$^{186}\text{W}(^{238}\text{U},^{239}\text{Np}p\gamma)$    **1999Wh03**

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | S. -c. Wu | NDS 106, 619 (2005) | 1-Nov-2005 |

This (deep-inelastic) reaction involves one-proton transfer from $^{186}$W.

E=1600 MeV. Measured delayed $\gamma$'s, $\gamma\gamma$, and lifetimes using Argonne/Notre-Dame BGO array of 12 Compton suppressed Ge detectors and a 50-element BGO inner ball. Reaction is single nucleon-transfer of $^{238}$U beam on $^{186}$W.

### $^{185}$Ta Levels

| E(level) | $J^{\pi\ddagger}$ | $T_{1/2}$# | Comments |
|---|---|---|---|
| 0 | $(7/2^+)$ | | |
| 175?[†] | $(9/2^-)$ | ≤5 ns | |
| 337[†] | $(11/2^-)$ | | |
| 528[†] | $(13/2^-)$ | | |
| 746[†] | $(15/2^-)$ | | |
| 992[†] | $(17/2^-)$ | | |
| 1258[†] | $(19/2^-)$ | | |
| 1258+x | $(21/2)$ | >1 ms | E(level): <100 keV if transition feeding the 1258 level is M1, <80 keV if this transition is E1. Probable high-K isomer with configuration= $\pi(5/2[402]7/2[404]9/2[514])$ for $21/2^-$. |

[†] Band(A): Probable 9/2[514] band.
[‡] Established from strong M1/E2 and accompanying stretched E2 transitions in the band.
[#] From counting rate of different TAC range in $\gamma\gamma$ coincidence.

### $\gamma(^{185}\text{Ta})$

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ | $I_\gamma^\ddagger$ | $E_f$ | $J_f^\pi$ | Mult.[†] | Comments |
|---|---|---|---|---|---|---|---|
| 175? | $(9/2^-)$ | 175# | | 0 | $(7/2^+)$ | (E1) | The ordering of the 175 transition and the isomeric transition from the 1258+x level has not been determined in this work. Mult.: (E1) from $\alpha$(exp)=0.12 *18* (1999Wh03) deduced from intensity balance. E2 assignment, however, is not ruled out. |
| 337 | $(11/2^-)$ | 162 | | 175? | $(9/2^-)$ | | |
| 528 | $(13/2^-)$ | 191 | 100 | 337 | $(11/2^-)$ | (M1+E2) | |
| | | 354 | 11 *10* | 175? | $(9/2^-)$ | (E2) | |
| 746 | $(15/2^-)$ | 218 | 100 | 528 | $(13/2^-)$ | (M1+E2) | |
| | | 409 | 33 *17* | 337 | $(11/2^-)$ | (E2) | |
| 992 | $(17/2^-)$ | 246 | 100 | 746 | $(15/2^-)$ | (M1+E2) | |
| | | 464 | 72 *23* | 528 | $(13/2^-)$ | (E2) | |
| 1258 | $(19/2^-)$ | 266 | 100 | 992 | $(17/2^-)$ | (M1+E2) | |
| | | 512 | 60 *17* | 746 | $(15/2^-)$ | (E2) | |

[†] Evaluator has assigned multipolarities to individual $\gamma$ rays based on 1999Wh03 statement of "strong M1/E2 and weaker stretched E2 transitions in the band".
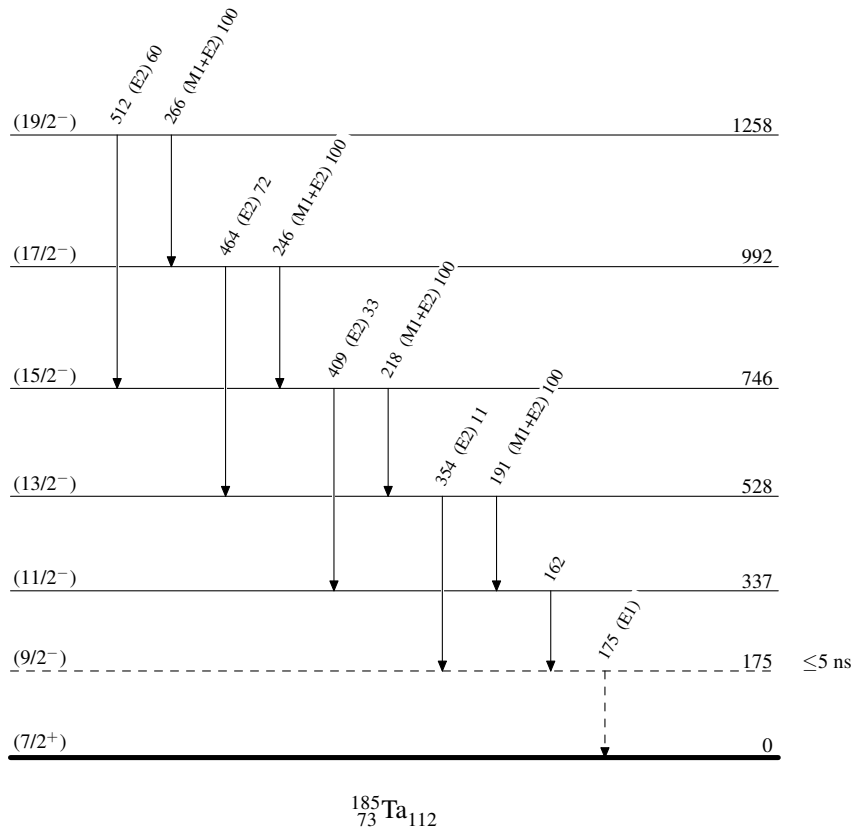[‡] Relative photon branching from each level.
[#] Placement of transition in the level scheme is uncertain.

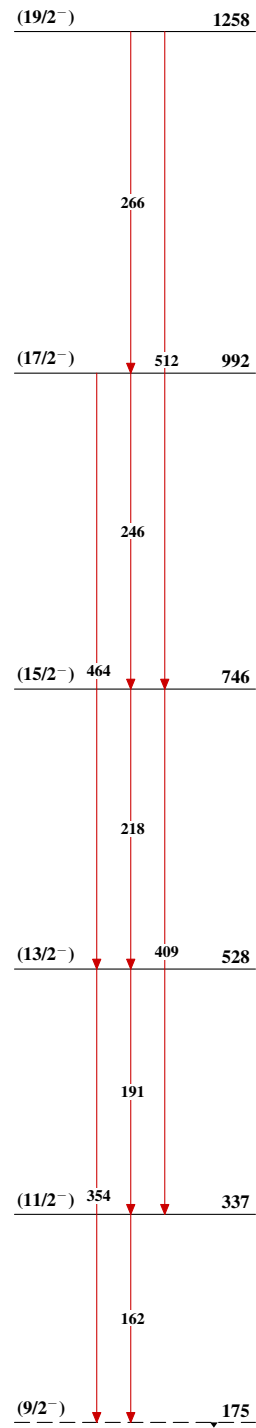$^{186}$W($^{238}$U,$^{239}$Npγ)      **1999Wh03**                    Legend

## Level Scheme

Intensities: Relative photon branching from each level

- - - - - ► γ Decay (Uncertain)



$^{185}_{73}$Ta$_{112}$

$^{186}$W($^{238}$U,$^{239}$Np$p\gamma$)    **1999Wh03**

**Band(A): Probable 9/2[514] band**

(19/2⁻) $(19/2^-)$ 1258

266

$(17/2^-)$ 512 992

246

$(15/2^-)$ 464 746

218

$(13/2^-)$ 409 528

191

$(11/2^-)$ 354 337

162

$(9/2^-)$ 175

$^{185}_{73}$Ta$_{112}$