## Adopted Levels

| History | | | |
|---|---|---|---|
| Type | Author | Citation | Literature Cutoff Date |
| Full Evaluation | Balraj Singh and Michael Birch | ENSDF | 30-Sep-2013 |

Q($\beta^-$)=6260 *SY*; S(n)=4410 *SY*; S(p)=9040 *SY*; Q($\alpha$)=−1390 *SY* 2012Wa38

Estimated uncertainties (2012Wa38): ΔQ($\beta^-$)=420, ΔS(n)=420, ΔS(p)=500, ΔS($\alpha$)=500.

S(2n)=10350 *360*, Q($\beta^-$n)=−110 *360* from 2012Wa38 (syst). S(2p)=20740 (1997Mo25, theory).

2012Ku26: $^{174}$Ho produced and identified in $^{9}$Be($^{238}$U,F), E=1 GeV/nucleon reaction using SIS-18 synchrotron facility at GSI. Target=1.6 g/cm$^2$ $^{9}$Be placed at the entrance of projectile Fragment Separator (FRS). Particle identification was achieved by event-by-event in-flight analysis of time-of-flight, energy loss measurement, and magnetic rigidity (tof-ΔE′-B$\rho$). Time-of-flight measured using two plastic scintillation detectors, energy loss or deposit by ionization chambers (MUSIC), and magnetic rigidity by four time-projection chambers (TPC), which also provided energy deposit information. Isomer tagging method for known $\mu$s isomers was used to verify event-by-event identification and in-flight separation of new isotopes. Gamma rays from the known isomers were recorded in coincidence with the incoming ions using either the RISING array of Ge detectors at GSI or only two Ge detectors, a stopper foil and a scintillator for veto signal. Measured production cross section. Comparison of measured $\sigma$ with predictions from ABRABLA model and EPAX-3 model.

2017Wu04: The $^{174}$Ho nuclide was produced at the RIBF-RIKEN facility using the $^{9}$Be($^{238}$U,F) reaction at E=345 MeV/nucleon. Two experiments, optimized for the transmission of $^{158}$Nd and $^{170}$Dy ions, were carried out with average beam intensities of 7 pnA and 12 pnA, respectively. The identification of the nuclide of interest was made in the BigRIPS separator by determining the atomic number and the mass-to-charge ratio of the ion using the TOF-B$\rho$-ΔE method. The reaction products were transported through the ZeroDegree Spectrometer and implanted into the beta-counting system WAS3ABi that was surrounded by the EURICA array comprising of 84 HPGe detectors. The typical implantation rate was 100 ions/s. Measured: implanted ion-$\beta^-$-t, implanted ion-$\beta^-$-$\gamma$-t and implanted ions-$\gamma$-t correlations. Deduced: $T_{1/2}$.

### $^{174}$Ho Levels

| E(level) | $J^\pi$ | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0.0 | (8$^-$) | 3.2 s *11* | %$\beta^-$=100; %$\beta^-$n=?<br>%$\beta^-$: Only $\beta^-$ decay mode is expected.<br>$J^\pi$: From systematics of known quasiparticle states in neighboring nuclei and the proposed configuration (by the evaluator). The assignment is tentative.<br>$T_{1/2}$: From 2017Wu04, using a fit to the implanted ion-$\beta^-$-t spectrum using the least-squares and maximum-likelihood methods. The data analysis included contributions from the parent, daughter and ground-daughter decays, as well as a constant background. The assignment to the ground state is ambiguous, given the possible existence of an isomeric state.<br>configuration: From systematics of well-deformed nuclei in this mass region, the $\pi$7/2[523] and $\nu$9/2[624] Nilsson orbitals are expected near the proton and neutron Fermi surfaces, respectively. Thus, using the Gallagher-Moszkowski rule, one may expect the $K^\pi$=8$^-$, $\pi$7/2[523]⊗$\nu$9/2[624] configuration for the ground state. The existence of a low-spin, $K^\pi$=1$^-$ isomer, arising from the same configuration, is also possible. The assignment is made by the evaluator.<br>Production $\sigma$(at 1 GeV/nucleon)=98 nb *6* (2012Ku26). |