

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	08-Dec-2015

$Q(\beta^-)=5000$ SY; $S(n)=5040$ SY; $S(p)=8580$ SY; $Q(\alpha)=-1190$ SY [2012Wa38](#)

Estimated uncertainties ([2012Wa38](#)): 200 for $Q(\beta^-)$, 630 for $S(n)$, 360 for $S(p)$ and $Q(\alpha)$.

$S(2n)=11390$ 200, $S(2p)=19340$ 450 (syst,[2012Wa38](#)).

[1991Be04](#): ^{172}Ho identified at GSI in mass separation of fragments from $^{186}\text{W}(^{136}\text{Xe},X)$ reaction at $E=11.6$ MeV per nucleon.

Enriched (99.8%) target of ^{186}W was used. Measured γ , β and x-ray spectra in singles and coincidence, populating states in ^{172}Er .

 ^{172}Ho Levels

E(level)	$T_{1/2}$	Comments
0.0	25 s 3	<p>$\% \beta^- = 100$</p> <p>J^π: Low energy level spectrum has been calculated by 1991Be04 using a macroscopic-microscopic model. Below 260 keV, six excitations are proposed from coupling of following proton and neutron states: proton states: $7/2[523]$, $1/2[411]$. Neutron states: $9/2[624]$, $7/2[514]$, $5/2[512]$. These give $J^\pi=(1^-, 8^-)$ for g.s.; $(0^+, 7^+)$ for 8 keV; $(3^-, 4^-)$ for 70 keV; $(4^+, 5^+)$ for 72 keV; $(1^+, 6^+)$ 180 keV; and $(2^-, 3^-)$ for 258 keV. Possible β feeding of (4^+) and $(1, 2^+)$ levels in ^{172}Er would support $J^\pi(^{172}\text{Ho g.s.})=3, 4^-$.</p> <p>E(level), J^π: 2000GrZV reconstructed the decay scheme of ^{172}Ho to ^{172}Er using data γ and $\gamma\gamma$-coin data from 1991Be04 and levels data from 1980Sh14, and postulated two activities in ^{172}Ho, each of about 25 s half-life, one with $J^\pi=1^-$, configuration=$\pi 7/2[523]-\nu 9/2[624]$, and the other with $J^\pi=7^+$, configuration=$\pi 7/2[523]+\nu 7/2[514]$, the latter populating an $8^+ \rightarrow 7^+ \rightarrow 6^+ \rightarrow 5^+ \rightarrow 4^+$ sequence, starting from a 2548.9-keV, 8^+ level decaying through a 757.2-153.7-137.8-103.7 γ cascade. However, in the high-spin study by 2010Dr02, no 8^+ state at 2548.9 keV in ^{172}Er was reported, which casts doubt on the reconstructed decay scheme of ^{172}Ho to ^{172}Er in 2000GrZV. In the opinion of the evaluator, further improved experiments are needed to investigate possible isomerism in ^{172}Ho and establish the decay scheme of ^{172}Ho, which seems incomplete at present, and also experimentally investigate the possibility of isomerism in ^{172}Ho.</p> <p>$T_{1/2}$: from $\beta(t)$ and $\gamma(t)$ (1991Be04).</p>