## $^{102}$Pd($^{58}$Ni,3p2n$\gamma$) 2001Di17

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | N. Nica | NDS 160, 1 (2019) | 21-Oct-2019 |

Additional information 1.

2001Di17: 270-MeV $^{58}$Ni bombardment of $^{102}$Pd targets (enrichment=69%). Reaction products separated in a fragment mass analyzer and studied in the Gammasphere array, consisting of 101 Ge detectors, using the recoil-decay tagging technique. Measured E$\gamma$, I$\gamma$, $\gamma\alpha$ coin, and $\gamma\gamma$.

1997SeZS: as a by-product of the study of levels in $^{156}$Hf, these authors report the sequence of levels, up through the (23/2$^-$) state, associated with the 11/2$^-$ state.

2001Ci03 discuss the level structure of $^{155}$Lu and other proton-rich N=84,85 nuclides.

### $^{155}$Lu Levels

| E(level) | J$^\pi$[†] | T$_{1/2}$[‡] | Comments |
|---|---|---|---|
| 0.0[#] | 11/2$^-$ | 68 ms *1* | |
| 807[#] | (15/2$^-$) | | |
| 1493[#] | (19/2$^-$) | | |
| 1780[@] *4* | (25/2$^-$) | 2.69 ms *3* | Proposed configuration is $(\pi\ h_{11/2})^3(\nu\ h_{9/2})(\nu\ f_{7/2})$, with one of the $h_{11/2}$ protons coupled with the $h_{9/2}$ neutron to $J^\pi=1^+$.<br>E(level): from the Adopted Values. |
| 2030?[#] | (23/2$^-$) | | Level reported by 1997SeZS. Because of statistics, 2001Di17 were not able to establish it from their data. |
| 2300[@] | (27/2$^-$) | | Proposed as the fully aligned configuration $(\pi\ h_{11/2})(\nu\ h_{9/2})(\nu\ f_{7/2})$. |
| 2960[@] | (29/2$^+$) | | Proposed configuration is $(\pi\ h_{11/2})(\nu\ f_{7/2})(\nu\ i_{13/2})$, from systematics. |
| 3171[@] | (31/2$^+$) | | Proposed configuration is $(\pi\ h_{11/2})(\nu\ f_{7/2})(\nu\ i_{13/2})$, from systematics. |
| 3525 | | | |
| 3867 | | | |
| 3968 | | | |
| 4075 | | | |
| 4350 | | | |
| 4528 | | | |

[†] From Adopted Values. Those in parentheses are based on the systematics of the level schemes in the neighboring nuclides (see, e.g., 1997SeZS, 2001Di17, 2001Ci03).

[‡] From Adopted Values.

[#] Band(A): Member of a $\gamma$ cascade based on 11/2$^-$. Levels represent the 0$^+$, 2$^+$, 4$^+$, and 6$^+$ couplings of the two $\nu\ f_{7/2}$ neutrons to the $\pi\ h_{11/2}$ proton.

[@] Seq.(B): Member of a $\gamma$ cascade based on the 25/2$^-$ isomer.

### $\gamma$($^{155}$Lu)

| E$\gamma$ | I$\gamma$ | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ | E$\gamma$ | I$\gamma$ | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 211.65 *13* | 57 *11* | 3171 | (31/2$^+$) | 2960 | (29/2$^+$) | 549.6 *4* | 21 *6* | 4075 | | 3525 | |
| 341.3 *3* | 20 *5* | 3867 | | 3525 | | 560.0 *2* | 43 *10* | 4528 | | 3968 | |
| 354.2 *2* | 46 *10* | 3525 | | 3171 | (31/2$^+$) | 659.7 *2* | 93 *18* | 2960 | (29/2$^+$) | 2300 | (27/2$^-$) |
| 381.8 *4* | 11 *4* | 4350 | | 3968 | | 686 | | 1493 | (19/2$^-$) | 807 | (15/2$^-$) |
| [x]398.4 *4* | 19 *9* | | | | | [x]708.0 *7* | 15 *7* | | | | |
| 518.8 *2* | 100 | 2300 | (27/2$^-$) | 1780 | (25/2$^-$) | 797.2 *3* | 39 *10* | 3968 | | 3171 | (31/2$^+$) |
| 537[†] | | 2030? | (23/2$^-$) | 1493 | (19/2$^-$) | 807 | | 807 | (15/2$^-$) | 0.0 | 11/2$^-$ |

Continued on next page (footnotes at end of table)

## $^{102}$Pd($^{58}$Ni,3p2nγ) 2001Di17 (continued)

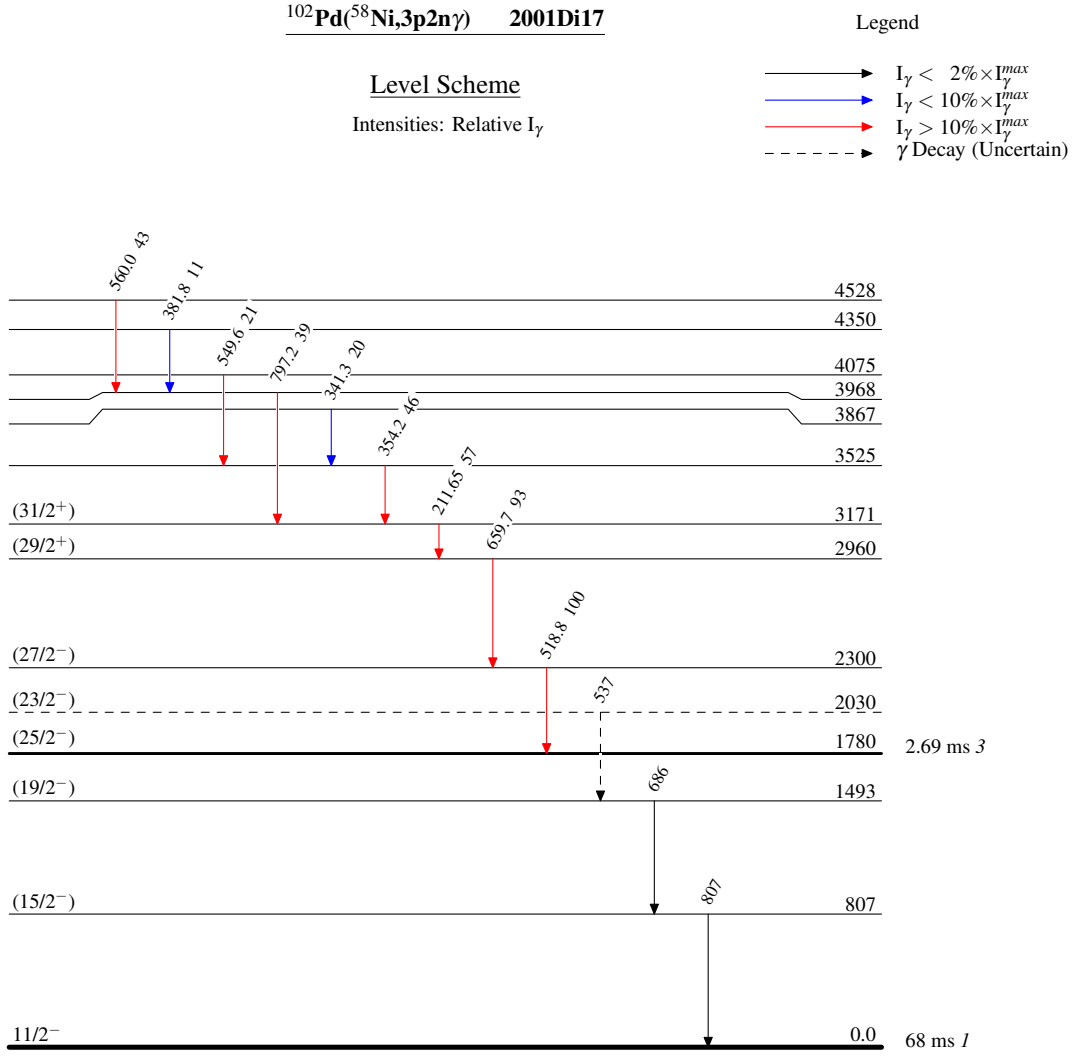
### γ($^{155}$Lu) (continued)

† Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

### $^{102}$Pd($^{58}$Ni,3p2nγ) 2001Di17

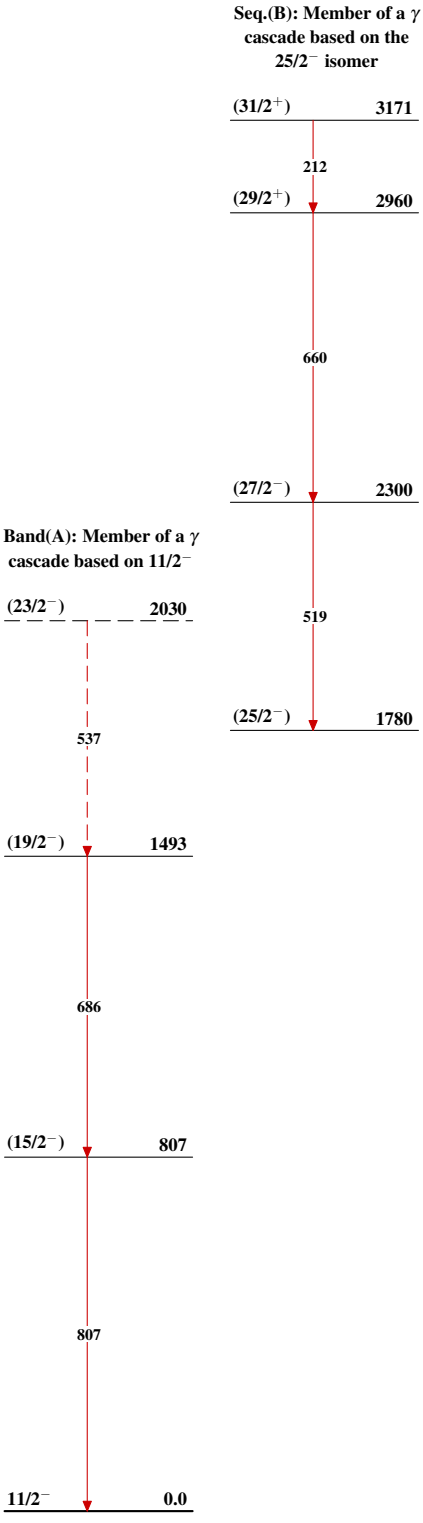
Level Scheme

Intensities: Relative $I_\gamma$




$^{155}_{71}Lu_{84}$

**$^{102}$Pd($^{58}$Ni,3p2nγ) 2001Di17**




$^{155}_{71}Lu_{84}$