | 5127.3 | 0.2 | 2404.7 | $7/2^-$ |
| | 5195.42 | 0.1 | 2336.55 | $5/2^-$ |
| | 5450.63 | 0.7 | 2081.32 | $5/2^{(-)}$ |
| | 5469.76 | 4.1 | 2062.186 | $(1/2)^-$ |
| | 5984.79 | 4.9 | 1547.109 | $3/2^-$ |
| | 6119.76 | 1.0 | 1412.124 | $5/2^-$ |
| | 6204.86 | 3.0 | 1327.014 | $7/2^-$ |
| 7532.20 | 6569.69 | 10 | 962.145 | $5/2^-$ |
| | 6862.08 | 38 | 669.724 | $1/2^-$ |
| | 7531.72 | 1.8 | 0 | $3/2^-$ |
| 7607.80 | 1740.14 | 0.3 | 5867.63 | |
| | 1779.44 | 0.1 | 5828.33 | |
| | 1803.90 | 0.1 | 5803.87 | |
| | 2036.41 | 0.3 | 5571.36 | |
| | 2446.56 | 0.7 | 5161.19 | |
| | 2506.57 | 0.4 | 5101.18 | |
| | 2554.7 | 0.3 | 5053.0 | |
| | 2591.29 | 0.3 | 5016.45 | |
| | 2652.34 | 0.4 | 4955.40 | |
| | 2731.09 | 0.1 | 4876.65 | |
| | 2737.89 | 0.3 | 4869.85 | |
| | 2961.03 | 0.3 | 4646.70 | |
| | 2967.7 | 0.1 | 4640.0 | |
| | 3014.83 | 0.3 | 4592.89 | |
| | 3076.33 | 0.1 | 4531.39 | |
| | 3102.20 | 1.1 | 4505.52 | |
| | 3106.29 | 0.4 | 4501.43 | |
| | 3136.94 | 0.3 | 4470.78 | |
| | 3150.70 | 0.5 | 4457.02 | |
| | 3188.01 | 0.3 | 4419.70 | |
| | 3204.74 | 0.1 | 4402.97 | |
| | 3249.28 | 0.3 | 4358.43 | |
| | 3252.96 | 0.1 | 4354.75 | |
| | 3318.22 | 0.1 | 4289.49 | |
| | 3322.68 | 0.4 | 4285.03 | |
| | 3474.92 | 0.2 | 4132.78 | |
| | 3710.23 | 0.3 | 3897.45 | |
| | 3722.00 | 0.1 | 3885.68 | |
| | 3833.25 | 0.9 | 3774.43 | |
| | 3867.48 | 0.5 | 3740.19 | |
| | 3888.63 | 1.5 | 3719.04 | |
| | 3960.16 | 0.2 | 3647.51 | |
| | 4026.95 | 0.1 | 3580.71 | |
| | 4142.65 | 0.5 | 3465.00 | |
| | 4189.49 | 0.8 | 3418.16 | |
| | 4310.02 | 0.5 | 3297.62 | |
| | 4507.09 | 0.5 | 3100.54 | |
| | 4563.10 | 2.0 | 3044.52 | |
| | 4630.68 | 0.6 | 2976.94 | |
| | 4750.34 | 0.2 | 2857.27 | |
| | 4827.24 | 0.1 | 2780.36 | $(1/2^-,3/2^-)$ |
| | 4910.91 | 2.2 | 2696.69 | $(1/2^-,3/2^-)$ |
| | 4926.0 | 0.4 | 2682.45 | |
| | 5096.58 | 0.9 | 2511.903 | (1/2,3/2) |
| | 5110.32 | 4.4 | 2497.26 | $(3/2^-)$ |
| | 5545.35 | 1.0 | 2062.186 | $(1/2)^-$ |
| | 6060.38 | 5.8 | 1547.109 | $3/2^-$ |
| | 6937.67 | 35 | 669.724 | $1/2^-$ |
| | 7607.31 | 33 | 0 | $3/2^-$ |
| 7712.2 | 1908.3 | 0.1 | 5803.87 | |
| | 2120.5 | 0.3 | 5591.62 | |
| | 2169.5 | 0.1 | 5542.7 | |
| | 2400.2 | 0.1 | 5311.95 | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 7712.2 | | 2438.4 | 0.3 | 5273.75 | |
| | | 2551.0 | 0.5 | 5161.19 | |
| | | 2572.5 | 0.4 | 5139.6 | |
| | | 2638.7 | 0.5 | 5073.47 | |
| | | 2659.1 | 0.2 | 5053.0 | |
| | | 2756.7 | 0.7 | 4955.40 | |
| | | 2835.5 | 0.3 | 4876.65 | |
| | | 2842.3 | 0.2 | 4869.85 | |
| | | 2905.9 | 0.7 | 4806.23 | |
| | | 2916.4 | 0.4 | 4795.77 | |
| | | 2923.0 | 0.3 | 4789.14 | |
| | | 3020.3 | 0.2 | 4691.80 | |
| | | 3065.4 | 0.3 | 4646.70 | |
| | | 3072.1 | 0.2 | 4640.0 | |
| | | 3210.7 | 0.1 | 4501.43 | |
| | | 3241.3 | 0.5 | 4470.78 | |
| | | 3255.1 | 0.2 | 4457.02 | |
| | | 3309.1 | 0.1 | 4402.97 | |
| | | 3353.7 | 0.6 | 4358.43 | |
| | | 3486.5 | 0.2 | 4225.59 | |
| | | 3563.9 | 0.3 | 4148.18 | |
| | | 3566.8 | 0.4 | 4145.33 | |
| | | 3579.3 | 0.2 | 4132.78 | |
| | | 3587.5 | 2.2 | 4124.61 | |
| | | 3598.9 | 0.6 | 4113.20 | |
| | | 3657.3 | 0.4 | 4054.84 | |
| | | 3695.0 | 0.1 | 4017.08 | |
| | | 3733.6 | 0.2 | 3978.47 | |
| | | 3814.6 | 0.8 | 3897.45 | |
| | | 3926.5 | 0.3 | 3785.53 | |
| | | 3937.6 | 0.1 | 3774.43 | |
| | | 3993.0 | 0.2 | 3719.04 | |
| | | 4064.6 | 0.1 | 3647.51 | |
| | | 4131.4 | 0.5 | 3580.71 | |
| | | 4282.2 | 4.1 | 3429.80 | |
| | | 4293.9 | 1.6 | 3418.16 | |
| | | 4307.6 | 2.9 | 3404.41 | |
| | | 4405.0 | 0.4 | 3307.03 | |
| | | 4414.4 | 0.3 | 3297.62 | |
| | | 4611.5 | 2.0 | 3100.54 | |
| | | 4667.5 | 3.3 | 3044.52 | |
| | | 4735.1 | 7.0 | 2976.94 | |
| | | 4854.7 | 0.3 | 2857.27 | |
| | | 4995.1 | 0.1 | 2716.9 | $3/2^-,5/2^-$ |
| | | 5015.3 | 0.6 | 2696.69 | $(1/2^-,3/2^-)$ |
| | | 5030.4 | 0.6 | 2682.45 | |
| | | 5214.7 | 1.7 | 2497.26 | $(3/2^-)$ |
| | | 5375.4 | 0.1 | 2336.55 | $5/2^-$ |
| | | 5630.6 | 0.2 | 2081.32 | $5/2^{(-)}$ |
| | | 5649.7 | 0.6 | 2062.186 | $(1/2)^-$ |
| | | 5700.7 | 2.7 | 2011.274 | $3/2^-$ |
| | | 6164.8 | 4.2 | 1547.109 | $3/2^-$ |
| | | 7042.1 | 1.4 | 669.724 | $1/2^-$ |
| | | 7711.7 | 52 | 0 | $3/2^-$ |
| 7732.60 | (1/2) | 2130.6 | 0.3 | 5602.0 | |
| | | 2140.94 | 0.4 | 5591.62 | |
| 7732.60 | | 2366.48 | 0.3 | 5366.07 | |
| | | 2397.3 | 0.5 | 5335.3 | |
| | | 2420.60 | 1.0 | 5311.95 | |
| | | 2458.80 | 0.2 | 5273.75 | |
| | | 2659.07 | 0.2 | 5073.47 | |
| | | 2855.88 | 0.3 | 4876.65 | |
| | | 2862.68 | 0.6 | 4869.85 | |
| | | 2922.33 | 0.3 | 4810.20 | |
| | | 2936.76 | 0.1 | 4795.77 | |
| | | 2943.39 | 0.8 | 4789.14 | |
| | | 3088.77 | 0.3 | 4643.75 | |
| | | 3092.5 | 0.3 | 4640.0 | |
| | | 3139.63 | 0.1 | 4592.89 | |
| | | 3226.99 | 0.6 | 4505.52 | |
| | | 3231.08 | 0.2 | 4501.43 | |
| | | 3234.06 | 0.2 | 4498.45 | |
| | | 3261.73 | 0.4 | 4470.78 | |
| | | 3312.81 | 0.5 | 4419.70 | |
| | | 3329.54 | 0.2 | 4402.97 | |
| | | 3350.39 | 0.2 | 4382.11 | |
| | | 3374.07 | 0.3 | 4358.43 | |
| | | 3377.75 | 0.2 | 4354.75 | |
| | | 3443.01 | 0.3 | 4289.49 | |
| | | 3506.91 | 0.1 | 4225.59 | |
| | | 3584.31 | 0.4 | 4148.18 | |
| | | 3599.71 | 0.7 | 4132.78 | |
| | | 3607.88 | 0.2 | 4124.61 | |
| | | 3619.29 | 0.5 | 4113.20 | |
| | | 3677.65 | 0.6 | 4054.84 | |
| | | 3715.40 | 0.5 | 4017.08 | |
| | | 3754.01 | 0.7 | 3978.47 | |
| | | 3835.03 | 1.7 | 3897.45 | |
| | | 3846.79 | 0.7 | 3885.68 | |
| | | 3946.94 | 1.0 | 3785.53 | |
| | | 3958.04 | 0.2 | 3774.43 | |
| | | 3992.27 | 0.9 | 3740.19 | |
| | | 4084.95 | 0.5 | 3647.51 | |
| | | 4151.74 | 0.2 | 3580.71 | |
| | | 4162.98 | 0.5 | 3569.47 | |
| | | 4314.28 | 0.8 | 3418.16 | |
| | | 4328.03 | 0.5 | 3404.41 | |
| | | 4425.40 | 0.4 | 3307.03 | |
| | | 4631.88 | 1.2 | 3100.54 | |
| | | 4687.89 | 0.1 | 3044.52 | |
| | | 4755.47 | 0.1 | 2976.94 | |
| | | 4843.11 | 0.7 | 2889.29 | $(1/2^-,3/2^-)$ |
| | | 4875.13 | 0.3 | 2857.27 | |
| | | 4952.03 | 0.4 | 2780.36 | $(1/2^-,3/2^-)$ |
| | | 5035.69 | 0.6 | 2696.69 | $(1/2^-,3/2^-)$ |
| | | 5221.37 | 4.4 | 2511.903 | (1/2,3/2) |
| | | 5235.11 | 3.6 | 2497.26 | $(3/2^-)$ |
| | | 5670.14 | 9.0 | 2062.186 | $(1/2)^-$ |
| | | 5721.05 | 3.0 | 2011.274 | $3/2^-$ |
| | | 6185.17 | 24 | 1547.109 | $3/2^-$ |
| | | 6320.14 | 0.1 | 1412.124 | $5/2^-$ |
| | | 7062.45 | 13 | 669.724 | $1/2^-$ |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 7732.60 | (1/2) | 7732.09 | 20 | 0 | $3/2^-$ |
| 7745.37 | | 1877.71 | 0.6 | 5867.63 | |
| | | 1941.47 | 0.2 | 5803.87 | |
| | | 2166.03 | 0.3 | 5579.30 | |
| | | 2202.6 | 0.7 | 5542.7 | |
| | | 2379.25 | 0.6 | 5366.07 | |
| | | 2410.0 | 0.5 | 5335.3 | |
| | | 2433.37 | 0.5 | 5311.95 | |
| | | 2605.7 | 0.2 | 5139.6 | |
| | | 2728.86 | 0.2 | 5016.45 | |
| | | 2789.90 | 0.3 | 4955.40 | |
| | | 2868.65 | 0.1 | 4876.65 | |
| | | 2875.45 | 0.6 | 4869.85 | |
| | | 2939.07 | 0.4 | 4806.23 | |
| | | 2949.53 | 0.2 | 4795.77 | |
| | | 2956.16 | 0.4 | 4789.14 | |
| | | 2992.63 | 0.3 | 4752.66 | |
| | | 3101.54 | 0.3 | 4643.75 | |
| | | 3105.3 | 0.8 | 4640.0 | |
| | | 3152.40 | 0.5 | 4592.89 | |
| | | 3213.89 | 0.4 | 4531.39 | |
| | | 3239.76 | 0.2 | 4505.52 | |
| | | 3243.85 | 0.2 | 4501.43 | |
| | | 3246.83 | 0.3 | 4498.45 | |
| | | 3274.50 | 0.4 | 4470.78 | |
| | | 3288.26 | 0.2 | 4457.02 | |
| | | 3325.58 | 0.4 | 4419.70 | |
| | | 3342.31 | 0.9 | 4402.97 | |
| | | 3363.16 | 0.5 | 4382.11 | |
| | | 3386.84 | 0.2 | 4358.43 | |
| | | 3390.52 | 0.9 | 4354.75 | |
| | | 3455.78 | 0.2 | 4289.49 | |
| | | 3519.67 | 1.2 | 4225.59 | |
| | | 3597.08 | 1.4 | 4148.18 | |
| | | 3612.48 | 0.7 | 4132.78 | |
| | | 3620.65 | 0.3 | 4124.61 | |
| | | 3766.78 | 1.1 | 3978.47 | |
| | | 3847.79 | 0.5 | 3897.45 | |
| | | 3859.56 | 0.4 | 3885.68 | |
| | | 3959.71 | 0.5 | 3785.53 | |
| | | 3970.81 | 0.7 | 3774.43 | |
| | | 4005.04 | 1.1 | 3740.19 | |
| | | 4026.19 | 0.6 | 3719.04 | |
| | | 4097.72 | 0.5 | 3647.51 | |
| | | 4164.51 | 0.5 | 3580.71 | |
| | | 4280.21 | 0.3 | 3465.00 | |
| | | 4315.41 | 0.4 | 3429.80 | |
| | | 4327.05 | 3.0 | 3418.16 | |
| | | 4438.17 | 0.4 | 3307.03 | |
| | | 4447.58 | 1.1 | 3297.62 | |
| | | 4644.65 | 1.0 | 3100.54 | |
| | | 4768.24 | 1.2 | 2976.94 | |
| | | 4855.88 | 1.1 | 2889.29 | $(1/2^-,3/2^-)$ |
| | | 4887.90 | 0.6 | 2857.27 | |
| | | 4938.6 | 0.1 | 2806.6 | (3/2,5/2) |
| | | 4964.80 | 0.8 | 2780.36 | $(1/2^-,3/2^-)$ |
| 7745.37 | | 5048.46 | 0.4 | 2696.69 | $(1/2^-,3/2^-)$ |
| | | 5063.6 | 3.8 | 2682.45 | |
| | | 5234.14 | 3.5 | 2511.903 | (1/2,3/2) |
| | | 5247.88 | 1.2 | 2497.26 | $(3/2^-)$ |
| | | 5663.78 | 0.2 | 2081.32 | $5/2^{(-)}$ |
| | | 5682.91 | 2.2 | 2062.186 | $(1/2)^-$ |
| | | 5733.82 | 6.4 | 2011.274 | $3/2^-$ |
| | | 6197.93 | 10 | 1547.109 | $3/2^-$ |
| | | 6332.90 | 1.1 | 1412.124 | $5/2^-$ |
| | | 6782.83 | 0.6 | 962.145 | $5/2^-$ |
| | | 7075.22 | 7.4 | 669.724 | $1/2^-$ |
| | | 7744.86 | 32 | 0 | $3/2^-$ |
| 7772.7 | | 2193.4 | 0.3 | 5579.30 | |
| | | 2699.2 | 0.2 | 5073.47 | |
| | | 2719.6 | 0.3 | 5053.0 | |
| | | 2756.2 | 0.5 | 5016.45 | |
| | | 2962.4 | 0.1 | 4810.20 | |
| | | 2966.4 | 0.2 | 4806.23 | |
| | | 3020.0 | 0.1 | 4752.66 | |
| | | 3132.6 | 0.4 | 4640.0 | |
| | | 3179.7 | 0.3 | 4592.89 | |
| | | 3241.2 | 0.4 | 4531.39 | |
| | | 3255.5 | 0.1 | 4517.15 | |
| | | 3271.2 | 0.1 | 4501.43 | |
| | | 3274.2 | 0.1 | 4498.45 | |
| | | 3315.6 | 0.1 | 4457.02 | |
| | | 3352.9 | 0.6 | 4419.70 | |
| | | 3414.2 | 0.7 | 4358.43 | |
| | | 3483.1 | 0.3 | 4289.49 | |
| | | 3487.6 | 0.2 | 4285.03 | |
| | | 3547.0 | 1.7 | 4225.59 | |
| | | 3624.4 | 0.1 | 4148.18 | |
| | | 3627.3 | 0.3 | 4145.33 | |
| | | 3639.8 | 0.8 | 4132.78 | |
| | | 3648.0 | 0.3 | 4124.61 | |
| | | 3659.4 | 0.1 | 4113.20 | |
| | | 3755.5 | 0.4 | 4017.08 | |
| | | 3794.1 | 0.6 | 3978.47 | |
| | | 3875.1 | 0.1 | 3897.45 | |
| | | 3886.9 | 0.1 | 3885.68 | |
| | | 3906.0 | 0.5 | 3866.55 | |
| | | 3987.0 | 2.1 | 3785.53 | |
| | | 3998.1 | 0.2 | 3774.43 | |
| | | 4032.4 | 1.0 | 3740.19 | |
| | | 4053.5 | 0.7 | 3719.04 | |
| | | 4191.8 | 0.5 | 3580.71 | |
| | | 4203.1 | 0.2 | 3569.47 | |
| | | 4231.3 | 0.4 | 3541.3 | |
| | | 4298.0 | 0.2 | 3474.59 | |
| | | 4307.5 | 0.4 | 3465.00 | |
| | | 4342.7 | 0.6 | 3429.80 | |
| | | 4354.4 | 0.2 | 3418.16 | |
| | | 4368.1 | 0.8 | 3404.41 | |
| | | 4465.5 | 0.5 | 3307.03 | |
| | | 4474.9 | 0.3 | 3297.62 | |
| | | 4672.0 | 0.5 | 3100.54 | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 7772.7 | | 4728.0 | 1.3 | 3044.52 | | |
| | | 4795.6 | 0.4 | 2976.94 | | |
| | | 4883.2 | 0.2 | 2889.29 | $(1/2^-,3/2^-)$ | |
| | | 4915.2 | 0.2 | 2857.27 | | |
| | | 4992.1 | 0.2 | 2780.36 | $(1/2^-,3/2^-)$ | |
| | | 5055.6 | 0.2 | 2716.9 | $3/2^-,5/2^-$ | |
| | | 5075.8 | 0.7 | 2696.69 | $(1/2^-,3/2^-)$ | |
| | | 5090.9 | 0.3 | 2682.45 | | |
| | | 5262.0 | 4.1 | 2511.903 | (1/2,3/2) | |
| | | 5275.2 | 0.5 | 2497.26 | $(3/2^-)$ | |
| | | 5691.1 | 0.7 | 2081.32 | $5/2^{(-)}$ | |
| | | 5710.2 | 5.0 | 2062.186 | $(1/2)^-$ | |
| | | 5761.1 | 0.9 | 2011.274 | $3/2^-$ | |
| | | 6225.3 | 19 | 1547.109 | $3/2^-$ | |
| | | 7102.6 | 6.4 | 669.724 | $1/2^-$ | |
| | | 7772.2 | 41 | 0 | $3/2^-$ | |
| 8564.66 | $1/2^-$ | 4790.04 | 1.7 | 3774.43 | | |
| | | 4907.7 | 2.9 | 3656.8 | | |
| | | 5103.1 | 2.4 | 3461.3 | | |
| | | 5134.64 | 3.1 | 3429.80 | | $\Gamma_\gamma$=0.036 eV *20* (1974Ra01). |
| | | 5160.02 | 2.3 | 3404.41 | | |
| | | 5254.8 | 4.9 | 3309.6 | | |
| | | 5272.0 | 3.7 | 3292.4 | | |
| | | 5300.8 | 1.0 | 3263.6 | | |
| | | 5339.1 | 3.1 | 3225.3 | | |
| | | 5463.87 | 2.9 | 3100.54 | | $\Gamma_\gamma$=0.046 eV *23* (1974Ra01). |
| | | 5519.88 | 2.3 | 3044.52 | | |
| | | 5587.45 | 1.7 | 2976.94 | | |
| | | 5608.2 | 2.2 | 2956.2 | | |
| | | 5677.3 | 2.2 | 2889.29 | $(1/2^-,3/2^-)$ | |
| | | 5867.68 | 3.3 | 2696.69 | $(1/2^-,3/2^-)$ | $\Gamma_\gamma$=0.045 eV *20* (1974Ra01). |
| | | 5885.8 | 6.5 | 2678.6 | | $\Gamma_\gamma$=0.061 eV *20* (1974Ra01). |
| | | 6028.42 | 0.5 | 2535.93 | $(5/2)^-$ | |
| | | 6067.09 | 6.5 | 2497.26 | $(3/2^-)$ | $\Gamma_\gamma$=0.146 eV *20* (1974Ra01). |
| | | 6159.6 | 1.2 | 2404.7 | $7/2^-$ | |
| | | 6502.11 | 5.0 | 2062.186 | $(1/2)^-$ | $\Gamma_\gamma$=0.081 eV *15* (1974Ra01). |
| | | 6553.02 | 2.4 | 2011.274 | $3/2^-$ | |
| | | 7017.13 | 11.1 | 1547.109 | $3/2^-$ | $\Gamma_\gamma$=0.297 eV *40* (1974Ra01). |
| | | 7152.10 | 3.6 | 1412.124 | $5/2^-$ | $\Gamma_\gamma$=0.031 eV *10* (1974Ra01). |
| | | 7602.02 | 1.7 | 962.145 | $5/2^-$ | $\Gamma_\gamma$=0.023 eV *9* (1974Ra01). |
| | | 7894.41 | 7.2 | 669.724 | $1/2^-$ | $\Gamma_\gamma$=0.054 eV *28* (1974Ra01). |
| | | 8564.04 | 14.4 | 0 | $3/2^-$ | $\Gamma_\gamma$=0.203 eV *55* (1974Ra01). |
| 8628.8 | $(5/2^-)$ | 5319.0 | 6 | 3309.6 | | |
| | | 5797.2 | 8 | 2831.3 | | |
| | | 6617.2 | 11 | 2011.274 | $3/2^-$ | |
| | | 6767.1 | 8 | 1861.34 | $7/2^-$ | |
| | | 7081.3 | 18 | 1547.109 | $3/2^-$ | |
| | | 7216.2 | 9 | 1412.124 | $5/2^-$ | |
| | | 7301.3 | 9 | 1327.014 | $7/2^-$ | |
| | | 7666.2 | 16 | 962.145 | $5/2^-$ | |
| | | 7958.5 | 2 | 669.724 | $1/2^-$ | |
| | | 8628.2 | 14 | 0 | $3/2^-$ | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ | Mult. | $\delta$ | Comments |
|---|---|---|---|---|---|---|---|---|
| 8639.0 | (5/2$^-$) | 5329.2 | 7.2 | 3309.6 | | | | |
| | | 5346.4 | 3.2 | 3292.4 | | | | |
| | | 5375.2 | 3.7 | 3263.6 | | | | |
| | | 5413.5 | 2.6 | 3225.3 | | | | |
| | | 5510.0 | 2.6 | 3128.7 | | | | |
| | | 5538.2 | 2.6 | 3100.54 | | | | |
| | | 5594.2 | 4.6 | 3044.52 | | | | |
| | | 5751.6 | 2.0 | 2889.29 | (1/2$^-$,3/2$^-$) | | | |
| | | 5858.4 | 3.4 | 2780.36 | (1/2$^-$,3/2$^-$) | | | |
| | | 5960.1 | 2.3 | 2678.6 | | | | |
| | | 6102.8 | 6.3 | 2535.93 | (5/2)$^-$ | | | |
| | | 6141.4 | 4.3 | 2497.26 | (3/2$^-$) | | | |
| | | 6302.1 | 2.5 | 2336.55 | 5/2$^-$ | | | |
| | | 6557.3 | 3.2 | 2081.32 | 5/2$^{(-)}$ | | | |
| | | 6576.5 | 3.2 | 2062.186 | (1/2)$^-$ | | | |
| | | 6627.4 | 2.3 | 2011.274 | 3/2$^-$ | | | |
| | | 7091.5 | 7.5 | 1547.109 | 3/2$^-$ | D+Q | −0.38 *+9−2* | Mult.,$\delta$: from 1977Kr05. |
| | | 7226.4 | 8.3 | 1412.124 | 5/2$^-$ | D+Q | −0.2 *1* | Mult.,$\delta$: from 1977Kr05. |
| | | 7311.5 | 4.0 | 1327.014 | 7/2$^-$ | D+Q | −0.09 *11* | Mult.,$\delta$: from 1977Kr05. |
| | | 7676.4 | 8.0 | 962.145 | 5/2$^-$ | D+Q | −0.2 *1* | Mult.,$\delta$: from 1977Kr05. |
| | | 7968.7 | 3 | 669.724 | 1/2$^-$ | | | |
| | | 8638.4 | 13 | 0 | 3/2$^-$ | D+Q | −0.20 *1* | Mult.,$\delta$: from 1977Kr05. |
| 8693.7 | (3/2$^-$) | 6682.1 | 23 | 2011.274 | 3/2$^-$ | | | |
| | | 8023.4 | 12 | 669.724 | 1/2$^-$ | | | |
| | | 8693.1 | 65 | 0 | 3/2$^-$ | | | |
| 8700.7 | (3/2$^-$) | 7288.1 | 18 | 1412.124 | 5/2$^-$ | | | |
| | | 8030.4 | 36 | 669.724 | 1/2$^-$ | | | |
| | | 8700.1 | 45 | 0 | 3/2$^-$ | | | |
| 8718.6 | (3/2$^-$) | 7755.9 | 7 | 962.145 | 5/2$^-$ | | | |
| | | 8718.0 | 93 | 0 | 3/2$^-$ | | | |
| 8719.1 | (3/2$^-$) | 7756.4 | 57 | 962.145 | 5/2$^-$ | | | |
| | | 8718.5 | 43 | 0 | 3/2$^-$ | | | |
| 8719.2 | (3/2$^-$) | 6626.4 | 25 | 2092.48 | 7/2$^-$ | | | |
| | | 6637.5 | 10 | 2081.32 | 5/2$^{(-)}$ | | | |
| | | 6857.5 | 16 | 1861.34 | 7/2$^-$ | | | |
| | | 7171.7 | 21 | 1547.109 | 3/2$^-$ | | | |
| | | 7756.5 | 14 | 962.145 | 5/2$^-$ | | | |
| | | 8718.6 | 14 | 0 | 3/2$^-$ | | | |
| 8727.5 | (3/2$^-$) | 6645.8 | 10 | 2081.32 | 5/2$^{(-)}$ | | | |
| | | 6664.9 | 6 | 2062.186 | (1/2)$^-$ | | | |
| | | 7314.9 | 7 | 1412.124 | 5/2$^-$ | | | |
| | | 8057.2 | 17 | 669.724 | 1/2$^-$ | | | |
| | | 8726.9 | 60 | 0 | 3/2$^-$ | | | |
| 8731.7 | (3/2$^-$) | 7319.1 | 22 | 1412.124 | 5/2$^-$ | | | |
| | | 7769.0 | 72 | 962.145 | 5/2$^-$ | | | |
| | | 8731.1 | 6 | 0 | 3/2$^-$ | | | |
| 8734.6 | (3/2$^-$) | 7187.1 | 36 | 1547.109 | 3/2$^-$ | | | |
| | | 7771.9 | 40 | 962.145 | 5/2$^-$ | | | |
| | | 8064.3 | 9 | 669.724 | 1/2$^-$ | | | |
| | | 8734.0 | 15 | 0 | 3/2$^-$ | | | |
| 8738.6 | (3/2$^-$) | 6676.0 | 21 | 2062.186 | (1/2)$^-$ | | | |
| | | 6726.9 | 18 | 2011.274 | 3/2$^-$ | | | |

Continued on next page (footnotes at end of table)

## $^{62}$Ni(p,$\gamma$):E=res 1986De14 (continued)

### $\gamma(^{63}Cu)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J_f^\pi$ | Mult. | $\delta$ | Comments |
|---|---|---|---|---|---|---|---|---|
| 8738.6 | (3/2$^-$) | 7775.9 | 34 | 962.145 | 5/2$^-$ | | | |
| | | 8068.3 | 13 | 669.724 | 1/2$^-$ | | | |
| | | 8738.0 | 13 | 0 | 3/2$^-$ | | | |
| 8743.2 | (3/2$^-$) | 7195.7 | 9 | 1547.109 | 3/2$^-$ | | | |
| | | 7330.6 | 30 | 1412.124 | 5/2$^-$ | | | |
| | | 7780.5 | 21 | 962.145 | 5/2$^-$ | | | |
| | | 8742.6 | 39 | 0 | 3/2$^-$ | | | |
| 8743.6 | (3/2$^-$) | 7196.1 | 14 | 1547.109 | 3/2$^-$ | | | |
| | | 7331.0 | 11 | 1412.124 | 5/2$^-$ | | | |
| | | 7780.9 | 32 | 962.145 | 5/2$^-$ | | | |
| | | 8073.3 | 17 | 669.724 | 1/2$^-$ | | | |
| | | 8743.0 | 26 | 0 | 3/2$^-$ | | | |
| 8746.6 | (3/2$^-$) | 7783.9 | 45 | 962.145 | 5/2$^-$ | | | |
| | | 8076.3 | 27 | 669.724 | 1/2$^-$ | | | |
| | | 8746.0 | 28 | 0 | 3/2$^-$ | | | |
| 8747.6 | (3/2$^-$) | 7784.9 | 60 | 962.145 | 5/2$^-$ | | | |
| | | 8077.3 | 25 | 669.724 | 1/2$^-$ | | | |
| | | 8747.0 | 16 | 0 | 3/2$^-$ | | | |
| 8750.6 | (3/2$^-$) | 7203.1 | 17 | 1547.109 | 3/2$^-$ | | | |
| | | 7787.9 | 7 | 962.145 | 5/2$^-$ | | | |
| | | 8080.3 | 8 | 669.724 | 1/2$^-$ | | | |
| | | 8750.0 | 68 | 0 | 3/2$^-$ | | | |
| 9811.2 | | 7302 | | 2509 | | | | |
| 9834.2 | | 7325 | | 2509 | | | | |
| 9846.2 | | 7337 | | 2509 | | D | | Mult.: from asymmetry=0.60 *10* (1972Sz01). |
| 9850.3 | 9/2 | 7341 | | 2509 | | D+Q | −1.2 *5* | $A_2$=+0.32 *13*; $A_4$=−0.28 *13* (1979Vo01)<br>Mult.,$\delta$: from $\gamma(\theta)$ in 1979Vo01. Other: D from asymmetry=0.60 *10* (1972Sz01); −0.04 *1* (1978Br35). |
| 9857 | 9/2 | 7348 | | 2509 | | D(+Q) | 0.1 *1* | $A_2$=+0.35 *5*; $A_4$=−0.01 *4* (1978Br35)<br>Mult.,$\delta$: from $\gamma(\theta)$ in 1978Br35. |
| 9865 | | 7354 | 69.4 *7* | 2509 | | | | $A_2$=+0.42 *13*; $A_4$=−0.55 *2* (1979Vo01)<br>$\delta$: −1.26 if J(9863)=9/2 (1979Vo01); however, M1 from asymmetry=0.50 *15* (1972Sz01).<br>$I_\gamma$: from 1979Vo01. |
| | | 7458 | 2.9 *2* | 2404.7 | 7/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 7770 | 3.6 *2* | 2092.48 | 7/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 8001 | 2.3 *2* | 1861.34 | 7/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 8315 | 2.0 *2* | 1547.109 | 3/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 8450 | 2.8 *3* | 1412.124 | 5/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 8535 | 2.9 *3* | 1327.014 | 7/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 8900 | 6.1 *3* | 962.145 | 5/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 9193 | 3.4 *2* | 669.724 | 1/2$^-$ | | | $I_\gamma$: from 1979Vo01. |
| | | 9862 | 4.7 *2* | 0 | 3/2$^-$ | | | $I_\gamma$: from 1979Vo01. |

† From 1986De14 up to 7773 level, from 1975Kr10 above that to 8639 level, from 1974Wi15 above that to 8751 level, and from 1979Vo01 above that, unless otherwise noted. Quoted E$\gamma$ values without uncertainties are from level-energy differences. Intensities are % photon branching from each level. Note that tentative transitions with limit values of intensities from 1986De14 are not listed in this dataset and those are considered questionable by the evaluator. Refer to TABLE 2 of 1986De14 for intensity limits of such transitions.

‡ Transition reported in 1975Kr10.

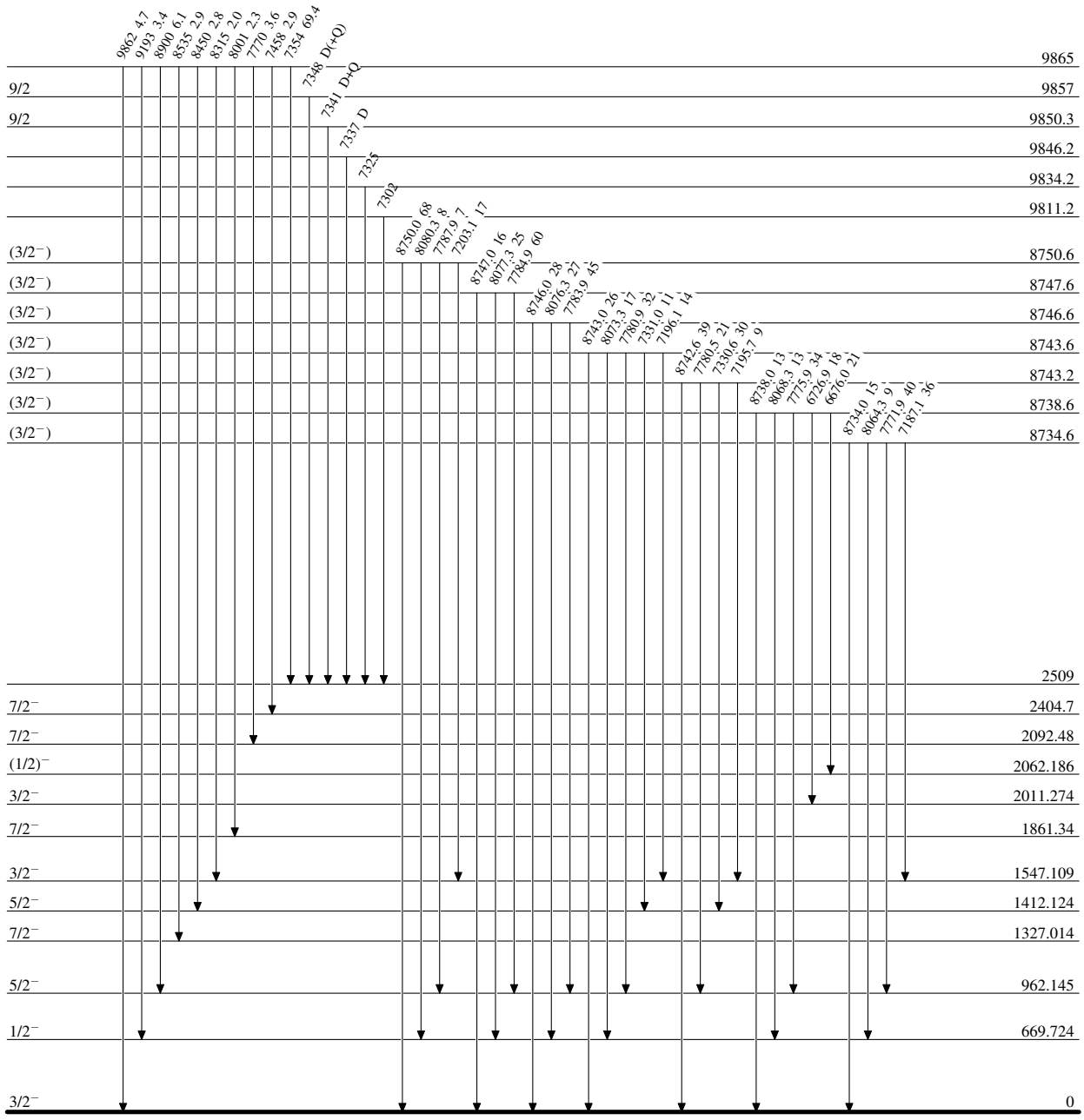
# From 1972Ki15.

@ Placement of transition in the level scheme is uncertain.

## $^{62}$Ni(p,γ):E=res 1986De14

### Level Scheme

Intensities: % photon branching from each level

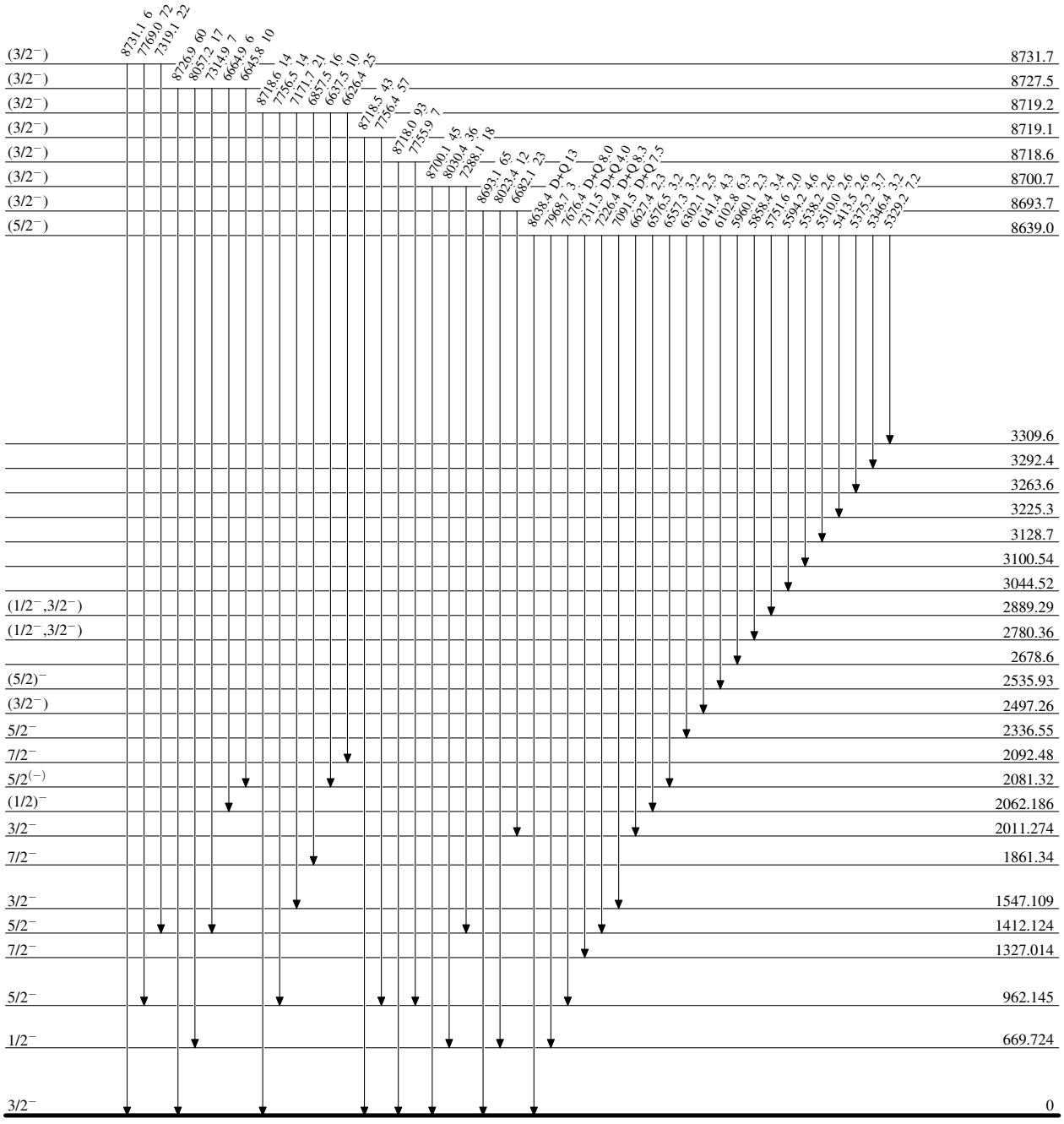



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

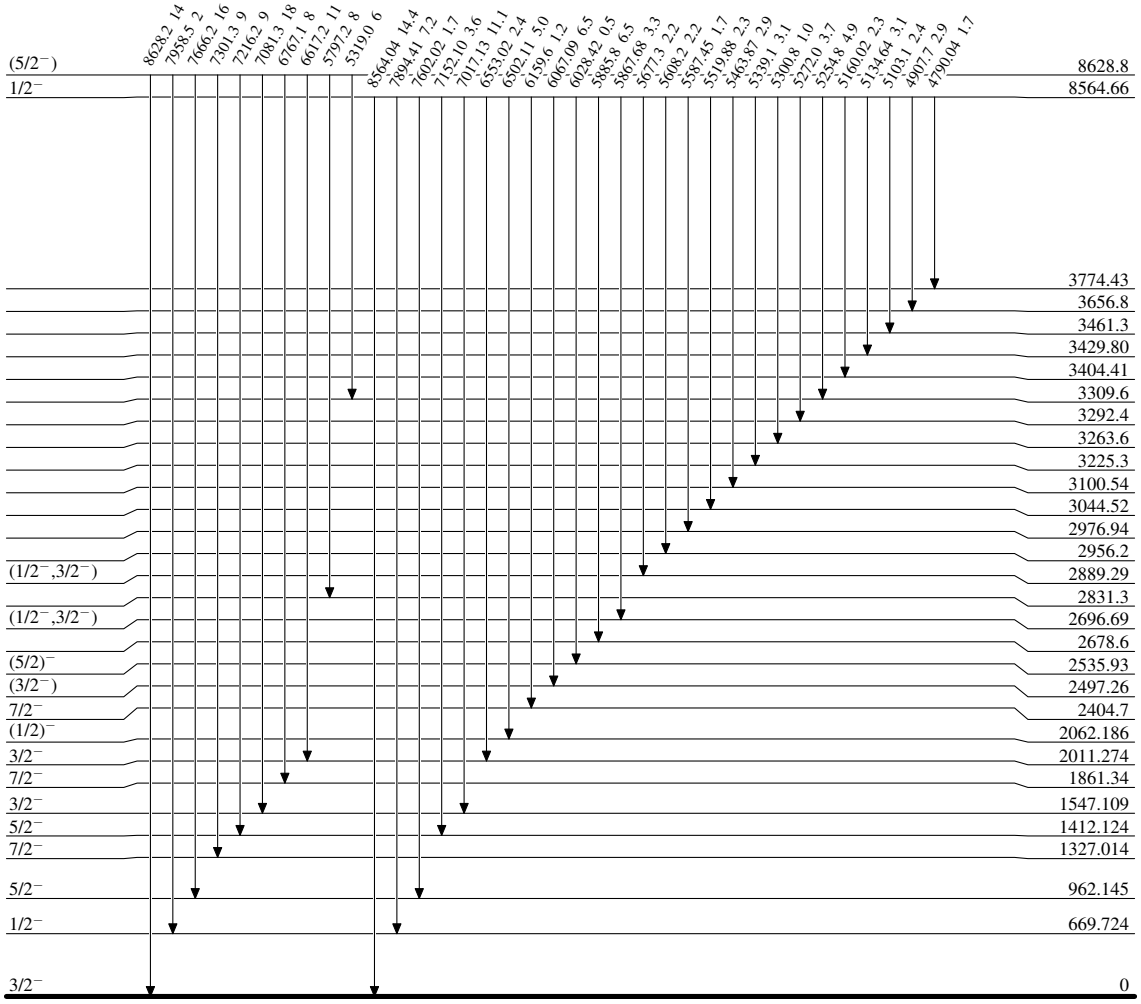



$^{63}_{29}Cu_{34}$

**$^{62}$Ni(p,γ):E=res 1986De14**

Level Scheme (continued)

Intensities: % photon branching from each level

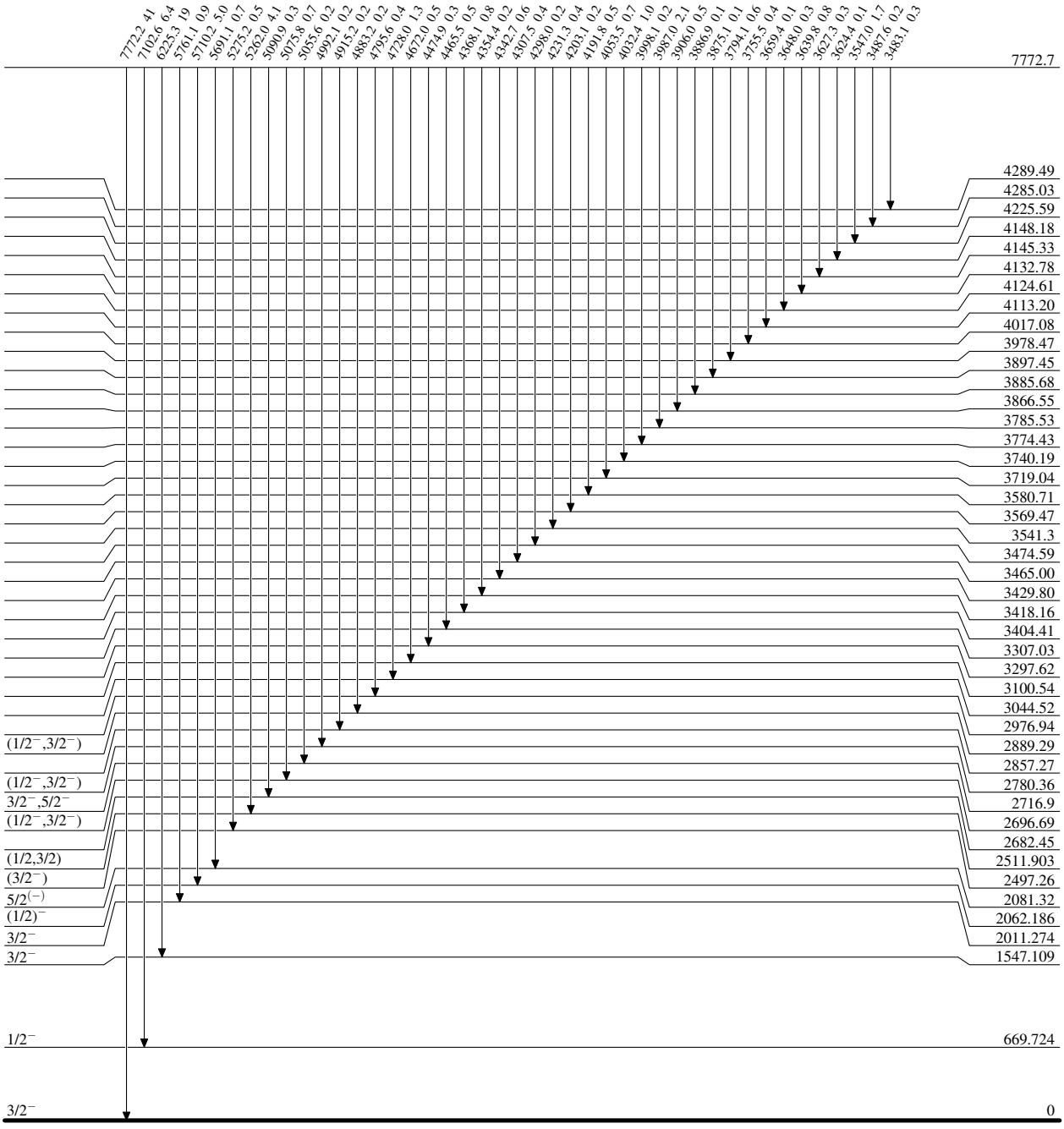



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

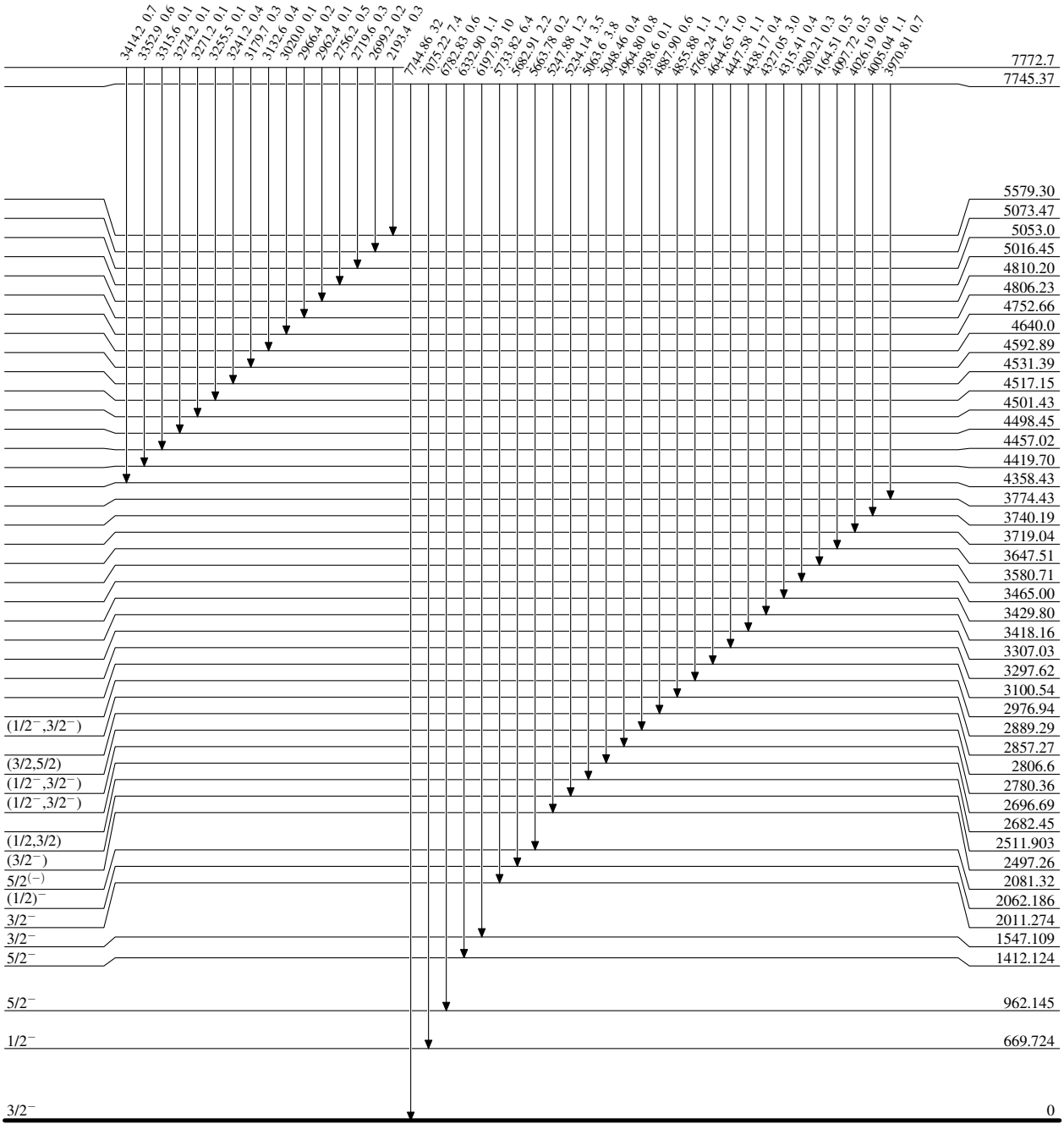



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

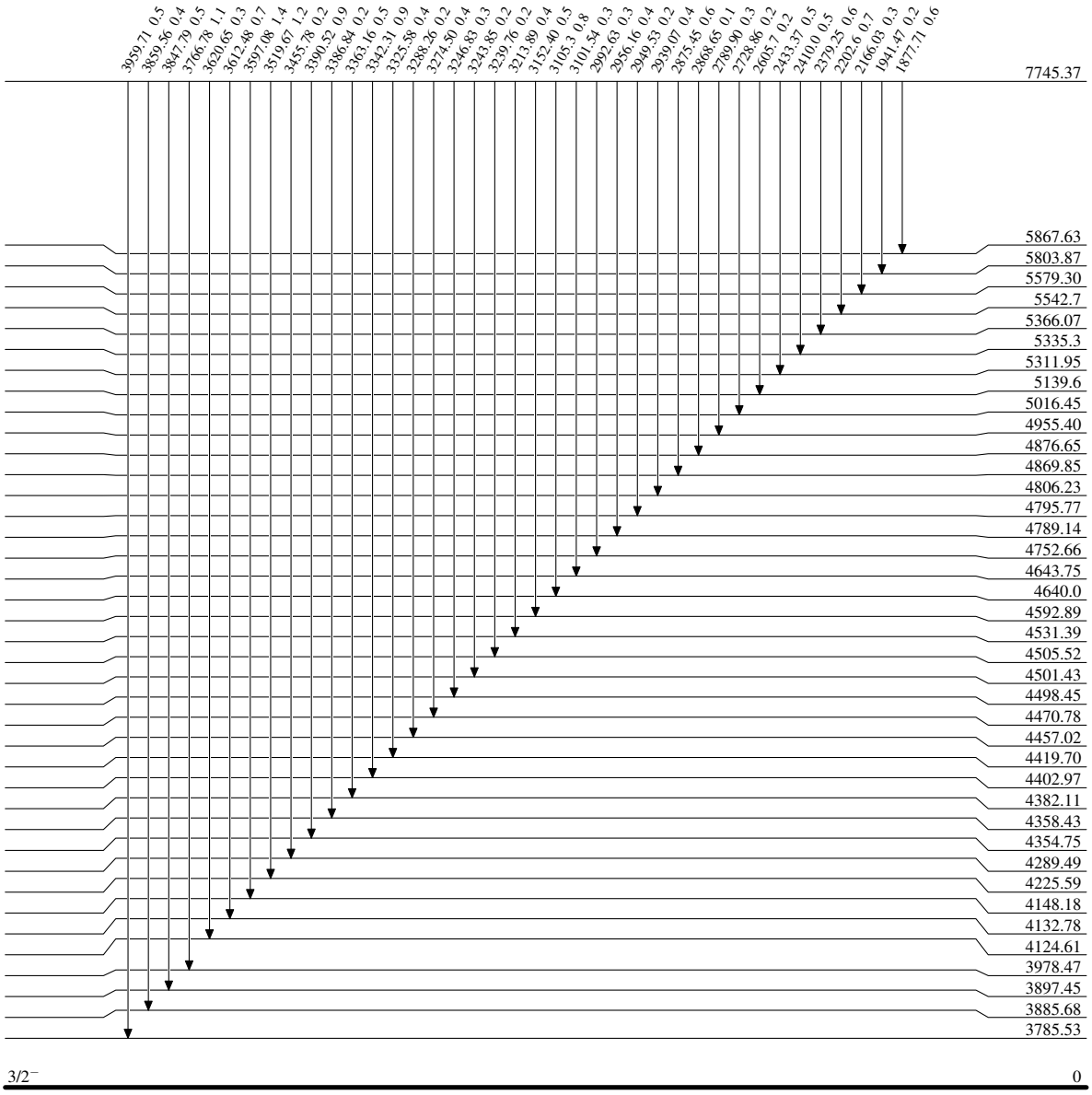



$^{63}_{29}Cu_{34}$

**$^{62}$Ni(p,$\gamma$):E=res 1986De14**

## Level Scheme (continued)

Intensities: % photon branching from each level

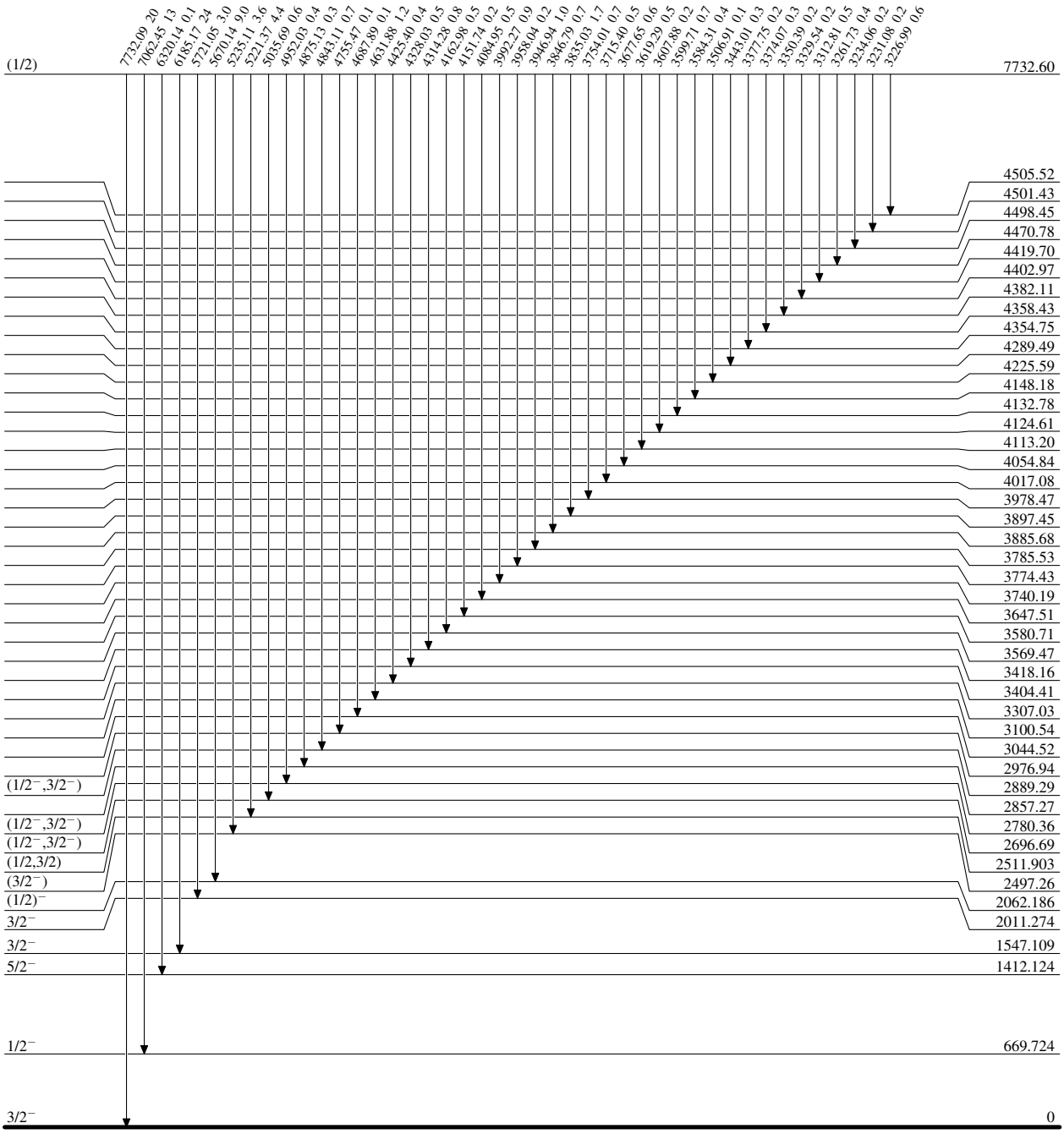



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

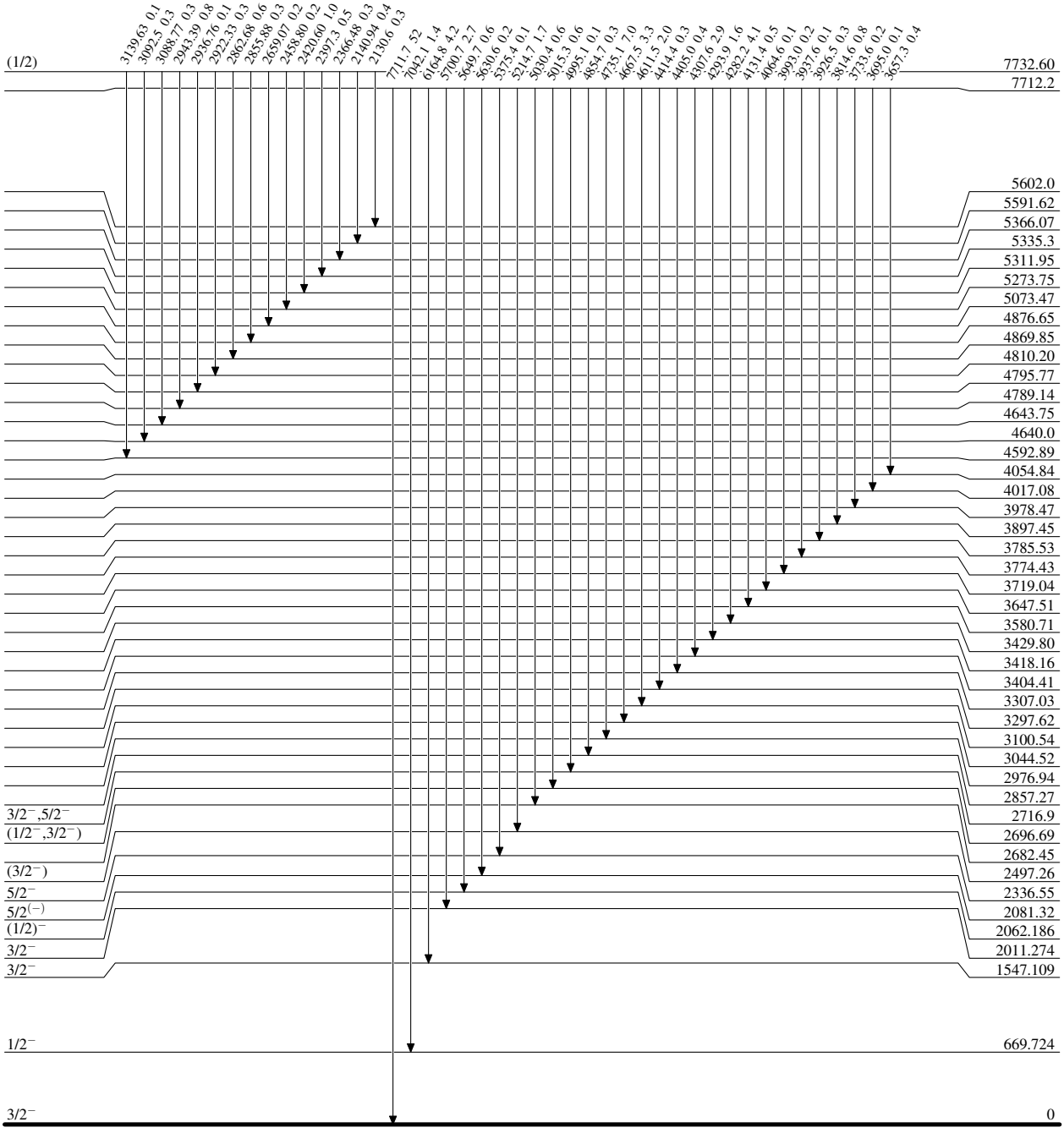



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

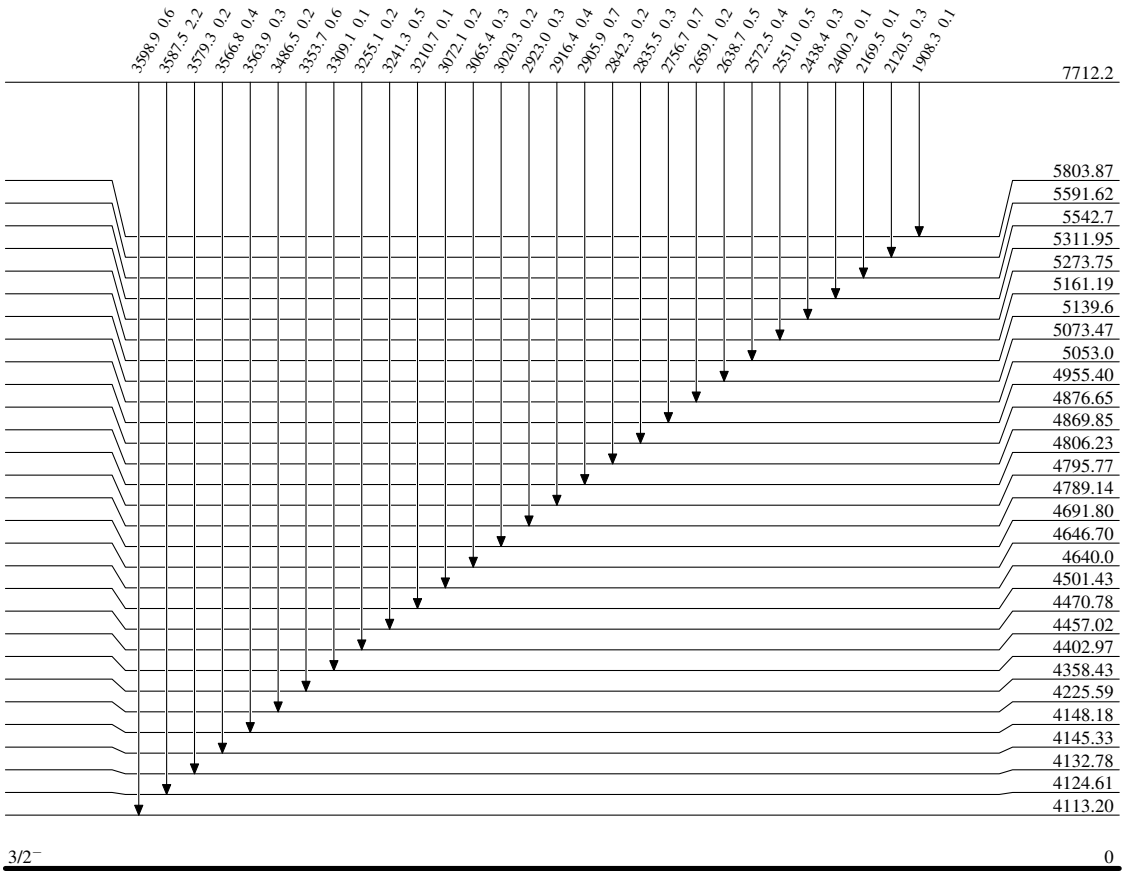



$^{63}_{29}Cu_{34}$

**$^{62}$Ni(p,$\gamma$):E=res 1986De14**

## Level Scheme (continued)

Intensities: % photon branching from each level

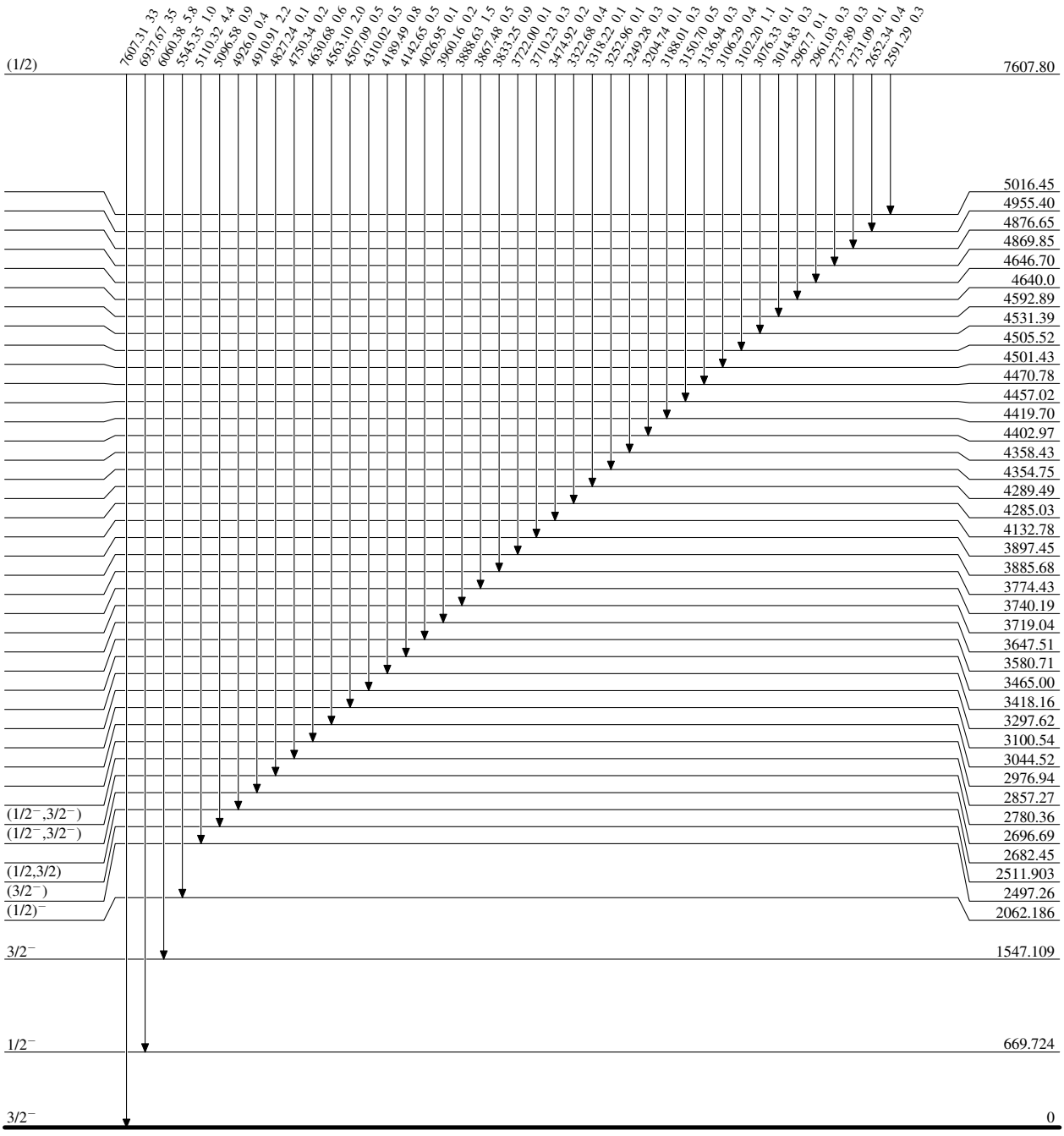



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

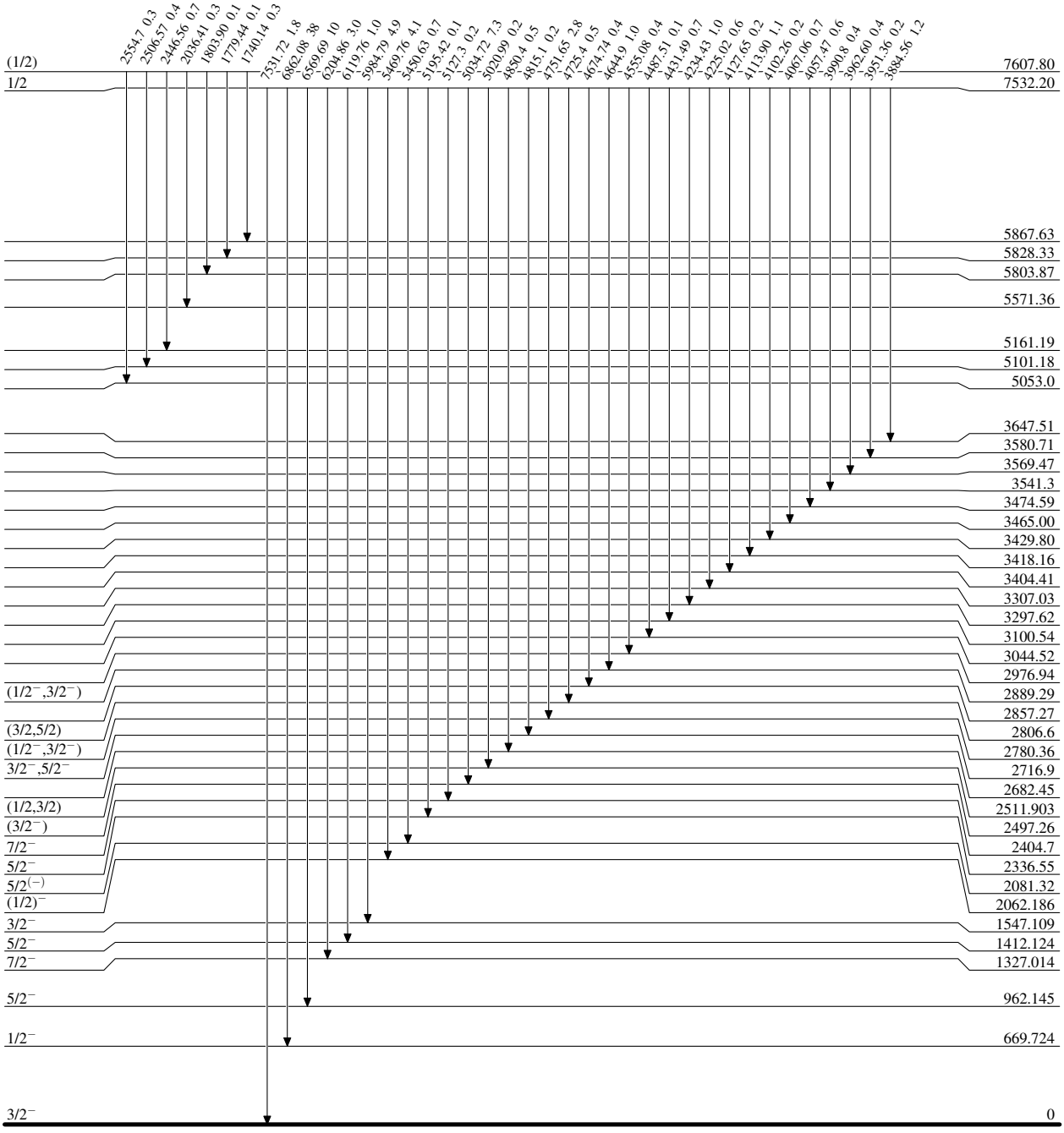



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

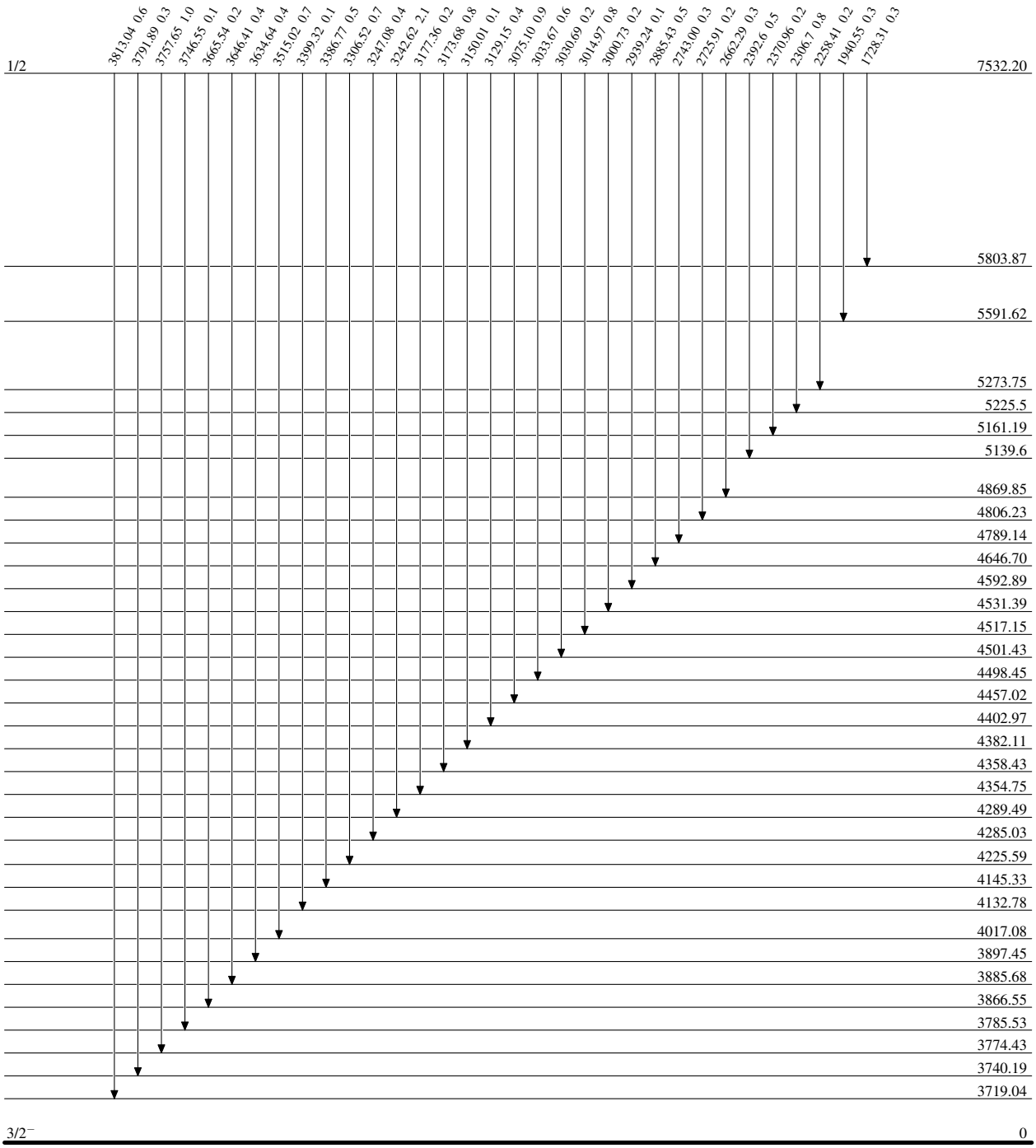



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,γ):E=res 1986De14

Level Scheme (continued)

Intensities: % photon branching from each level

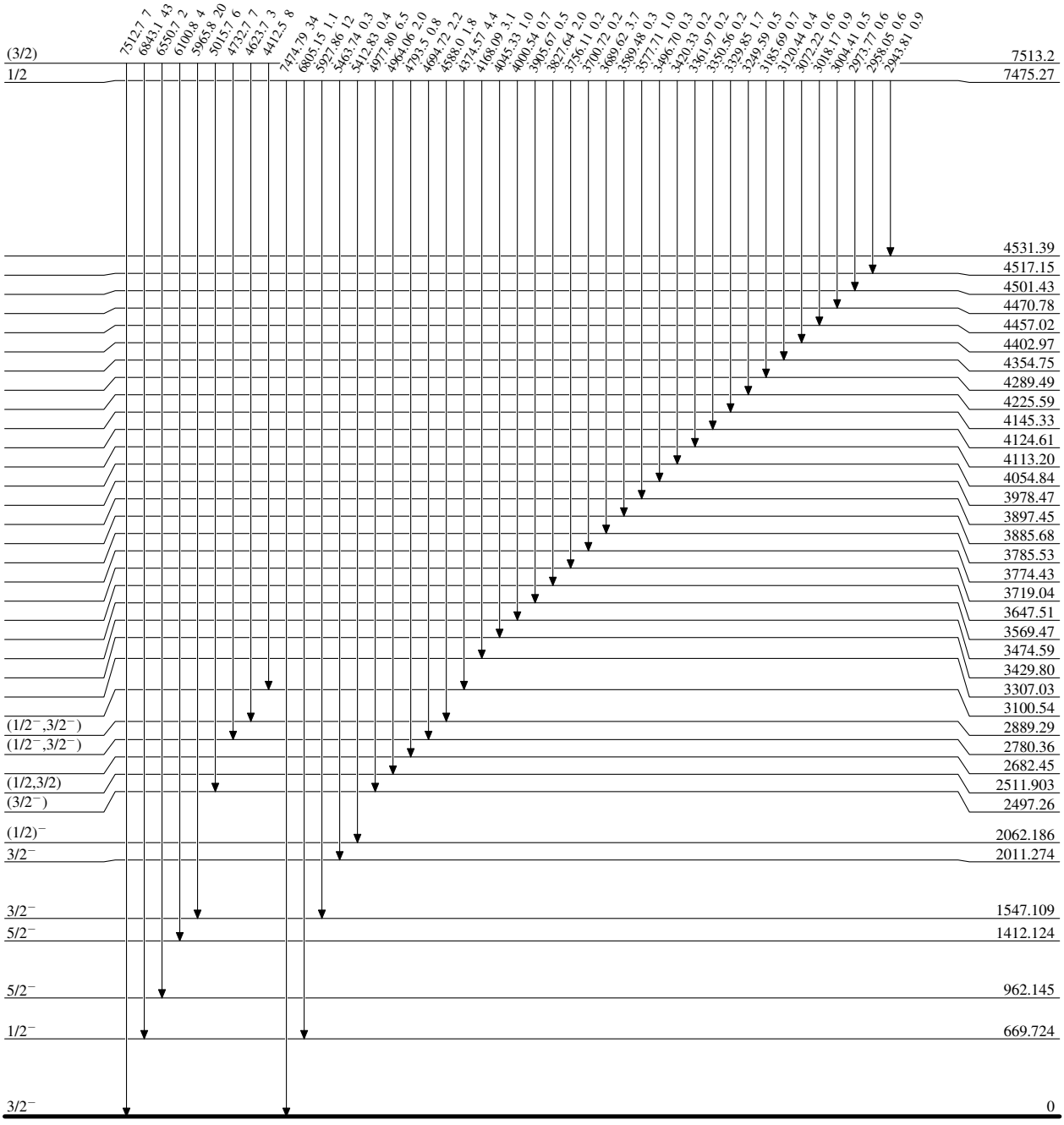



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

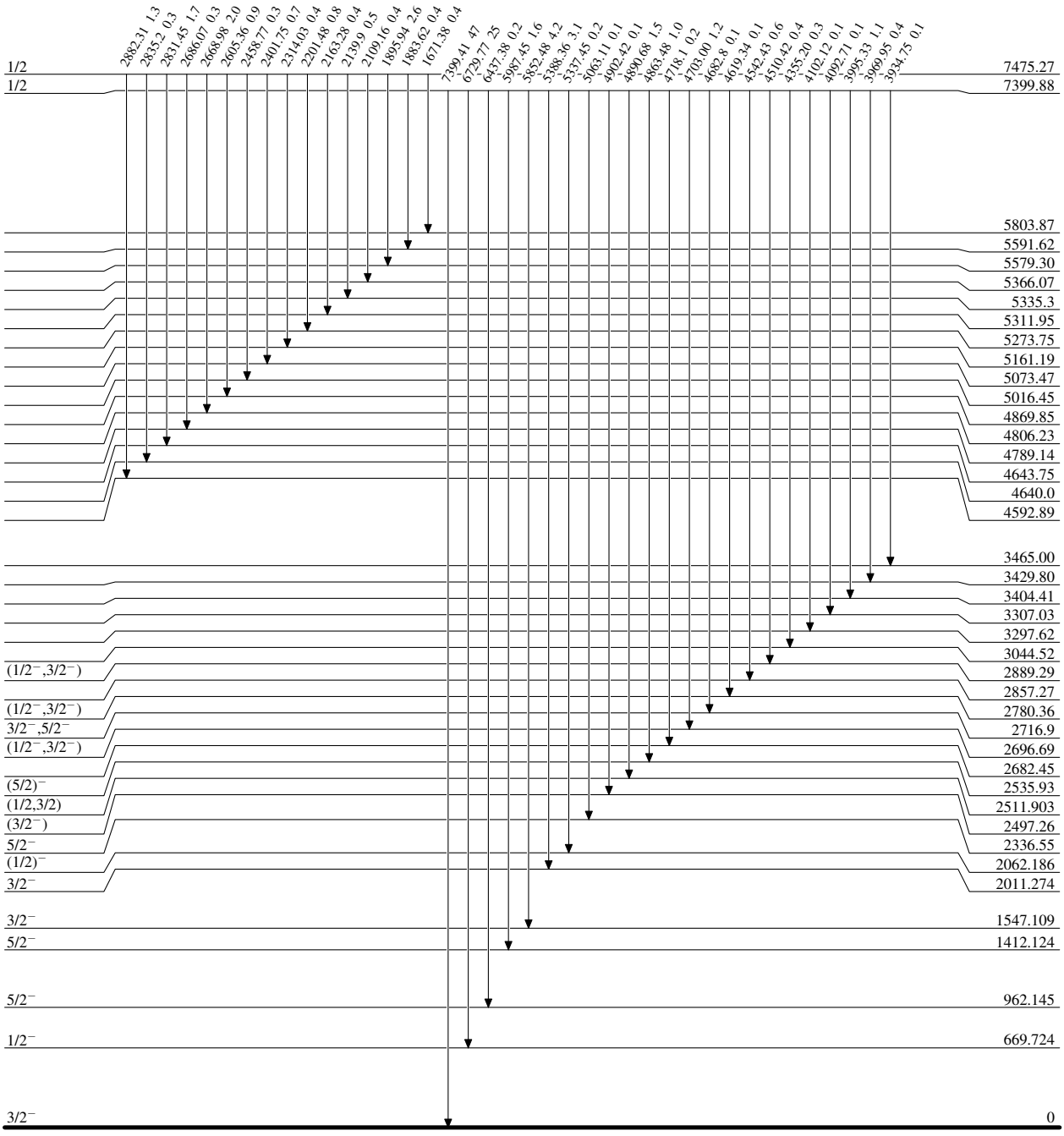



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

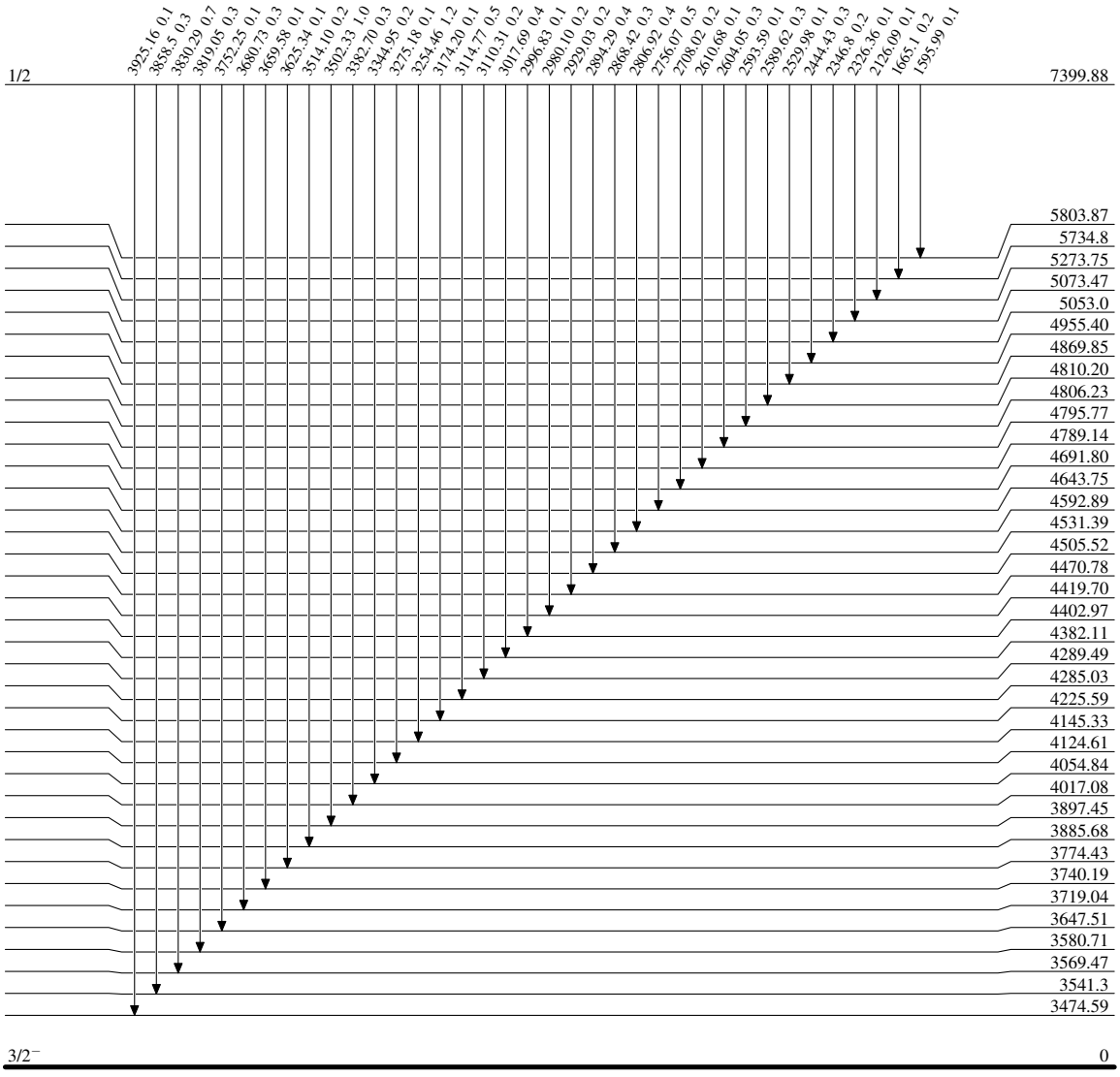



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

Level Scheme (continued)

Intensities: % photon branching from each level

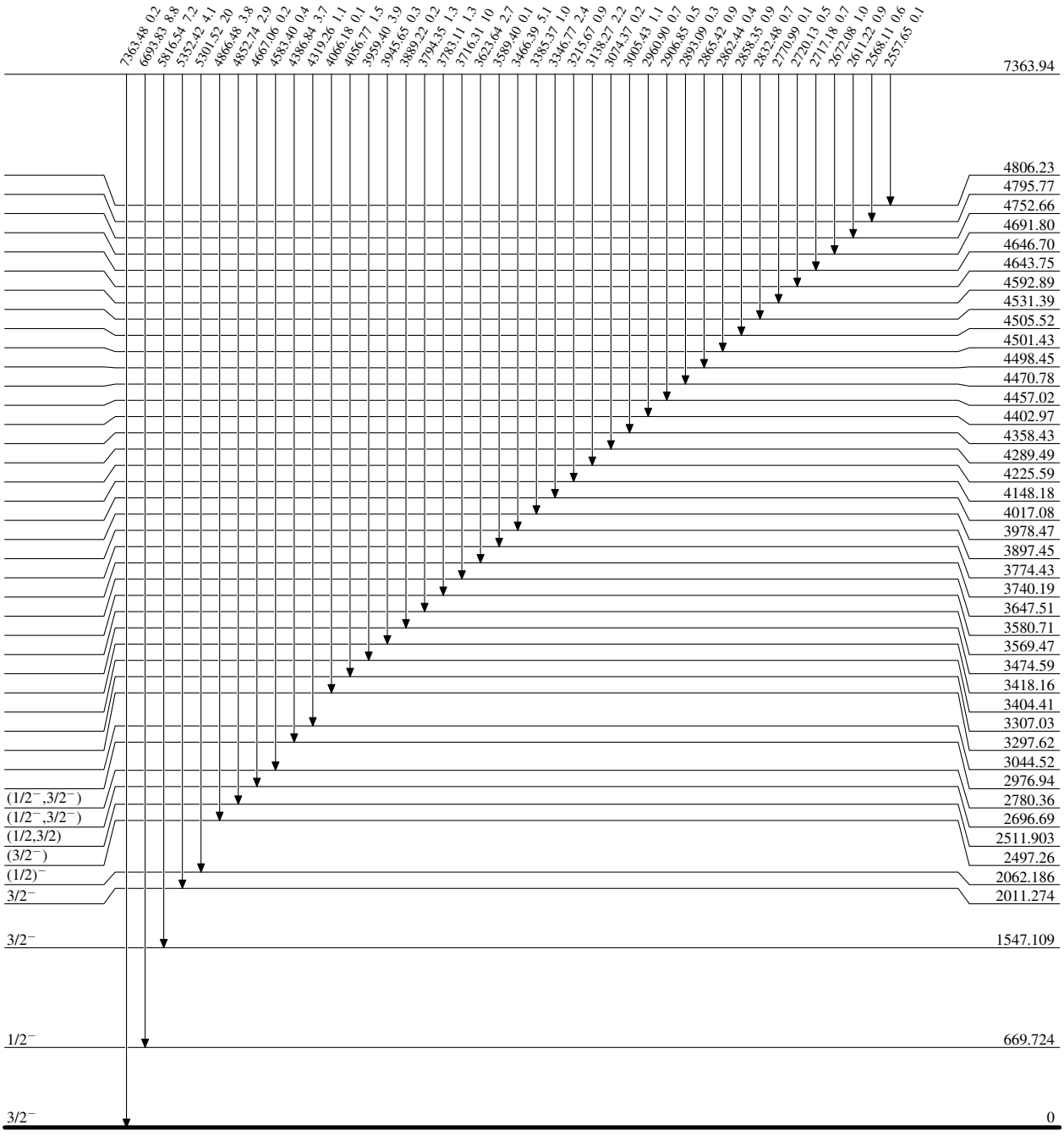



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

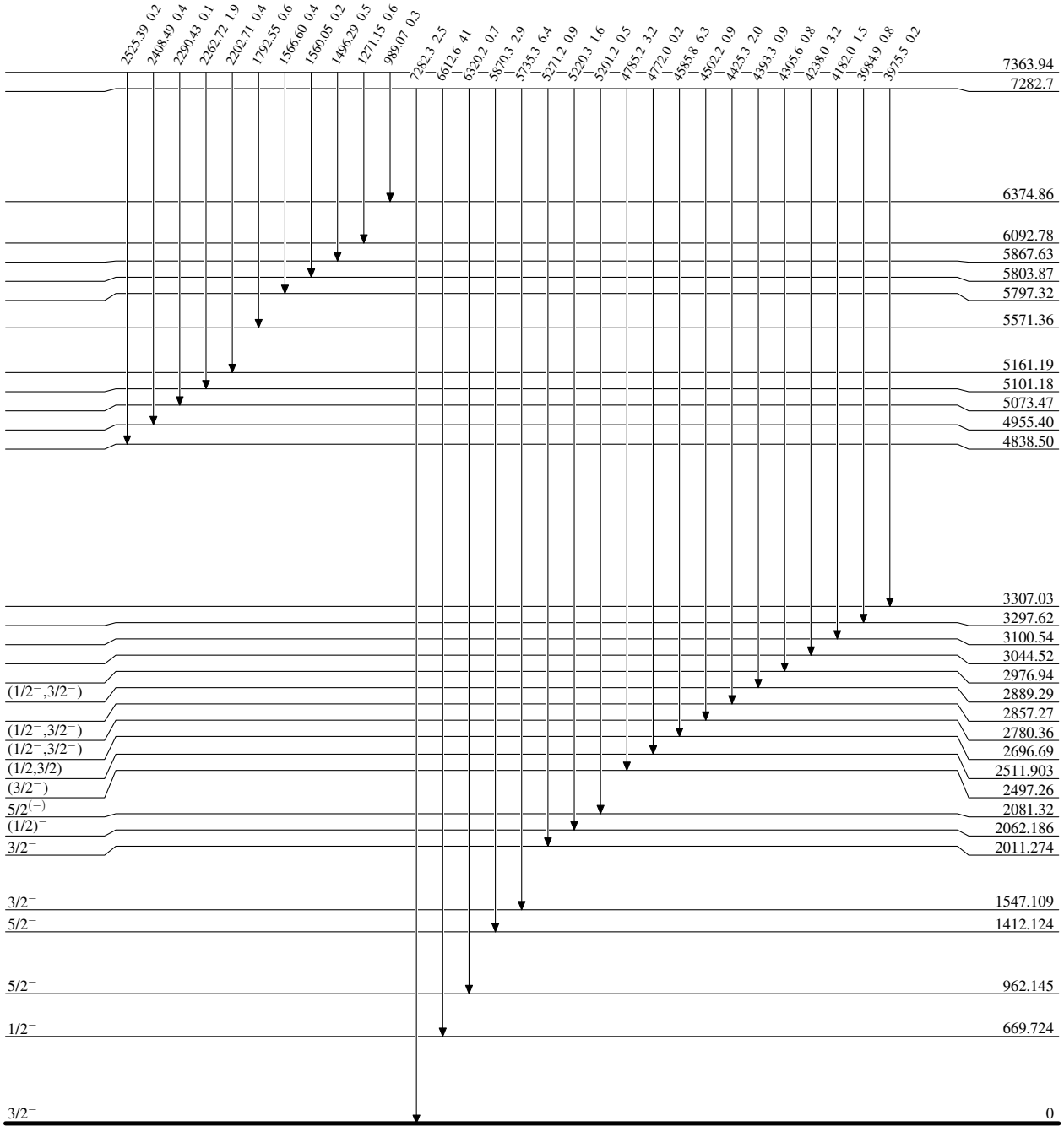



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

Level Scheme (continued)

Intensities: % photon branching from each level

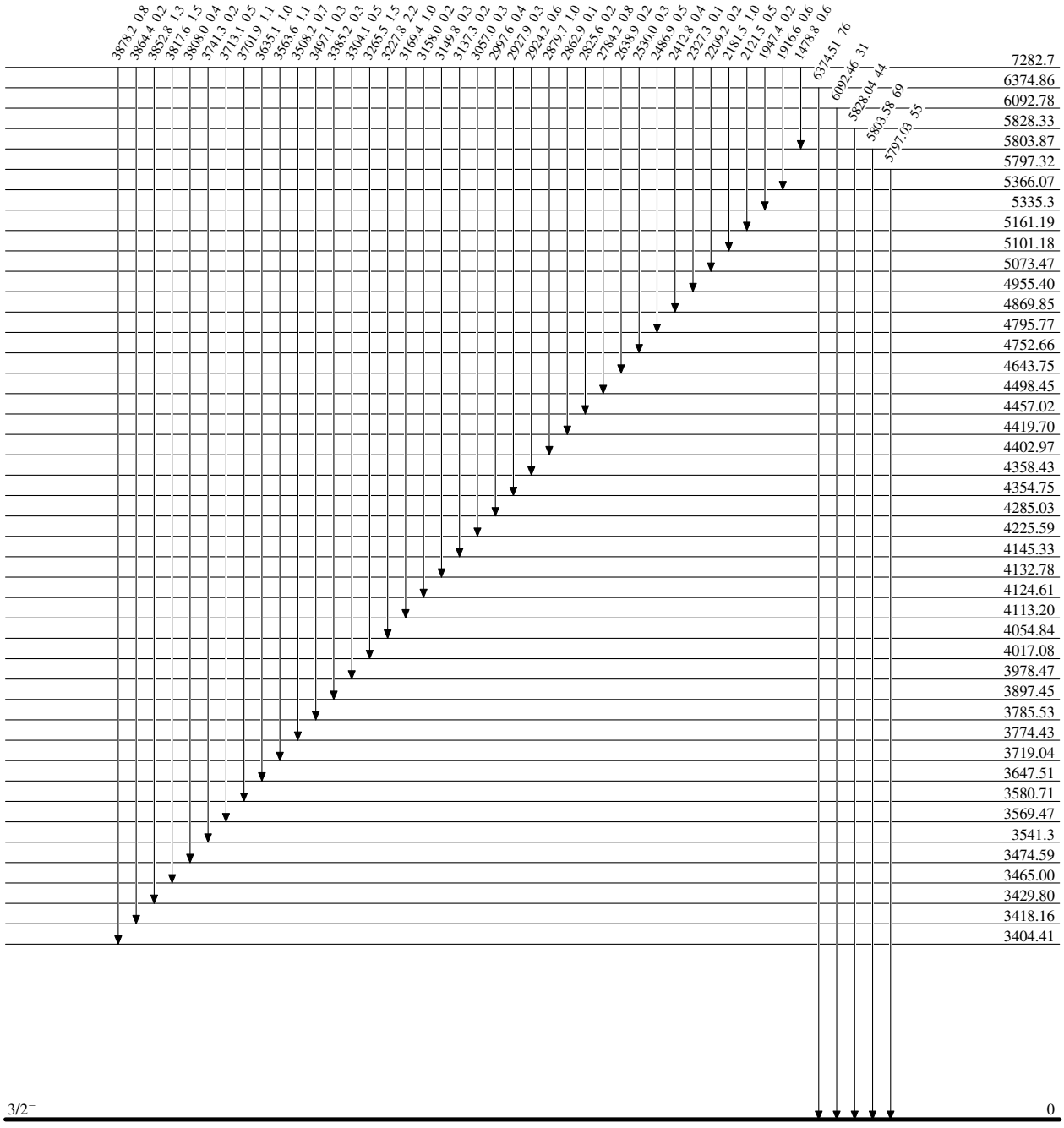



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,$\gamma$):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

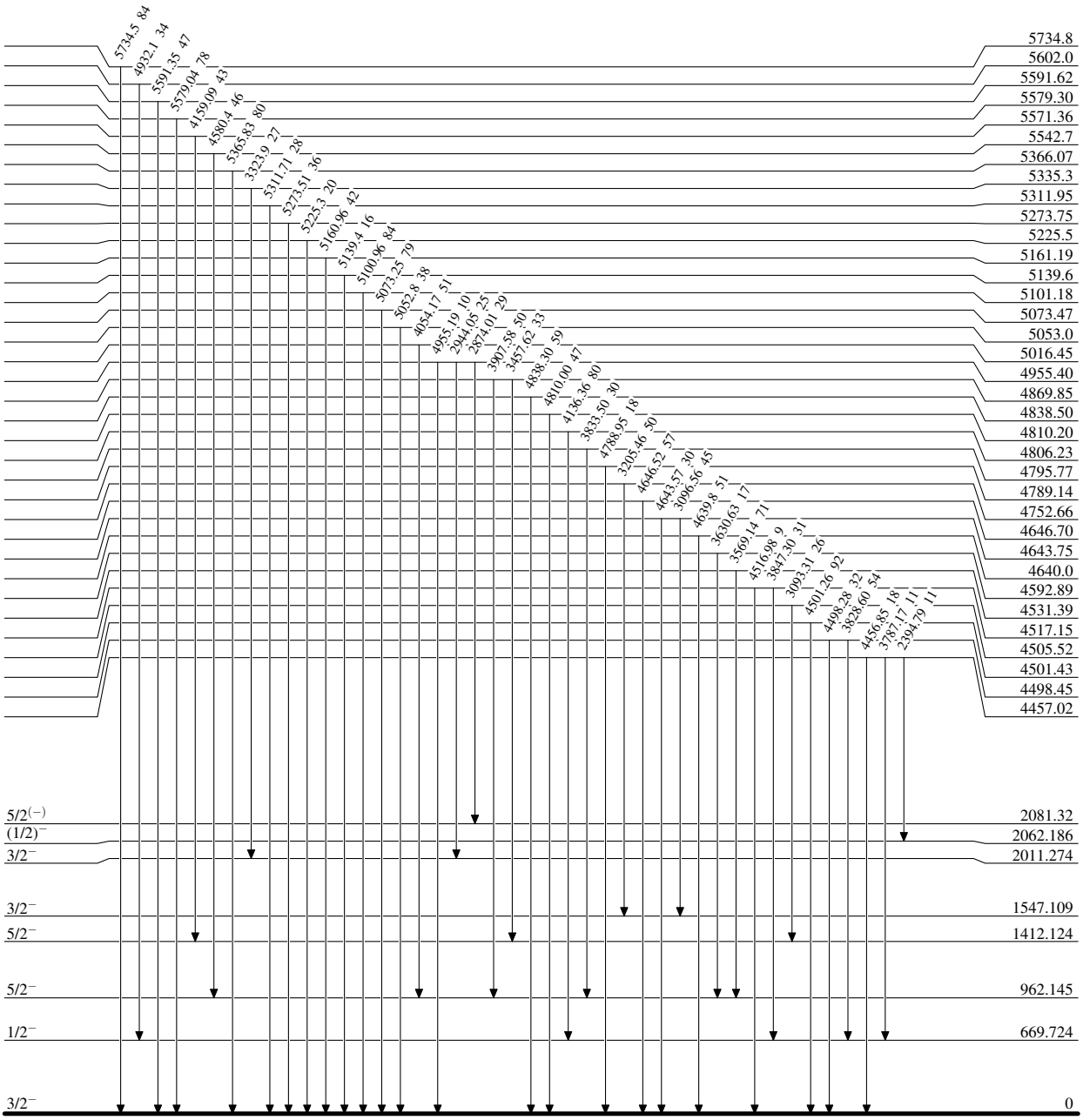



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,γ):E=res 1986De14

Level Scheme (continued)

Intensities: % photon branching from each level

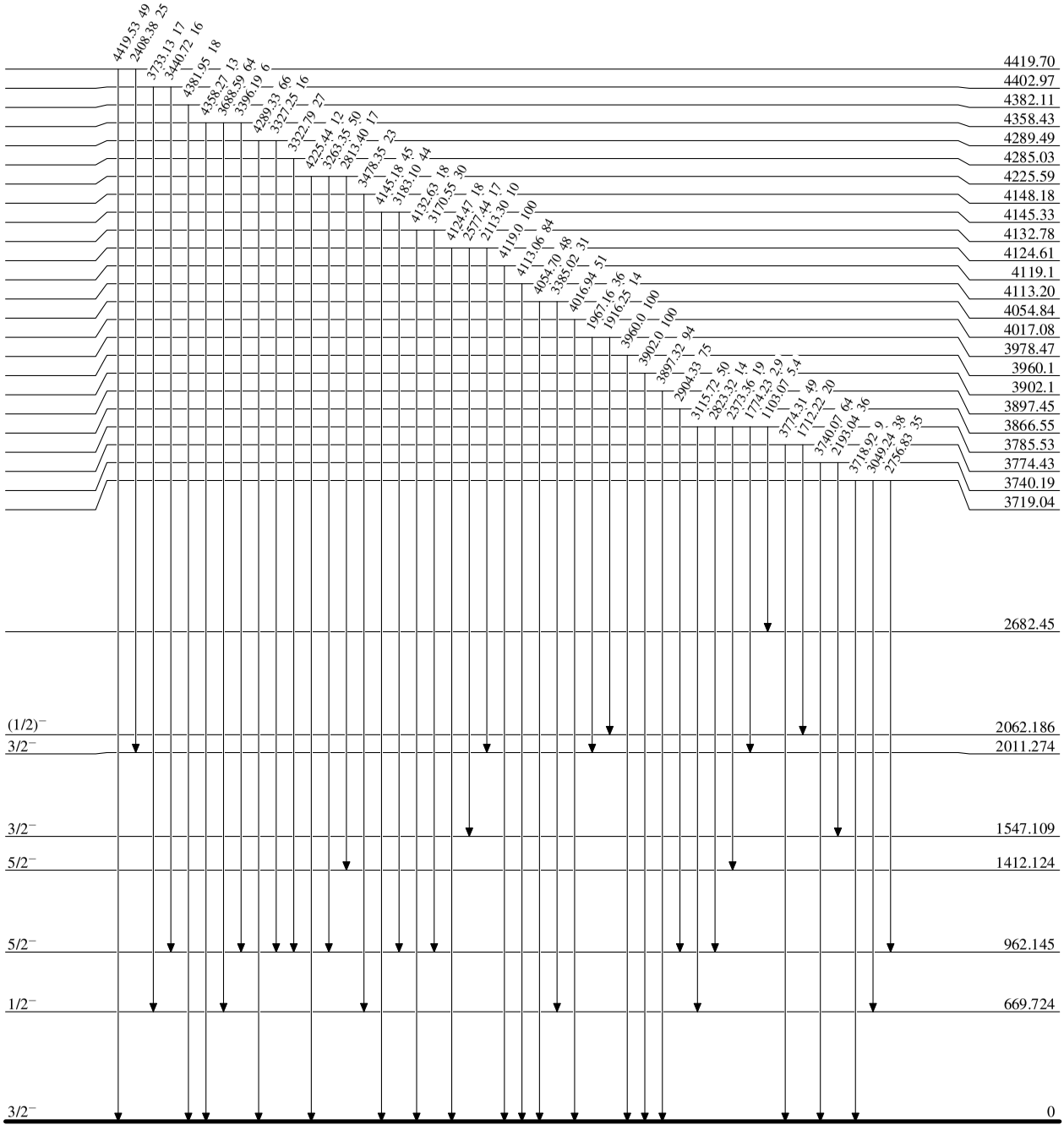



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,γ):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

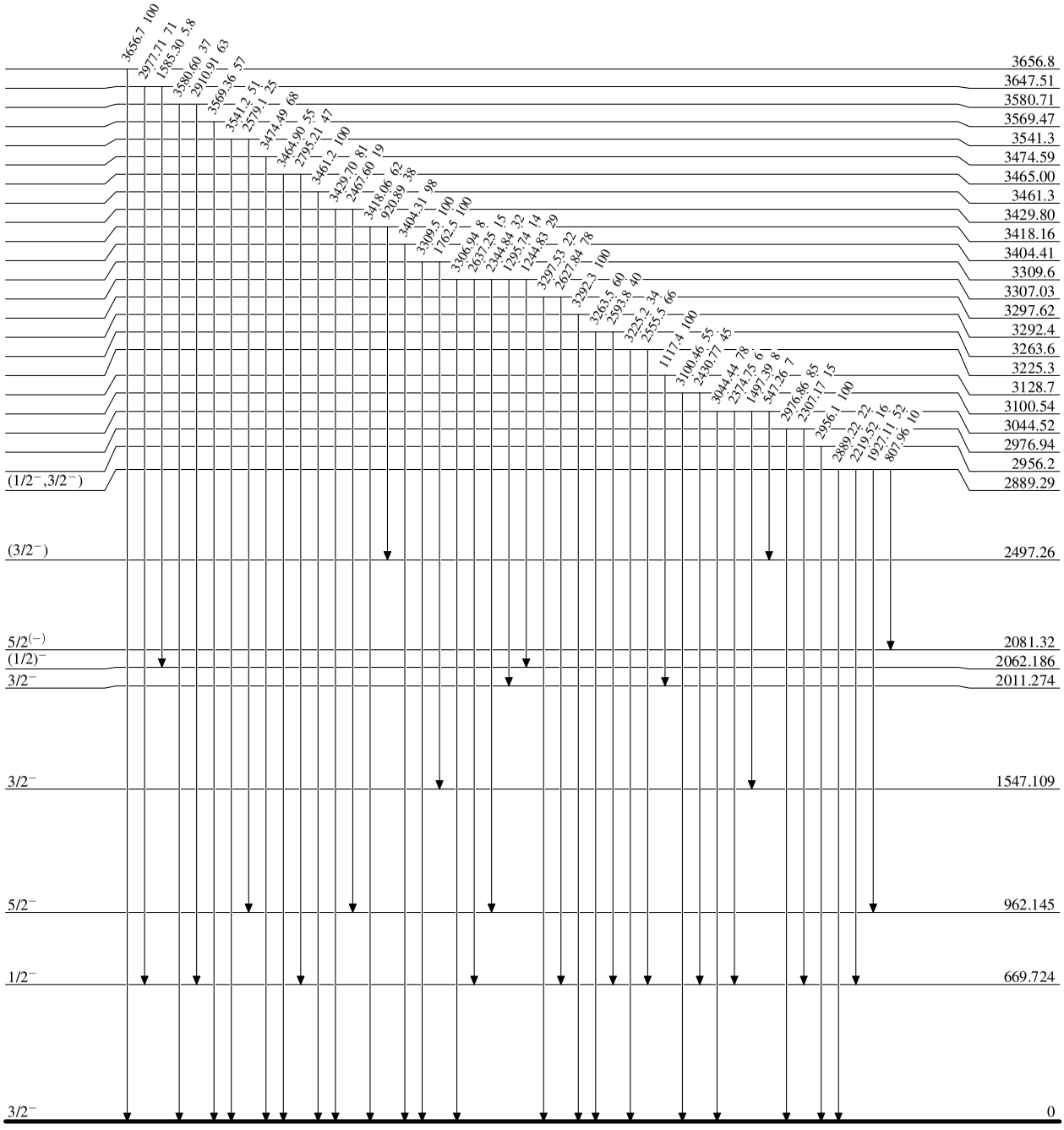



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,γ):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level

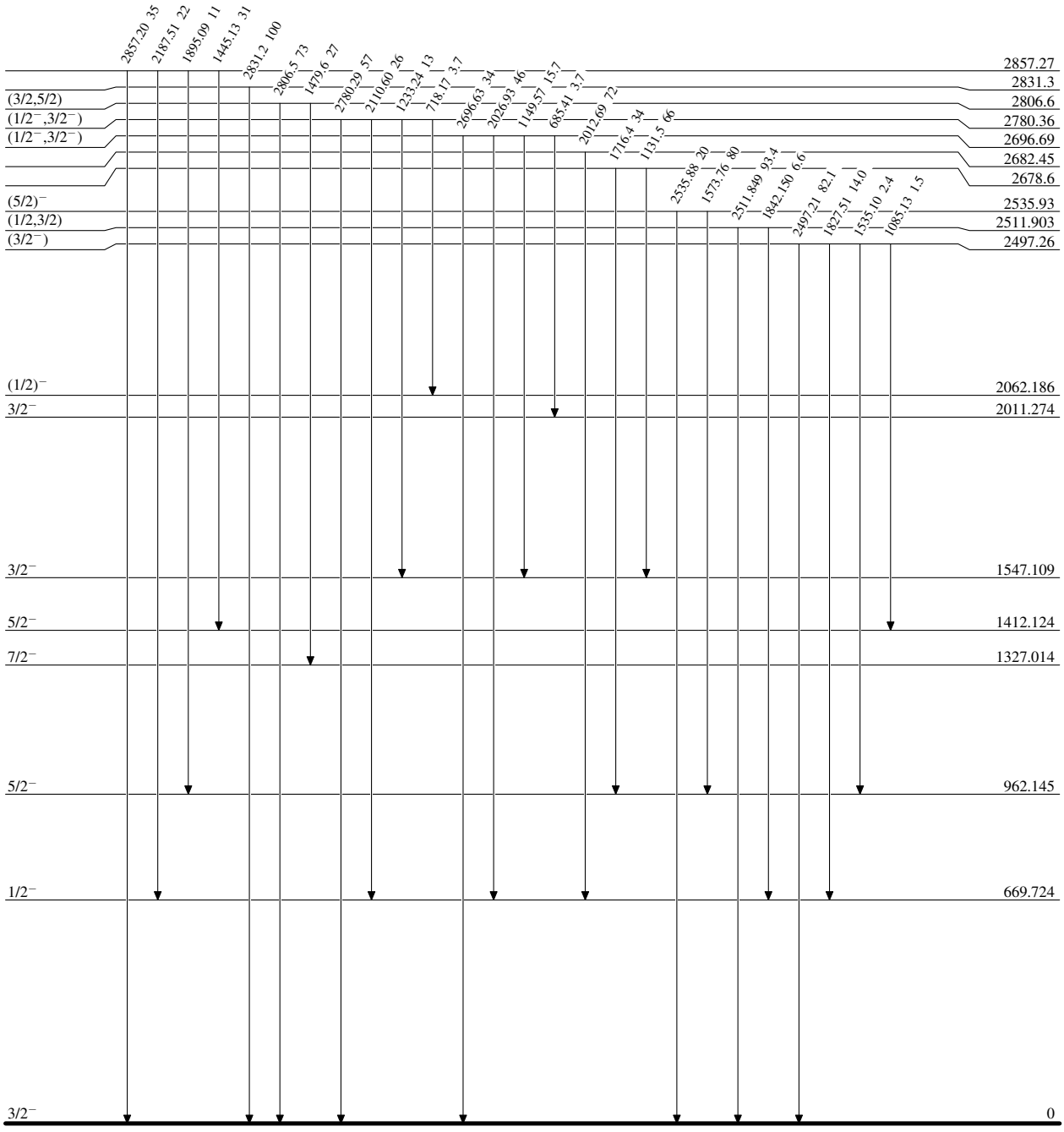



$^{63}_{29}Cu_{34}$

## $^{62}$Ni(p,γ):E=res 1986De14

### Level Scheme (continued)

Intensities: % photon branching from each level




$^{63}_{29}Cu_{34}$

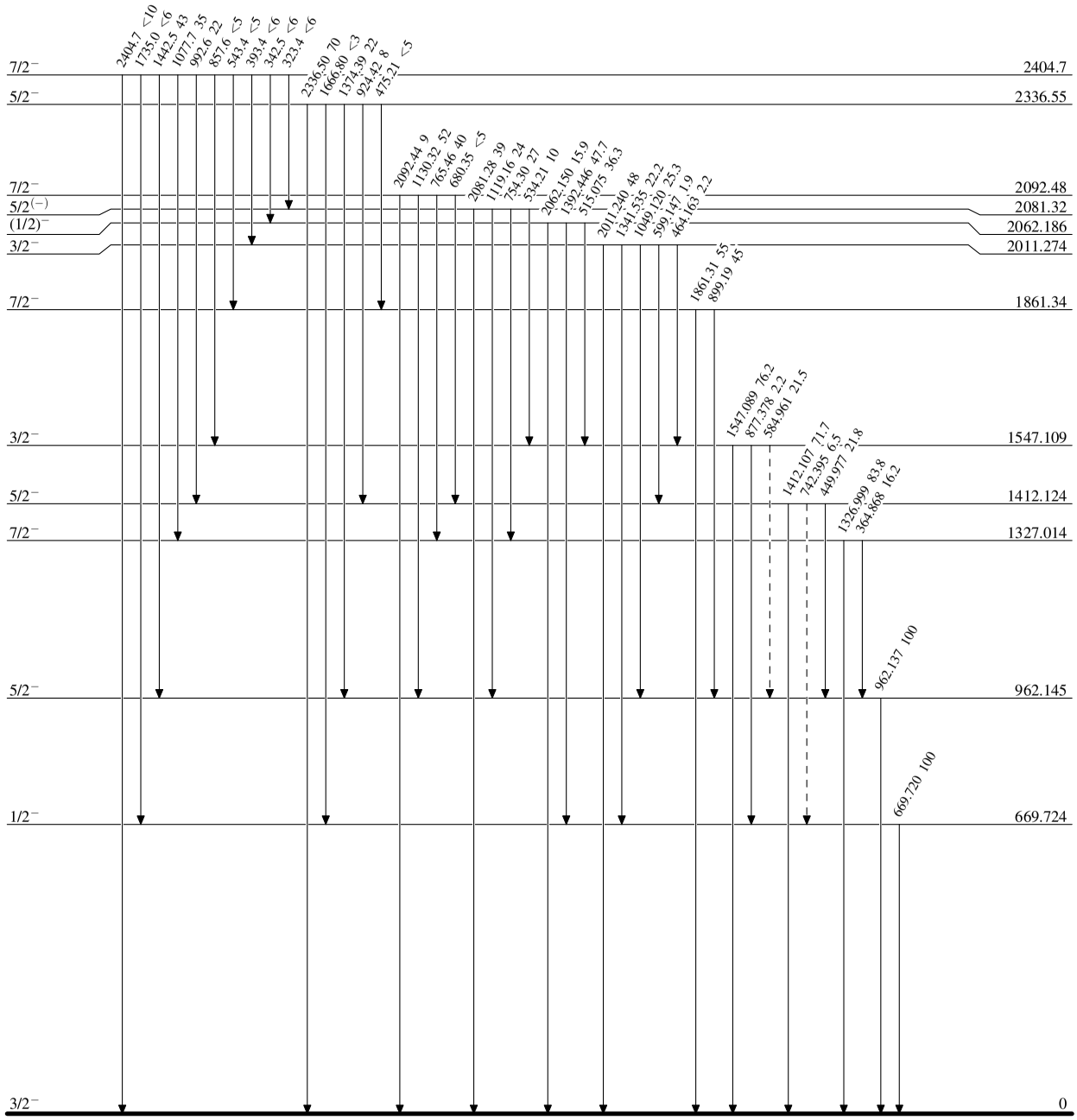
**$^{62}$Ni(p,γ):E=res 1986De14**

Legend

## Level Scheme (continued)

Intensities: % photon branching from each level

– – – – – – ► γ Decay (Uncertain)




$^{63}_{29}Cu_{34}$