

$^{198}\text{Hg}(n,\gamma) E=23.1 \text{ eV}$ 1975Lo03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 108, 79 (2007)	15-Oct-2006

1975Lo03: Fast-neutron chopper source (0.32 $\mu\text{s}/\text{meter}$), natural Hg target.

Others: 1969A111, 1967Ra06, 1964Mc07, 1963Ra25.

 ^{199}Hg Levels

E(level)	$J^{\pi\ddagger}$
0.0	1/2 ⁻ #
158.9 5	5/2 ⁻ #
207.2 3	3/2 ⁻ #
403.3 [†] 4	3/2 ⁻ #
414.3 5	5/2 ⁻ #
455.0 [†] 4	1/2,3/2 [@]
491.7 [†] 4	3/2 ⁻ #
667.4 9	1/2,3/2
695? 3	
711.4? 25	
736? 5	1/2,3/2,5/2 ⁺
749.3 [†] 7	1/2,3/2 [@]
1004.1? 7	
1036 3	1/2,3/2,5/2 ⁺
1221.6 9	1/2,3/2 ^{&}
1267.7 8	1/2,3/2,5/2 ⁺
1317.7 15	1/2,3/2,5/2 ⁺
1327.8 9	1/2,3/2 [@]
1358.9 9	1/2,3/2
1439.5 16	1/2,3/2 [@]
1517.8? 25	1/2,3/2
1572.8 12	1/2,3/2
1595.3 5	1/2,3/2
1614.4? 9	
1653.2 8	1/2,3/2 ^{&}
1731.8 7	1/2,3/2
1744.2 5	1/2,3/2
1780.9 5	1/2,3/2
1800.1 12	1/2,3/2,5/2 ⁺
1822.2 16	1/2,3/2
1927.3? 15	
1971.4 5	1/2,3/2
1988.3 20	1/2,3/2
2067 3	1/2,3/2,5/2 ⁺
2094.0 12	1/2,3/2
2144.3 16	1/2,3/2,5/2 ⁺
2228.4 11	1/2,3/2
2241? 4	1/2,3/2
2265 3	1/2,3/2
2290.6 10	1/2,3/2
2345.3 12	1/2,3/2
2399 3	1/2,3/2,5/2 ⁺
2412 3	1/2,3/2,5/2 ⁺
2451.4? 15	1/2,3/2,5/2 ⁺
2462.1 25	1/2,3/2

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¹⁹⁸Hg(n,γ) E=23.1 eV **1975Lo03 (continued)**

¹⁹⁹Hg Levels (continued)

E(level)	J ^π ‡	Comments
2494 3	1/2,3/2	
(6663.9 3)	1/2 ⁺ ^a	Additional information 1. E(level): S(n)+E(n), S(n)=6663.9 3 (2003Au03), E(n)=23.1 eV <i>I.</i> 1975Lo03 used S(n)=6665.3 for level-energy determination.

- † γ branching ratios deexciting 403-, 455-, 492-, and 750-keV levels are discrepant with those measured in ¹⁹⁹Tl decay.
- ‡ 1/2,3/2 is from strong population through a primary γ from 1/2⁺ resonance (negative parity favored from syst of transition strengths), 1/2,3/2,5/2⁺ is from weak population from 1/2⁺ resonance. Others are from 'Adopted Levels'.
- # From 'Adopted Levels'.
- @ Parity=- In 'Adopted Levels'.
- & Parity=(-) In 'Adopted Levels'.
- ^a Capture state for s-wave resonance.

γ(¹⁹⁹Hg)

E _γ	I _γ ^{†a}	E _i (level)	J _i ^π	E _f	J _f ^π
158.9 5	365@ 30	158.9	5/2 ⁻	0.0	1/2 ⁻
197.0 6	25@& 8	403.3	3/2 ⁻	207.2	3/2 ⁻
208.7 6	163@ 6	207.2	3/2 ⁻	0.0	1/2 ⁻
247.6 5	19.3& 20	455.0	1/2,3/2	207.2	3/2 ⁻
284.9 9	8.8& 26	491.7	3/2 ⁻	207.2	3/2 ⁻
334.6 5	2.8& 6	749.3	1/2,3/2	414.3	5/2 ⁻
403.7 5	10.6& 6	403.3	3/2 ⁻	0.0	1/2 ⁻
414.0 5	5.9 4	414.3	5/2 ⁻	0.0	1/2 ⁻
455.6 6	6.4& 5	455.0	1/2,3/2	0.0	1/2 ⁻
492.0 5	2.9& 4	491.7	3/2 ⁻	0.0	1/2 ⁻
^x 658.2 5	1.10 14				
750 4	4.1& 3	749.3	1/2,3/2	0.0	1/2 ⁻
4170.0 26	0.72 20	(6663.9)	1/2 ⁺	2494	1/2,3/2
4201.8 25	1.65 22	(6663.9)	1/2 ⁺	2462.1	1/2,3/2
4212.5‡ 15	<0.30	(6663.9)	1/2 ⁺	2451.4?	1/2,3/2,5/2 ⁺
4252 3	0.5 3	(6663.9)	1/2 ⁺	2412	1/2,3/2,5/2 ⁺
4265 3	0.4 3	(6663.9)	1/2 ⁺	2399	1/2,3/2,5/2 ⁺
4318.5 12	1.25 19	(6663.9)	1/2 ⁺	2345.3	1/2,3/2
4373.2 10	4.24 25	(6663.9)	1/2 ⁺	2290.6	1/2,3/2
4399 3	0.36 15	(6663.9)	1/2 ⁺	2265	1/2,3/2
4423‡ 4	<0.15	(6663.9)	1/2 ⁺	2241?	1/2,3/2
4435.4 11	0.84 17	(6663.9)	1/2 ⁺	2228.4	1/2,3/2
4519.5 16	0.47 23	(6663.9)	1/2 ⁺	2144.3	1/2,3/2,5/2 ⁺
4569.8 12	1.43 21	(6663.9)	1/2 ⁺	2094.0	1/2,3/2
4597 3	0.45 25	(6663.9)	1/2 ⁺	2067	1/2,3/2,5/2 ⁺
4675.5 20	2.2 3	(6663.9)	1/2 ⁺	1988.3	1/2,3/2
4692.4 5	4.3 3	(6663.9)	1/2 ⁺	1971.4	1/2,3/2
4736.5# 15	1.23 19	(6663.9)	1/2 ⁺	1927.3?	
4841.6 16	1.0 15	(6663.9)	1/2 ⁺	1822.2	1/2,3/2
4863.7 12	0.78 25	(6663.9)	1/2 ⁺	1800.1	1/2,3/2,5/2 ⁺
4882.9 5	13.6 4	(6663.9)	1/2 ⁺	1780.9	1/2,3/2
4919.6 5	2.27 20	(6663.9)	1/2 ⁺	1744.2	1/2,3/2

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$^{198}\text{Hg}(n,\gamma) E=23.1 \text{ eV}$ **1975Lo03 (continued)** $\gamma(^{199}\text{Hg})$ (continued)

E_γ	I_γ ^{†a}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
4932.0	7	(6663.9)	1/2 ⁺	1731.8	1/2,3/2
5010.6	8	(6663.9)	1/2 ⁺	1653.2	1/2,3/2
5049.4 [#]	9	(6663.9)	1/2 ⁺	1614.4?	
5068.5	5	(6663.9)	1/2 ⁺	1595.3	1/2,3/2
5091.0	12	(6663.9)	1/2 ⁺	1572.8	1/2,3/2
5146.0 [‡]	25	(6663.9)	1/2 ⁺	1517.8?	1/2,3/2
5224.3	16	(6663.9)	1/2 ⁺	1439.5	1/2,3/2
5304.9	9	(6663.9)	1/2 ⁺	1358.9	1/2,3/2
5336.0	9	(6663.9)	1/2 ⁺	1327.8	1/2,3/2
5346.1	15	(6663.9)	1/2 ⁺	1317.7	1/2,3/2,5/2 ⁺
5396.1	8	(6663.9)	1/2 ⁺	1267.7	1/2,3/2,5/2 ⁺
5442.2	9	(6663.9)	1/2 ⁺	1221.6	1/2,3/2
5628	3	(6663.9)	1/2 ⁺	1036	1/2,3/2,5/2 ⁺
5659.7 [#]	7	(6663.9)	1/2 ⁺	1004.1?	
5911.7	15	(6663.9)	1/2 ⁺	749.3	1/2,3/2
5928 [‡]	5	(6663.9)	1/2 ⁺	736?	1/2,3/2,5/2 ⁺
5952.4 [#]	25	(6663.9)	1/2 ⁺	711.4?	
5969 [#]	3	(6663.9)	1/2 ⁺	695?	
5996.4 [‡]	9	(6663.9)	1/2 ⁺	667.4	1/2,3/2
6172.5	5	(6663.9)	1/2 ⁺	491.7	3/2 ⁻
6209.1	5	(6663.9)	1/2 ⁺	455.0	1/2,3/2
6261.6	5	(6663.9)	1/2 ⁺	403.3	3/2 ⁻
6457.2 [#]	6	(6663.9)	1/2 ⁺	207.2	3/2 ⁻
6665.3	9	(6663.9)	1/2 ⁺	0.0	1/2 ⁻

[†] Per 100 n captures in ^{198}Hg , uncertainty is statistical only.

[‡] γ identified in capture- γ spectrum of neutron resonance at 89.9 eV (**1975Lo03**).

[#] γ ray also present in other Hg isotopes.

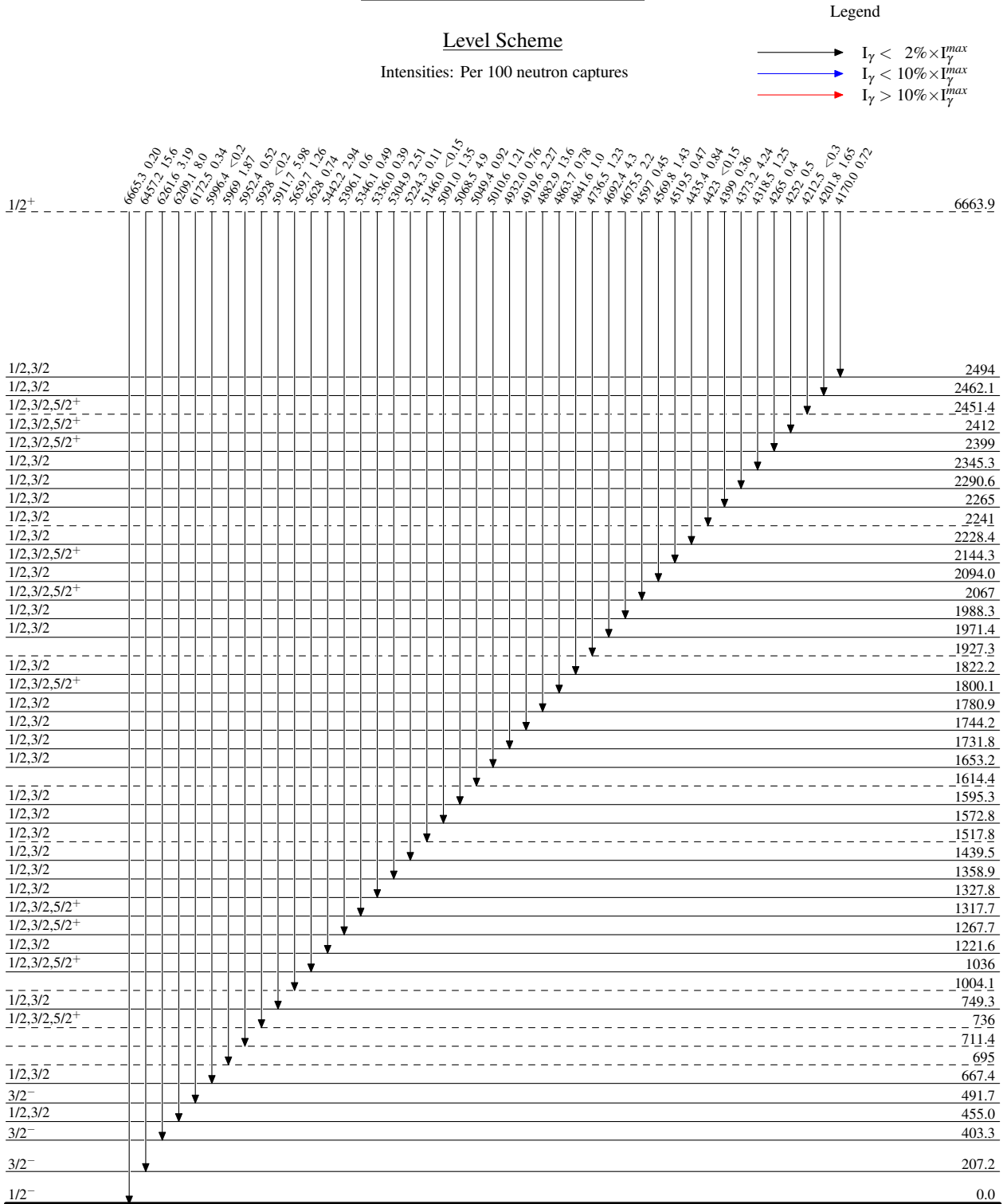
[@] Because of large self-attenuation factor, intensity may be in error by as much as a factor of 2.

[&] Branching ratio disagrees with that from ^{199}Tl ε decay.

^a Intensity per 100 neutron captures.

^x γ ray not placed in level scheme.

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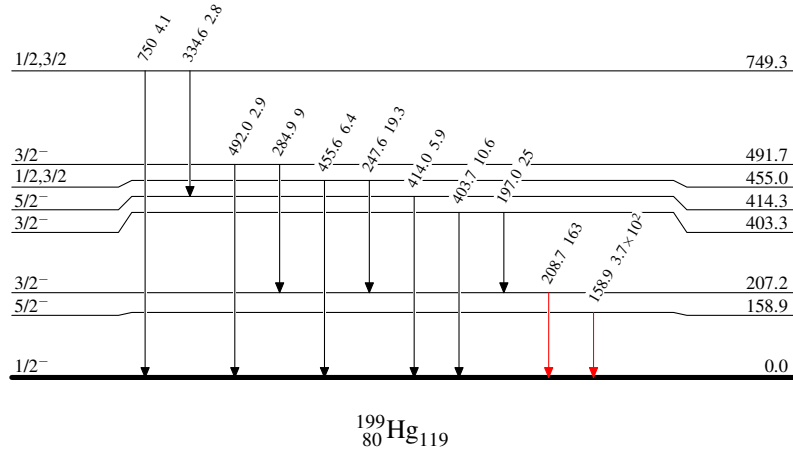
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Level Scheme (continued)

Intensities: Per 100 neutron captures

Legend

- \longrightarrow $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- \longrightarrow $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- \longrightarrow $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 $^{199}_{80}\text{Hg}_{119}$