

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109,1103 (2008)	1-Mar-2008

$Q(\beta^-) = -8.6 \times 10^3$ syst; $S(n) = 9.8 \times 10^3$ syst; $S(p) = -1152$ 8; $Q(\alpha) = 6722$ 6 [2012Wa38](#)

Note: Current evaluation has used the following Q record -8410 syst 9650 syst -1152 8 6724 6 [2003Au03](#).

Uncertainty in $Q(\beta^-)$ and $S(n)$ is 540 and 300 ([2003Au03](#)).

Assignment: targets of elements from Mo through Sn and V through Ni were irradiated with beams of ^{58}Ni and ^{107}Ag , respectively. Specific beam energies were in the range between 4.4 MeV/U and 5.9 MeV/U. Velocity filter, ion implantation in Si (surface-barrier and position-sensitive) detectors ([1981Ho10](#), [1981HoZM](#)); ^{58}Ni bombardment of ^{112}Sn , $E = 297$ MeV ([1996Pa01](#)).

 ^{166}Ir LevelsCross Reference (XREF) Flags

- A** ^{170}Au α decay (0.29 ms)
B ^{170}Au α decay (0.62 ms)

E(level)	J^π [†]	$T_{1/2}$	XREF	Comments
0	(2 ⁻)	10.5 ms 22	A	$\% \alpha = 93$ 3 (1997Da07); $\% p = 7$ 3 (1997Da07) $\% \alpha$: From 1997Da07 . 99% calculated by 1981HoZM . Only α decay was investigated by 1981Ho10 . J^π : $d_{3/2}$ proton emission observed from level (1997Da07). Probable configuration = $(\pi d_{3/2}) \otimes (\nu f_{7/2})$; the Nordheim strong rule predicts that the lowest energy state for this configuration will have $J^\pi = 2^-$ (1997Da07) (possibly $(\pi 3/2[402] - \nu 7/2[514])$ at small prolate deformation). $T_{1/2}$: 10.5 ms 22 from 1997Da07 ($6565\alpha(t)$). Others: 17 ms $+12-5$ (2004Ke06), 12 ms I (1996Pa01 , $6556\alpha(t)$), >5 ms (1981Ho10). $\% \alpha = 98.2$ 6 (1997Da07); $\% p = 1.8$ 6 (1997Da07) E(level): from 1997Da07 , based on measured $E(p) = 1316$ 8 and 1145 8, respectively, to ^{165}Os g.s. from this level and from ^{166}Ir g.s. (uncertainty takes into account the cancellation of systematic uncertainty included in quoted $E(p)$). $T_{1/2}$: from $6561\alpha(t)$ (1997Da07). Other: 14.3 ms $+19-15$ (2004Ke06) from $6545\alpha(t)$. J^π : $h_{11/2}$ proton emission observed from level (1997Da07). Probable configuration = $(\pi h_{11/2}) \otimes (\nu f_{7/2})$; the Nordheim weak rule favors $J^\pi = 9^+$ or possibly 2^+ (which should not be isomeric) for the lowest energy state for this configuration (1997Da07) (possibly $\pi 11/2[505] + \nu 7/2[514]$ at small prolate deformation).
172 6	(9 ⁺)	15.1 ms 9	B	

[†] Based on a comparison between measured and calculated partial half-lives for proton emission to $(7/2^-)$ ^{165}Os , [1997Da07](#) conclude that the odd proton occupies the $d_{3/2}$ orbital in $^{166}\text{Ir}(g.s.)$ ($L=2$ proton emission) and the $h_{11/2}$ orbital in $^{166}\text{Ir}(172 \text{ level})$ ($L=5$ proton emission). At very small deformation, the 89th neutron is expected to occupy an $f_{7/2}$ orbital.