## $^{144}$Nd($^{40}$Ar,3n$\gamma$) 1990De03

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | S. -c. Wu | NDS 106, 367 (2005) | 31-Aug-2005 |

E($^{40}$Ar)=170-200 MeV, Ge(BGO-CSS) detector assembly (HERA). measured E$\gamma$, I$\gamma$($\theta$), $\gamma\gamma$(t), DCO ratios.
Activity assigned on the basis of excitation functions and coincidence relationships.

### $^{181}$Pt Levels

| E(level)[†] | J$^\pi$[‡] | T$_{1/2}$[#] | E(level)[†] | J$^\pi$[‡] | E(level)[†] | J$^\pi$[‡] |
|---|---|---|---|---|---|---|
| 0.0 | 1/2$^-$ | | 1141.5 *5* | (19/2$^-$) | 3024.7? *9* | (33/2$^-$) |
| 79.50 *24* | 3/2$^-$ | | 1314.5 *4* | (19/2$^-$) | 3067.1 *11* | (31/2$^-$) |
| 93.90 *24* | 5/2$^-$ | | 1322.6 *5* | (23/2$^+$) | 3084.4 *6* | |
| 117.1 *4* | (7/2$^-$) | | 1370.3 *5* | (21/2$^-$) | 3146.7 *6* | 33/2$^-$ |
| 166.9 *3* | (5/2$^-$) | | 1397.6 *4* | 19/2$^-$ | 3201.0? *15* | |
| 235.8 *4* | (9/2$^-$) | | 1445.3 *5* | 21/2$^-$ | 3213.4 *5* | (37/2$^+$) |
| 256.8 *3* | (7/2$^-$) | | 1465.8 *5* | (25/2$^+$) | 3331.1 *5* | (35/2$^-$) |
| 276.4 *4* | (9/2$^+$) | 99 ns *9* | 1555.3 *4* | (21/2$^-$) | 3388.5 *5* | (35/2$^-$) |
| 278.30 *25* | 7/2$^-$ | | 1615.2 *5* | (23/2$^-$) | 3595.0 *5* | (37/2$^-$) |
| 300.7 *4* | 9/2$^-$ | | 1806.7 *4* | (23/2$^-$) | 3650.2 *6* | (39/2$^+$) |
| 320.2 *5* | (11/2$^+$) | | 1828.7 *5* | (27/2$^+$) | 3669.6 *11* | (37/2$^-$) |
| 380.4 *3* | (9/2$^-$) | | 1870.6 *5* | (25/2$^-$) | 3750.9 *7* | |
| 380.6 *4* | (11/2$^-$) | | 1905.7 *5* | 23/2$^-$ | 3781.1? *7* | (37/2$^-$) |
| 381.4 *5* | (13/2$^+$) | | 1959.4 *6* | 25/2$^-$ | 3839.1 *5* | (39/2$^-$) |
| 525.7 *4* | (11/2$^-$) | | 1987.6 *5* | (29/2$^+$) | 3907.6 *6* | (41/2$^+$) |
| 542.2 *5* | (15/2$^+$) | | 2073.0 *5* | (25/2$^-$) | 4074.5 *5* | (41/2$^-$) |
| 543.1 *4* | (13/2$^-$) | | 2141.4 *5* | (27/2$^-$) | 4266.6? *15* | |
| 572.7 *3* | 11/2$^-$ | | 2349.1 *5* | (27/2$^-$) | 4359.0 *6* | (43/2$^+$) |
| 603.9 *4* | 13/2$^-$ | | 2389.4 *5* | (31/2$^+$) | 4421.7 *5* | (43/2$^-$) |
| 643.3 *5* | (17/2$^+$) | | 2420.9 *5* | (29/2$^-$) | 4644.7 *6* | (45/2$^+$) |
| 695.7 *4* | (13/2$^-$) | | 2465.1 *5* | 27/2$^-$ | 4661.6 *5* | (45/2$^-$) |
| 726.7 *4* | (15/2$^-$) | | 2484.3 *6* | | 5093.7 *11* | |
| 883.1 *4* | (15/2$^-$) | | 2521.2 *6* | 29/2$^-$ | 5114.5 *7* | (47/2$^+$) |
| 887.3 *5* | (19/2$^+$) | | 2571.4 *5* | (33/2$^+$) | 5334.6 *6* | |
| 925.1 *5* | (17/2$^-$) | | 2628.0 *11* | | 5416.8 *6* | (49/2$^+$) |
| 949.6 *4* | 15/2$^-$ | | 2717.0 *5* | (31/2$^-$) | 5899.3 *7* | (51/2$^+$) |
| 989.5 *5* | 17/2$^-$ | | 2923.1 *11* | | 6213.7 *7* | (53/2$^+$) |
| 1012.9 *5* | (21/2$^+$) | | 2994.9 *6* | (35/2$^+$) | 6698.3? *12* | |
| 1091.9 *4* | (17/2$^-$) | | 3013.6 *5* | (33/2$^-$) | 7038.7? *12* | |

[†] From least-squares fit to E$\gamma$'s.
[‡] Authors' values, based on measured DCO ratios and deduced band structure.
[#] From $\gamma$-t measurements. Weighted average of 110 ns *20* for 118.8$\gamma$, and 96 ns *10* for 159.5$\gamma$.

### $\gamma$($^{181}$Pt)

| E$_\gamma$ | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ | Comments |
|---|---|---|---|---|---|
| (22.8 *2*) | 117.1 | (7/2$^-$) | 93.90 | 5/2$^-$ | |
| (40.5 *3*) | 276.4 | (9/2$^+$) | 235.8 | (9/2$^-$) | |
| (43.8) | 320.2 | (11/2$^+$) | 276.4 | (9/2$^+$) | E$_\gamma$: not observed, calculated from level energy difference. |
| (72.6 *3*) | 166.9 | (5/2$^-$) | 93.90 | 5/2$^-$ | |
| 79.4 *2* | 79.50 | 3/2$^-$ | 0.0 | 1/2$^-$ | |
| (87.7 *3*) | 166.9 | (5/2$^-$) | 79.50 | 3/2$^-$ | |
| 89.9 *2* | 256.8 | (7/2$^-$) | 166.9 | (5/2$^-$) | |

Continued on next page (footnotes at end of table)

## $^{144}$Nd($^{40}$Ar,3n$\gamma$) 1990De03 (continued)

### $\gamma(^{181}Pt)$ (continued)

| $E_\gamma$ | $I_\gamma$ | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[†] | Comments |
|---|---|---|---|---|---|---|---|
| 94.0 *2* | | 93.90 | $5/2^-$ | 0.0 | $1/2^-$ | | |
| 101.1 *2* | 8.4 *20* | 643.3 | $(17/2^+)$ | 542.2 | $(15/2^+)$ | D | Mult.: DCO=1.8 *3*. |
| 105.1 *2* | 4.4[#] *9* | 381.4 | $(13/2^+)$ | 276.4 | $(9/2^+)$ | Q | Mult.: DCO=0.9 *2*. |
| 118.8 *2* | 14[#] *3* | 235.8 | $(9/2^-)$ | 117.1 | $(7/2^-)$ | | Mult.: DCO=1.4 *1*; implies ΔJ=0,1 transition. |
| 123.7 *2* | 1.9 *8* | 380.4 | $(9/2^-)$ | 256.8 | $(7/2^-)$ | | |
| 125.6 *2* | 4.4 *1* | 1012.9 | $(21/2^+)$ | 887.3 | $(19/2^+)$ | D | Mult.: DCO=1.5 *2*. |
| 143.4 *2* | 1.8 *6* | 1465.8 | $(25/2^+)$ | 1322.6 | $(23/2^+)$ | D | Mult.: DCO=7 *4*. |
| 144[b] *1* | | 380.4 | $(9/2^-)$ | 235.8 | $(9/2^-)$ | | |
| 144.9 *2* | 9.4 *8* | 380.6 | $(11/2^-)$ | 235.8 | $(9/2^-)$ | D | Mult.: DCO=1.5 *2*. |
| 145.2 *2* | 1.4 *7* | 525.7 | $(11/2^-)$ | 380.4 | $(9/2^-)$ | | |
| 158.9 *2* | 4.2 *8* | 1987.6 | $(29/2^+)$ | 1828.7 | $(27/2^+)$ | | Mult.: DCO=0.8 *4*. |
| 159.5 *2* | [‡] | 276.4 | $(9/2^+)$ | 117.1 | $(7/2^-)$ | | |
| 160.8 *2* | 14[#] *4* | 542.2 | $(15/2^+)$ | 381.4 | $(13/2^+)$ | D | Mult.: DCO=1.9 *3*. |
| 162.2 *2* | 1.5 *3* | 543.1 | $(13/2^-)$ | 380.6 | $(11/2^-)$ | D | Mult.: DCO=2.3 *3*. |
| 170.0 *2* | 1.3 *4* | 695.7 | $(13/2^-)$ | 525.7 | $(11/2^-)$ | | |
| 182.8 *2* | 1.0 *2* | 2571.4 | $(33/2^+)$ | 2389.4 | $(31/2^+)$ | D | Mult.: DCO>2.6 *13*. |
| 183.5 *2* | 2.2 *2* | 726.7 | $(15/2^-)$ | 543.1 | $(13/2^-)$ | | Mult.: DCO=1.0 *3*. |
| 184.6 *2* | 0.5[&] *2* | 278.30 | $7/2^-$ | 93.90 | $5/2^-$ | | |
| 187.4 *2* | 1.7 *6* | 883.1 | $(15/2^-)$ | 695.7 | $(13/2^-)$ | | |
| 198.6 *2* | 2.1[#] *8* | 278.30 | $7/2^-$ | 79.50 | $3/2^-$ | Q | Mult.: DCO=0.8 *2*. |
| 198.9 *2* | 1.0 *1* | 925.1 | $(17/2^-)$ | 726.7 | $(15/2^-)$ | (D) | Mult.: DCO=2 *1*. |
| 206.3 *2* | 0.9 *2* | 3595.0 | $(37/2^-)$ | 3388.5 | $(35/2^-)$ | D | Mult.: DCO=1.5 *2*. |
| 206.8 *2* | 5.6 *3* | 300.7 | $9/2^-$ | 93.90 | $5/2^-$ | | Mult.: DCO=1.4 *4*. |
| 208.8 *2* | 0.8 *4* | 1091.9 | $(17/2^-)$ | 883.1 | $(15/2^-)$ | | |
| 213.6 *2* | 0.7 *2* | 380.4 | $(9/2^-)$ | 166.9 | $(5/2^-)$ | | |
| 216.5 *2* | 0.4 *3* | 1141.5 | $(19/2^-)$ | 925.1 | $(17/2^-)$ | D | Mult.: DCO=2.7 *5*. |
| 222.0 *2* | 5.4[#] *4* | 542.2 | $(15/2^+)$ | 320.2 | $(11/2^+)$ | Q | Mult.: DCO=0.8 *1*. |
| 222.6 *2* | 0.7 *3* | 1314.5 | $(19/2^-)$ | 1091.9 | $(17/2^-)$ | | |
| 228.7 *2* | 0.7 *2* | 1370.3 | $(21/2^-)$ | 1141.5 | $(19/2^-)$ | (D) | Mult.: DCO=3 *2*. |
| 235.5 *2* | 1.5 *2* | 4074.5 | $(41/2^-)$ | 3839.1 | $(39/2^-)$ | D | Mult.: DCO=1.5 *2*. |
| 240.0 *2* | 0.6 *2* | 4661.6 | $(45/2^-)$ | 4421.7 | $(43/2^-)$ | D | Mult.: DCO=2.1 *3*. |
| 240.8 *2* | 0.3 *1* | 1555.3 | $(21/2^-)$ | 1314.5 | $(19/2^-)$ | | |
| 244.0 *2* | 0.9 *9* | 3839.1 | $(39/2^-)$ | 3595.0 | $(37/2^-)$ | | |
| 244.1 *2* | 5.6 *6* | 887.3 | $(19/2^+)$ | 643.3 | $(17/2^+)$ | D | Mult.: DCO=2.6 *3*. |
| 244.4 *2* | 0.6 *1* | 1615.2 | $(23/2^-)$ | 1370.3 | $(21/2^-)$ | D | Mult.: DCO=2.2 *3*. |
| 251.4 *2* | 0.3 *1* | 1806.7 | $(23/2^-)$ | 1555.3 | $(21/2^-)$ | | |
| 255.2 *2* | 0.8 *5* | 1870.6 | $(25/2^-)$ | 1615.2 | $(23/2^-)$ | | |
| 262.0 *2* | 13[#] *3* | 643.3 | $(17/2^+)$ | 381.4 | $(13/2^+)$ | Q | Mult.: DCO=1.1 *1*. |
| 263[b] *1* | | 380.4 | $(9/2^-)$ | 117.1 | $(7/2^-)$ | | |
| 263.3 *2* | 9[#] *3* | 380.6 | $(11/2^-)$ | 117.1 | $(7/2^-)$ | Q | Mult.: DCO=1.2 *1*. |
| 264.0 *2* | 0.3 *2* | 3595.0 | $(37/2^-)$ | 3331.1 | $(35/2^-)$ | | |
| 268.9 *2* | 1.2 *4* | 525.7 | $(11/2^-)$ | 256.8 | $(7/2^-)$ | | |
| 270.6 *2* | 0.6 *3* | 2141.4 | $(27/2^-)$ | 1870.6 | $(25/2^-)$ | D | Mult.: DCO=1.8 *2*. |
| 280.1 *2* | 0.5 *3* | 2420.9 | $(29/2^-)$ | 2141.4 | $(27/2^-)$ | | |
| 289.9 *2* | 1.1 *5* | 525.7 | $(11/2^-)$ | 235.8 | $(9/2^-)$ | | |
| 294.4 *2* | 1.9[#] *2* | 572.7 | $11/2^-$ | 278.30 | $7/2^-$ | Q | Mult.: DCO=1.0 *2*. |
| 296.2 *2* | 0.4 *3* | 2717.0 | $(31/2^-)$ | 2420.9 | $(29/2^-)$ | | Mult.: DCO=0.9 *3*. |
| 296.6 *2* | 0.4 *3* | 3013.6 | $(33/2^-)$ | 2717.0 | $(31/2^-)$ | | |
| 303.2 *2* | 5.3[#] *8* | 603.9 | $13/2^-$ | 300.7 | $9/2^-$ | (Q) | Mult.: DCO=1.2 *2*. |
| 307.3 *2* | 9.0 *4* | 543.1 | $(13/2^-)$ | 235.8 | $(9/2^-)$ | Q | Mult.: DCO=1.1 *1*. |
| 309.7 *2* | 3.6 *5* | 1322.6 | $(23/2^+)$ | 1012.9 | $(21/2^+)$ | D | Mult.: DCO=2.1 *2*. |
| 315.2 *2* | 1.2 *2* | 695.7 | $(13/2^-)$ | 380.4 | $(9/2^-)$ | | |

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## $^{144}$Nd($^{40}$Ar,3n$\gamma$) 1990De03 (continued)

### $\gamma(^{181}Pt)$ (continued)

| $E_\gamma$ | $I_\gamma$ | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[†] | Comments |
|---|---|---|---|---|---|---|---|
| 317.4[b] 2 | 1.2 2 | 3331.1 | (35/2$^-$) | 3013.6 | (33/2$^-$) | D | Mult.: DCO=2.6 8. |
| 345.1 2 | 9.4 10 | 887.3 | (19/2$^+$) | 542.2 | (15/2$^+$) | | Mult.: DCO=1.4 2. |
| 346.2 2 | 6.0 7 | 726.7 | (15/2$^-$) | 380.6 | (11/2$^-$) | Q | Mult.: DCO=1.1 1. |
| 347.0[b] 2 | 0.6 6 | 4421.7 | (43/2$^-$) | 4074.5 | (41/2$^-$) | | |
| 357.4 2 | 2.6 5 | 883.1 | (15/2$^-$) | 525.7 | (11/2$^-$) | | |
| 363.0 2 | 1.7 4 | 1828.7 | (27/2$^+$) | 1465.8 | (25/2$^+$) | D | Mult.: DCO=2.3 2. |
| 364 1 | 0.6 6 | 3388.5 | (35/2$^-$) | 3024.7? | (33/2$^-$) | | |
| 369.5 2 | 20[#] 2 | 1012.9 | (21/2$^+$) | 643.3 | (17/2$^+$) | Q | Mult.: DCO=1.1 1, $A_2$=+0.36 8, $A_4$=−0.43 10. |
| 376.9 2 | 1.9 5 | 949.6 | 15/2$^-$ | 572.7 | 11/2$^-$ | | Mult.: DCO=1.3 2. |
| 381.8 2 | 6.4 7 | 925.1 | (17/2$^-$) | 543.1 | (13/2$^-$) | Q | Mult.: DCO=1.1 1. |
| 385.6 2 | 5.2 8 | 989.5 | 17/2$^-$ | 603.9 | 13/2$^-$ | Q | Mult.: DCO=1.1 1. |
| 396.2 2 | 1.9 4 | 1091.9 | (17/2$^-$) | 695.7 | (13/2$^-$) | | |
| 401.8 2 | 1.7 4 | 2389.4 | (31/2$^+$) | 1987.6 | (29/2$^+$) | | Mult.: DCO=1.3 2. |
| 414.7 2 | 8.2 6 | 1141.5 | (19/2$^-$) | 726.7 | (15/2$^-$) | Q | Mult.: DCO=1.0 1, $A_2$=+0.5 3, $A_4$=−0.5 3. |
| 423 1 | 1.0 5 | 2994.9 | (35/2$^+$) | 2571.4 | (33/2$^+$) | | Mult.: DCO=1.1 2. |
| 431.4 2 | 2.1 5 | 1314.5 | (19/2$^-$) | 883.1 | (15/2$^-$) | | |
| 435.6 2 | 9.6 10 | 1322.6 | (23/2$^+$) | 887.3 | (19/2$^+$) | Q | Mult.: DCO=1.1 2. |
| 445.1 2 | 6.7 6 | 1370.3 | (21/2$^-$) | 925.1 | (17/2$^-$) | Q | Mult.: DCO=0.9 1. |
| 448.0 2 | 1.7 4 | 1397.6 | 19/2$^-$ | 949.6 | 15/2$^-$ | Q | Mult.: DCO=0.8 2. |
| 450.7 2 | 1.5 3 | 3839.1 | (39/2$^-$) | 3388.5 | (35/2$^-$) | Q | Mult.: DCO=0.9 2. |
| 452.7 2 | 21.2 21 | 1465.8 | (25/2$^+$) | 1012.9 | (21/2$^+$) | Q | Mult.: DCO=0.9 2. |
| 455.8 2 | 4.6 7 | 1445.3 | 21/2$^-$ | 989.5 | 17/2$^-$ | Q | Mult.: DCO=1.0 1. |
| 463.4 2 | 2.3 5 | 1555.3 | (21/2$^-$) | 1091.9 | (17/2$^-$) | | |
| 473.8 2 | 8.3 7 | 1615.2 | (23/2$^-$) | 1141.5 | (19/2$^-$) | Q | Mult.: DCO=1.1 1. |
| 479.3 2 | 1.2 3 | 4074.5 | (41/2$^-$) | 3595.0 | (37/2$^-$) | Q | Mult.: DCO=1.0 2. |
| 492.2 2 | 2.6 5 | 1806.7 | (23/2$^-$) | 1314.5 | (19/2$^-$) | | |
| 500.2 2 | 4.5 4 | 1870.6 | (25/2$^-$) | 1370.3 | (21/2$^-$) | Q | Mult.: DCO=1.1 1. |
| 506.2 2 | 10.9 12 | 1828.7 | (27/2$^+$) | 1322.6 | (23/2$^+$) | Q | Mult.: DCO=1.0 1. |
| 508.0 2 | 1.1 2 | 3839.1 | (39/2$^-$) | 3331.1 | (35/2$^-$) | | Mult.: DCO=1.3 2. |
| 508.1 2 | 1.7 5 | 1905.7 | 23/2$^-$ | 1397.6 | 19/2$^-$ | Q | Mult.: DCO=0.8 2. |
| 514.1 2 | 3.8 6 | 1959.4 | 25/2$^-$ | 1445.3 | 21/2$^-$ | Q | Mult.: DCO=1.2 1. |
| 517.7 2 | 1.7 5 | 2073.0 | (25/2$^-$) | 1555.3 | (21/2$^-$) | | |
| 521.9 2 | 17.7 19 | 1987.6 | (29/2$^+$) | 1465.8 | (25/2$^+$) | Q | Mult.: DCO=0.9 1. |
| 524.9 2 | 0.9[a] 2 | 2484.3 | | 1959.4 | 25/2$^-$ | | Mult.: DCO=0.3 1. |
| 526.3 2 | 4.6 5 | 2141.4 | (27/2$^-$) | 1615.2 | (23/2$^-$) | Q | Mult.: DCO=0.9 1. |
| 542.4 2 | 2.2 5 | 2349.1 | (27/2$^-$) | 1806.7 | (23/2$^-$) | | |
| 550.2 2 | 5.7 5 | 2420.9 | (29/2$^-$) | 1870.6 | (25/2$^-$) | Q | Mult.: DCO=1.2 1, $A_2$=+0.58 19, $A_4$=−0.2 2. |
| 555 1 | 1.7 6 | 2628.0 | | 2073.0 | (25/2$^-$) | | |
| 559.4 2 | 1.6 5 | 2465.1 | 27/2$^-$ | 1905.7 | 23/2$^-$ | (Q) | Mult.: DCO=1.2 2. |
| 560.7 2 | 10.7 12 | 2389.4 | (31/2$^+$) | 1828.7 | (27/2$^+$) | Q | Mult.: DCO=1.0 2. |
| 561.8 2 | 3.7 7 | 2521.2 | 29/2$^-$ | 1959.4 | 25/2$^-$ | Q | Mult.: DCO=0.9 1. |
| 563.2 2 | 2.0 4 | 3084.4 | | 2521.2 | 29/2$^-$ | | |
| 573[b] 1 | 1.3 4 | 3201.0? | | 2628.0 | | | |
| 574 1 | 1.0 3 | 2923.1 | | 2349.1 | (27/2$^-$) | | |
| 575.2 2 | 6.6 6 | 2717.0 | (31/2$^-$) | 2141.4 | (27/2$^-$) | Q | Mult.: DCO=0.9 1. |
| 581.4 2 | 1.3 2 | 3595.0 | (37/2$^-$) | 3013.6 | (33/2$^-$) | (Q) | Mult.: DCO=0.9 3. |
| 582.7 2 | 0.6 4 | 4421.7 | (43/2$^-$) | 3839.1 | (39/2$^-$) | Q | Mult.: DCO=0.9 2. |
| 583.8 2 | 14.6 15 | 2571.4 | (33/2$^+$) | 1987.6 | (29/2$^+$) | Q | Mult.: DCO=1.1 2, $A_2$=+0.2 2, $A_4$=+0.8 4. $A_4$ is not consistent with a ΔJ=2 transition; there could plausibly be a typographical error in sign. |
| 587.0 2 | 0.6 3 | 4661.6 | (45/2$^-$) | 4074.5 | (41/2$^-$) | | Mult.: DCO=1.3 4. |
| 592.7 2 | 3.0 4 | 3013.6 | (33/2$^-$) | 2420.9 | (29/2$^-$) | Q | Mult.: DCO=1.1 1. |
| 597[b] 1 | | 4266.6? | | 3669.6 | (37/2$^-$) | | |
| 601[b] 1 | | 3084.4 | | 2484.3 | | | |

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## $^{144}$Nd($^{40}$Ar,3n$\gamma$) 1990De03 (continued)

### $\gamma(^{181}Pt)$ (continued)

| $E_\gamma$ | $I_\gamma$ | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult.[†] | Comments |
|---|---|---|---|---|---|---|---|
| 602[b] *1* | | 3067.1 | (31/2$^-$) | 2465.1 | 27/2$^-$ | | |
| 604[b] *1* | 0.7[a] *2* | 3024.7? | (33/2$^-$) | 2420.9 | (29/2$^-$) | Q | Mult.: DCO=1.1 *2*. |
| 604.2 *2* | 0.8 *2* | 3750.9 | | 3146.7 | 33/2$^-$ | | Mult.: DCO=0.4 *2*. |
| 605.5 *2* | 8.2 *9* | 2994.9 | (35/2$^+$) | 2389.4 | (31/2$^+$) | | Mult.: DCO=0.6 *2*. |
| 614.5 *2* | 3.4 *5* | 3331.1 | (35/2$^-$) | 2717.0 | (31/2$^-$) | Q | Mult.: DCO=1.1 *1*. |
| 625.4 *2* | 1.3 *2* | 3146.7 | 33/2$^-$ | 2521.2 | 29/2$^-$ | Q | Mult.: DCO=1.0 *2*. |
| 625.7 *2* | | 3839.1 | (39/2$^-$) | 3213.4 | (37/2$^+$) | | |
| 634.4[b] *2* | | 3781.1? | (37/2$^-$) | 3146.7 | 33/2$^-$ | | |
| 641.9 *2* | 8.2 *9* | 3213.4 | (37/2$^+$) | 2571.4 | (33/2$^+$) | Q | Mult.: DCO=1.1 *2*. |
| 655.3 *2* | 5.2 *6* | 3650.2 | (39/2$^+$) | 2994.9 | (35/2$^+$) | | Mult.: DCO=1.4 *3*. |
| 656 *1* | 0.8 *2* | 3669.6 | (37/2$^-$) | 3013.6 | (33/2$^-$) | Q | Mult.: DCO=1.1 *2*. |
| 667[b] *1* | | 3750.9 | | 3084.4 | | | |
| 671.4 *2* | 4.6[#] *5* | 3388.5 | (35/2$^-$) | 2717.0 | (31/2$^-$) | Q | Mult.: DCO=0.8 *2*. |
| 672 *1* | | 5093.7 | | 4421.7 | (43/2$^-$) | | |
| 673.0 *2* | 0.5[&] *3* | 5334.6 | | 4661.6 | (45/2$^-$) | | |
| 694.2 *2* | 4.2 *5* | 3907.6 | (41/2$^+$) | 3213.4 | (37/2$^+$) | (Q) | Mult.: DCO=1.2 *2*. |
| 697[b] *1* | | 3781.1? | (37/2$^-$) | 3084.4 | | | |
| 708.8 *2* | 3.0 *7* | 4359.0 | (43/2$^+$) | 3650.2 | (39/2$^+$) | Q | Mult.: DCO=1.0 *3*. |
| 737.1 *2* | 2.6 *5* | 4644.7 | (45/2$^+$) | 3907.6 | (41/2$^+$) | Q | Mult.: DCO=1.0 *2*. |
| 755.5 *2* | 2.3 *6* | 5114.5 | (47/2$^+$) | 4359.0 | (43/2$^+$) | Q | Mult.: DCO=0.9 *2*. |
| 772.1 *2* | 1.4 *3* | 5416.8 | (49/2$^+$) | 4644.7 | (45/2$^+$) | (Q) | Mult.: DCO=0.7 *4*. |
| 784.8 *2* | 1.2[&] *5* | 5899.3 | (51/2$^+$) | 5114.5 | (47/2$^+$) | | |
| 796.9 *2* | 0.8 *4* | 6213.7 | (53/2$^+$) | 5416.8 | (49/2$^+$) | | Mult.: DCO=4 *2*. |
| 799[b] *1* | 0.5[&] *5* | 6698.3? | | 5899.3 | (51/2$^+$) | | |
| 817.2 *2* | 1.0 *9* | 3388.5 | (35/2$^-$) | 2571.4 | (33/2$^+$) | D | Mult.: DCO=2.5 *5*. |
| 825[b] *1* | 0.3[&] *3* | 7038.7? | | 6213.7 | (53/2$^+$) | | |

[†] Assigned primarily on the basis of directional correlation (DCO) ratios defined as the ratio of I$\gamma$ at 79° or 36° with respect to the beam in coincidence with a stretched E2 transition observed at 36° or 79°, respectively, relative to the beam. The theoretical DCO=1.00 *2* for $\Delta$J=2 quadrupole or $\Delta$J=0 dipole transitions. For $\Delta$J=0 quadrupole and $\Delta$J=1 dipole transitions DCO ratios vary from 2.0 (completely aligned) to 1.2 (weakly aligned). For mixed M1+E2 transitions DCO may vary from 0.85-5. The DCO value may increase up to 20% for coincident transitions which are widely separated in energy. For transitions with lifetimes greater than a few ns, DCO ratios<0.85 (the minimum theoretical value) may be observed due to a sizable delay.

[‡] Coincidence intensity and DCO not measurable due to long lifetime.

[#] From yield in total coincidence spectrum compared to yield of 257.6$\gamma$ in $^{180}$Pt.

[@] Intensity and/or DCO not measurable due to doublet.

[&] Intensity too low for measurement of DCO ratio.

[a] DCO is probably low due to large delay.

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

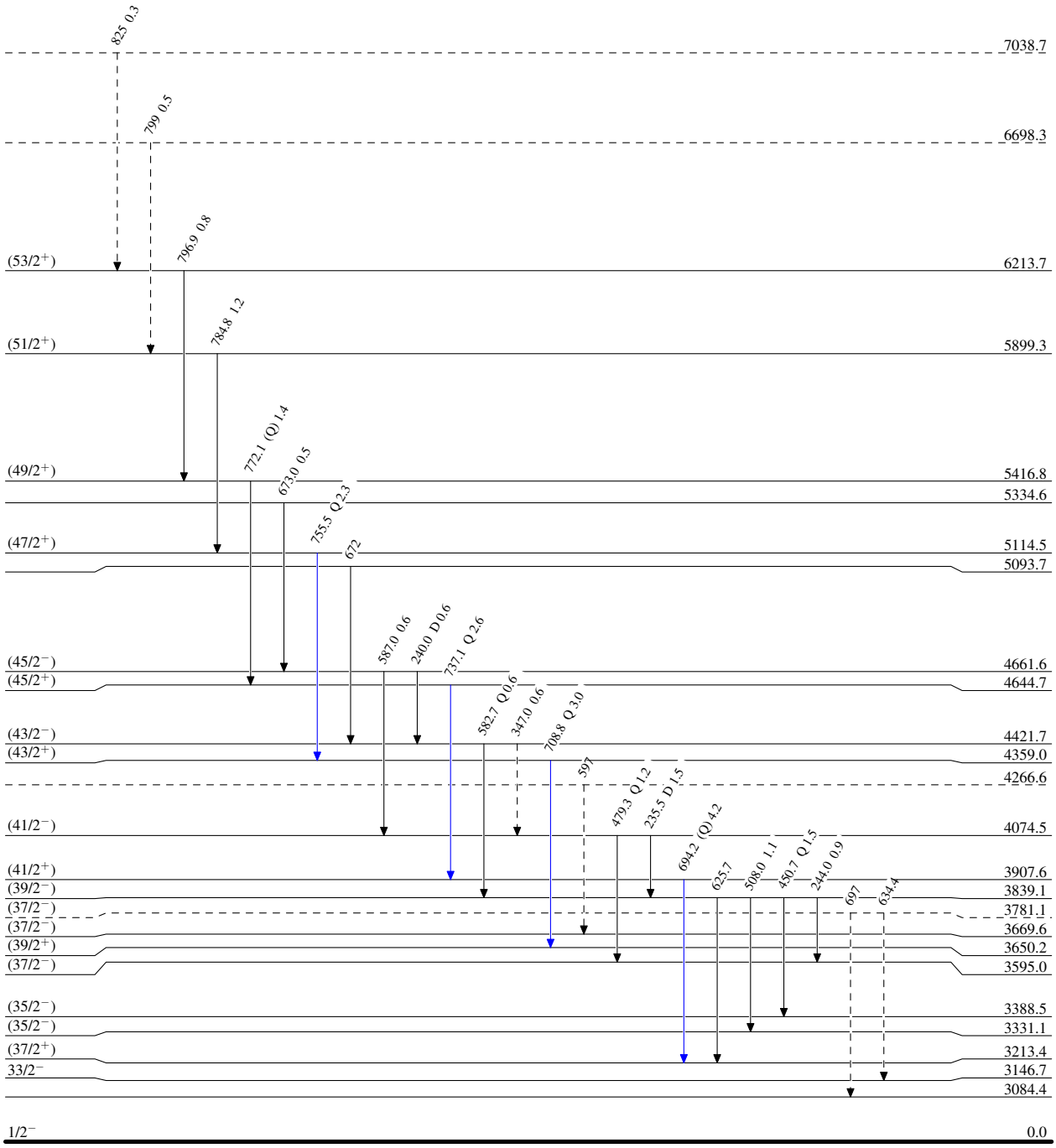
**$^{144}$Nd($^{40}$Ar,3nγ) 1990De03**

Level Scheme

Intensities: Relative $I_\gamma$

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)




$^{181}_{78}Pt_{103}$

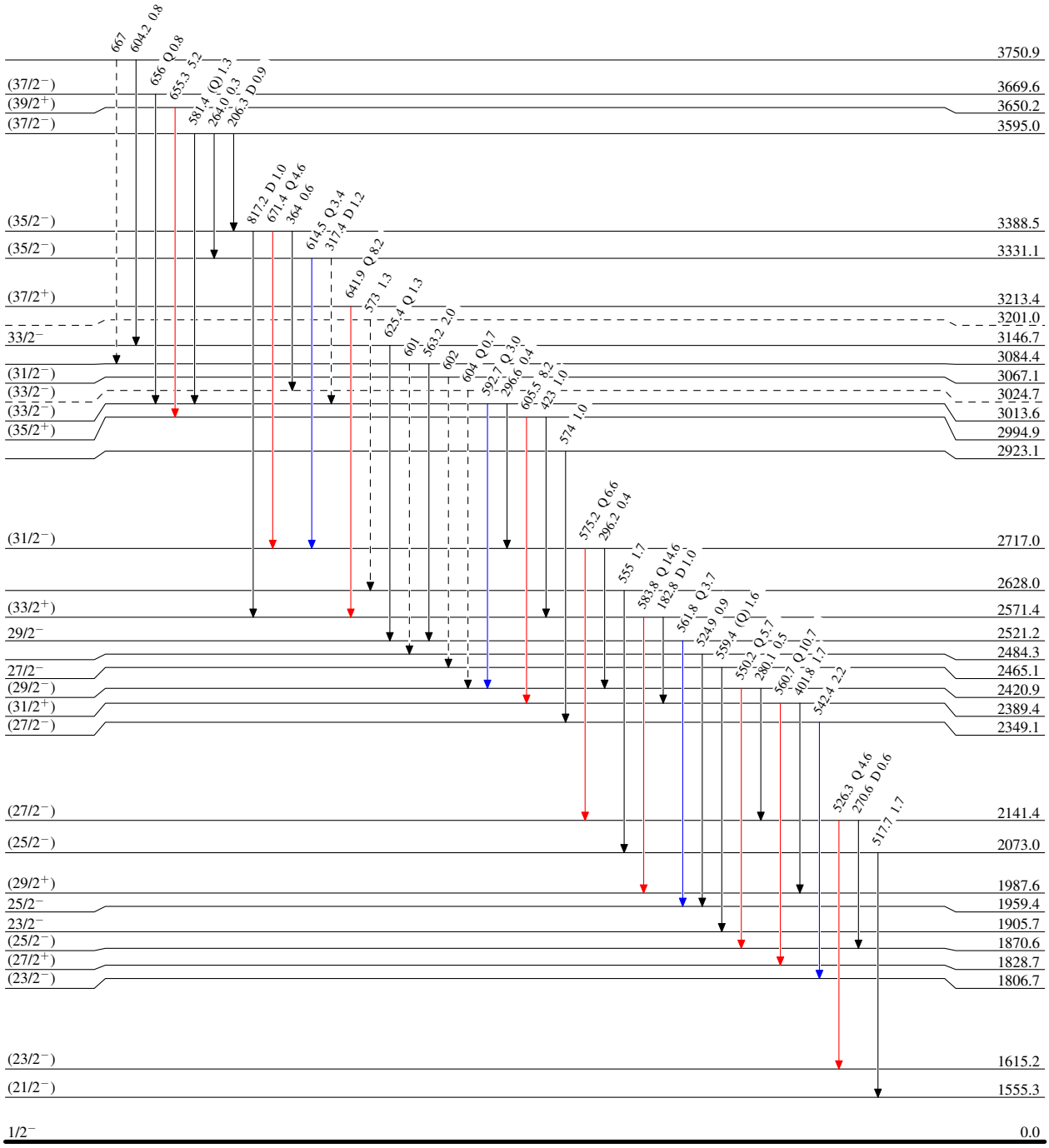
**$^{144}$Nd($^{40}$Ar,3nγ) 1990De03**

## Level Scheme (continued)

Intensities: Relative $I_\gamma$

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)




$^{181}_{78}Pt_{103}$

## $^{144}$Nd($^{40}$Ar,3nγ) 1990De03

Level Scheme (continued)

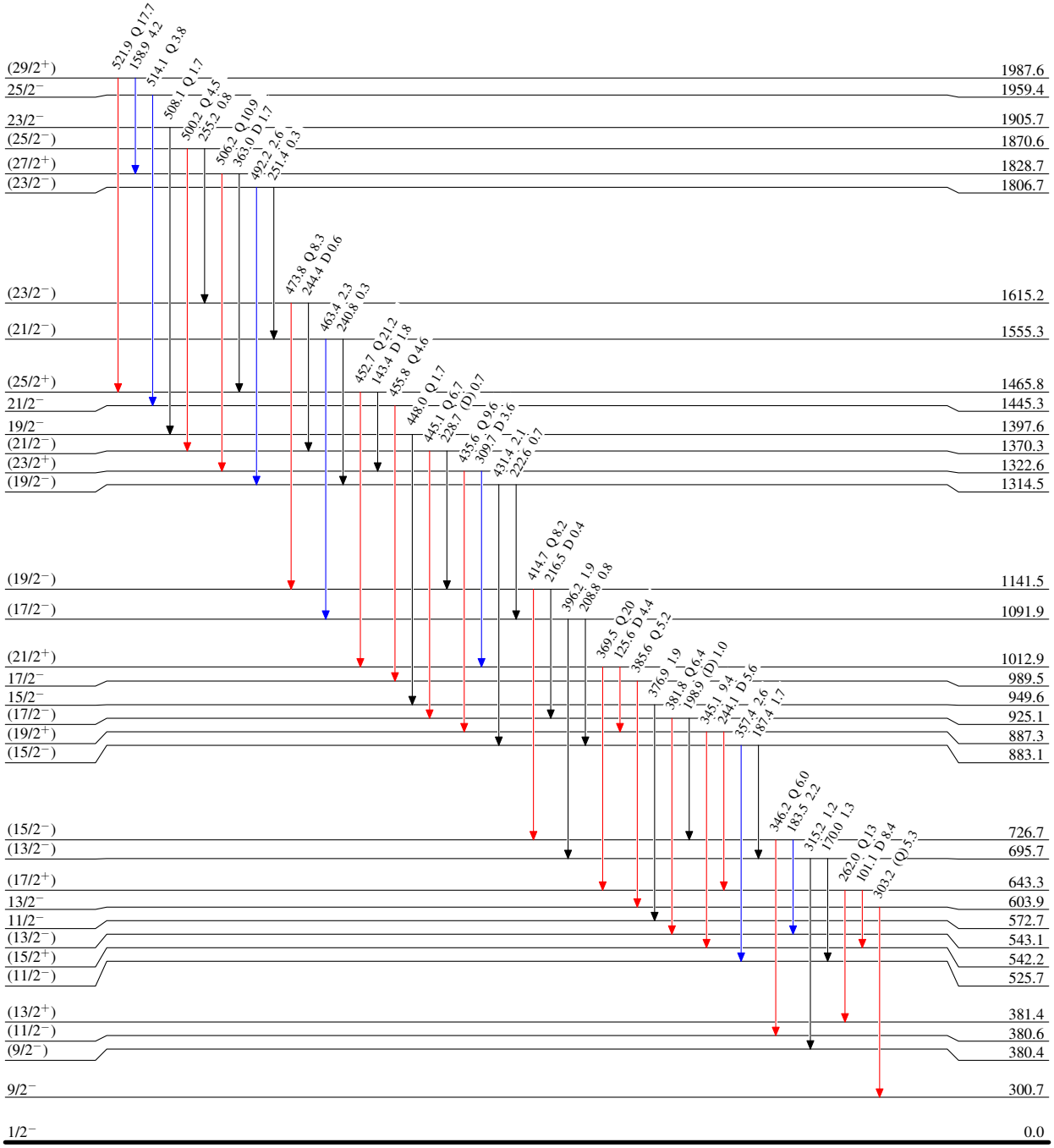
Intensities: Relative $I_\gamma$

Legend

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

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

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



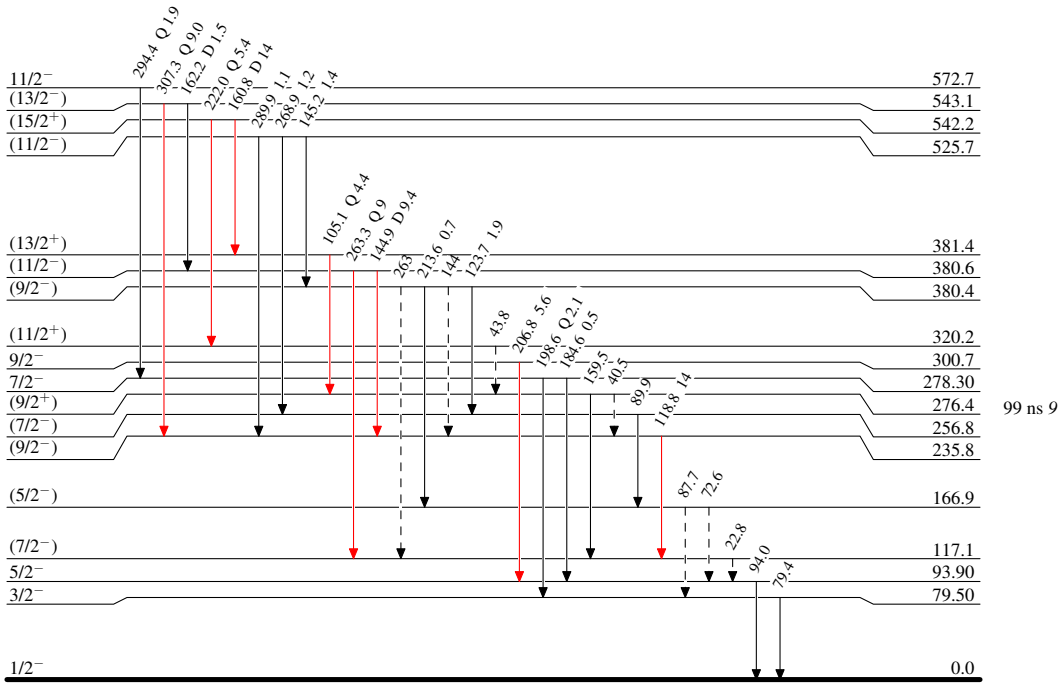

$^{181}_{78}Pt_{103}$

**$^{144}$Nd($^{40}$Ar,3n$\gamma$) 1990De03**

## Level Scheme (continued)

Intensities: Relative $I_\gamma$

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- $\gamma$ Decay (Uncertain)




$^{181}_{78}Pt_{103}$