

**Adopted Levels, Gammas**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,1807 (2010)	15-Jun-2010

Q(β<sup>-</sup>)=-7.66×10<sup>3</sup> 14; S(n)=9.71×10<sup>3</sup> 8; S(p)=-5.0×10<sup>2</sup> 11; Q(α)=6381 9 2012Wa38

Note: Current evaluation has used the following Q record -7700 SY9730 syst-470 SY6480 50 2003Au03,2009AuZZ.  
 ΔQ(β)=240, ΔS(n)=150, ΔS(p)=170 (2003Au03, 2009AuZZ).

Identification: comparison of <sup>108</sup>Cd(<sup>63</sup>Cu,xn) excitation functions for known and new Ir activities; Eα for (<sup>63</sup>Cu,3n) product is consistent with Eα predicted for <sup>168</sup>Ir by α-energy systematics (1978Ca11).

<sup>168</sup>Ir Levels

Cross Reference (XREF) Flags

- A <sup>172</sup>Au α decay (22 ms)
- B <sup>172</sup>Au α decay (7.7 ms)

E(level)	T <sub>1/2</sub>	XREF	Comments
0.0	222 ms +60-40	A	%α≤100; %ε+%β <sup>+</sup> =?; %p=? %α: only α decay has been observed, but ε+β <sup>+</sup> and p decay are possible. Gross β decay theory (1973Ta30) predicts T <sub>1/2</sub> (ε+β <sup>+</sup> )≈1 s implying %ε+%β <sup>+</sup> ≈22% and 1997Mo25 predict T <sub>1/2</sub> (ε+β <sup>+</sup> )=359 ms implying %ε+%β <sup>+</sup> =62%, so ε+β <sup>+</sup> branching is expected to be appreciable. T <sub>1/2</sub> : from 6230α(t) (2009Ha42). Other T <sub>1/2</sub> : 125 ms 40 from 6227α(t) (1996Pa01); not unambiguously differentiated from A=169, but Eα favors A=168 assignment although it is unclear whether it corresponds to g.s. or isomeric state decay. J <sup>π</sup> : HF≤4 for α decay from low-spin <sup>172</sup> Au if %α( <sup>172</sup> Au)=100, so low J is expected for this level.
0.0+x	159 ms +16-13	B	%α=77 9; %ε+%β <sup>+</sup> ≤23 9; %p=? %α: weighted average of 82 14 (1996Pa01) and 75 11 (2009Ha42); only α decay has been observed, but a significant ε+β <sup>+</sup> branch is expected and p decay is probably possible also. T <sub>1/2</sub> : weighted average of 161 ms 21 from 6323α(t) (1996Pa01), 160 ms +30-20 from 6320α(t) and 153 ms +40-30 from 6260α(t) (2009Ha42). See also the comment on T <sub>1/2</sub> (g.s.). J <sup>π</sup> : high-spin state; fed strongly in α decay from high-spin <sup>172</sup> Au.
72+x 12		B	E(level): from difference between Eα feeding this level and that feeding the 0.0+x level in <sup>172</sup> Au α decay (7.7 ms) (2009Ha42). J <sup>π</sup> : probably a high-spin state; fed in α decay from high-J <sup>172</sup> Au.

γ(<sup>168</sup>Ir)

E <sub>i</sub> (level)	E <sub>γ</sub>	I <sub>γ</sub>	E <sub>f</sub>	Comments
72+x	72 <sup>†</sup> 12	100	0.0+x	E <sub>γ</sub> : from level energy difference. Consistent with E=65.0 4 and 73.0 6 for photons observed to be correlated with 6800α from <sup>172</sup> Au(7.7 ms), but those energies (and their relative I <sub>γ</sub> ) are also close to expectation for Kα x ray and Kβ x ray for Ir so they possibly result, instead, from a highly-converted transition at somewhat higher energy. If so, the presence of K x ray implies E <sub>γ</sub> >76 keV, the K shell binding energy for Ir.

<sup>†</sup> Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)