

**<sup>185</sup>Hg  $\alpha$  decay (21.6 s) 1976GrZC**

| Type            | Author    | History Citation    | Literature Cutoff Date |
|-----------------|-----------|---------------------|------------------------|
| Full Evaluation | S. -c. Wu | NDS 106, 367 (2005) | 31-Aug-2005            |

Parent: <sup>185</sup>Hg: E=99.3 5; J <sup>$\pi$</sup> =13/2<sup>+</sup>; T<sub>1/2</sub>=21.6 s 15; Q( $\alpha$ )=5774 5; % $\alpha$  decay $\approx$ 0.03

<sup>185</sup>Hg-% $\alpha$  decay: from experimental %5372 $\alpha$ :% $\epsilon$ +% $\beta^+$ :%IT=0.006:14:14 (1976GrZC) and I(5372 $\alpha$ ) $\approx$ 0.8 I $\alpha$ (total) (1980ToZZ); branching $\approx$ 1/(0.006\*0.8+14+14)=0.00027.

1976GrZC: Source prepared in ISOLDE II at CERN; Ge detector for X-ray and  $\gamma$ 's; surface barrier detector for  $\alpha$ 's; measured E $\alpha$ , I $\alpha$ ,  $\alpha\gamma$ -coin.

Others: 1970Ha18, 1980ToZZ.

The parent level excitation energy is from <sup>185</sup>Hg Adopted Levels.

<sup>181</sup>Pt Levels

| E(level) <sup>†</sup> | J <sup><math>\pi</math></sup> <sup>‡</sup> | T <sub>1/2</sub> | Comments   |
|-----------------------|--|------------------|--|
| 0.0                   | 1/2 <sup>-</sup>                           | 52.0 s 22        | T <sub>1/2</sub> : from Adopted Levels.            |
| 119                   | (7/2) <sup>-</sup>                         |                  | E(level): based on E $\gamma$ =161 from 280 level. |
| 237                   | (9/2) <sup>-</sup>                         |                  | E(level): based on E $\gamma$ =118 to 119 level.   |
| 280                   | (9/2) <sup>+</sup>                         |                  | E(level): based on E $\gamma$ =106 from 386 level. |
| 323?                  | (11/2) <sup>+</sup>                        |                  |  |
| 346 11                |  |                  |  |
| 382 10                | (13/2) <sup>+</sup>                        |                  |  |

<sup>†</sup> From measured E $\alpha$ , assuming Q( $\alpha$ )=5774 5 and E(<sup>185</sup>Hg,13/2<sup>+</sup>)=99.3 5, unless noted otherwise.

<sup>‡</sup> From Adopted Levels.

$\alpha$  radiations

| E $\alpha$ <sup>†</sup> | E(level) | I $\alpha$ <sup>†#</sup> | HF <sup>‡</sup> | Comments  |
|-------------------------|----------|--------------------------|-----------------|---|
| 5372 8                  | 382      | $\approx$ 80             | $\approx$ 5     | E $\alpha$ : weighted average of 5371 10 (1980ToZZ) and 5375 15 (1970Ha18). Other datum: 5365 (1976GrZC). |
| 5408 10                 | 346      | $\approx$ 20             | $\approx$ 32    | E $\alpha$ : other datum: 5410 (1976GrZC).  |
| 5430 <sup>@</sup>       | 323?     |                          |                 | E $\alpha$ : from 1976GrZC; possibly observed also by 1980ToZZ.   |

<sup>†</sup> From 1980ToZZ, except as noted.

<sup>‡</sup> If r<sub>0</sub>=1.508 (based on r<sub>0</sub>(<sup>180</sup>Pt) and r<sub>0</sub>(<sup>182</sup>Pt) from 1998Ak04), and if I(5430 $\alpha$ ) is negligibly small.

# For absolute intensity per 100 decays, multiply by  $\approx$ 0.0003.

@ Existence of this branch is questionable.

$\gamma$ (<sup>181</sup>Pt)

| E $\gamma$ <sup>†</sup> | E <sub>i</sub> (level) | J <sub>i</sub> <sup><math>\pi</math></sup> | E <sub>f</sub> | J <sub>f</sub> <sup><math>\pi</math></sup> | Mult. <sup>‡</sup> | Comments   |
|-------------------------|------------------------|--|----------------|--|--------------------|--|
| 61                      | 382                    | (13/2 <sup>+</sup> )                       | 323?           | (11/2 <sup>+</sup> )                       |                    | Placed by evaluator; this 13/2 <sup>+</sup> to 11/2 <sup>+</sup> intraband transition is expected but not previously observed (E $\gamma$ is out of range for ( <sup>40</sup> Ar,3n $\gamma$ ) study by 1990De03). |
| 106                     | 382                    | (13/2 <sup>+</sup> )                       | 280            | (9/2) <sup>+</sup>                         | (E2)               |  |
| 118                     | 237                    | (9/2) <sup>-</sup>                         | 119            | (7/2) <sup>-</sup>                         | E2(+M1)            |  |
| 161 <sup>#</sup>        | 280                    | (9/2) <sup>+</sup>                         | 119            | (7/2) <sup>-</sup>                         | (E1)               |  |

<sup>†</sup> From 1976GrZC; uncertainty unstated by authors, but data agree within 1.6 keV with values in adopted gammas.

Continued on next page (footnotes at end of table)

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$^{185}\text{Hg}$   $\alpha$  decay (21.6 s)    **1976GrZC (continued)**

$\gamma(^{181}\text{Pt})$  (continued)

‡ From adopted gammas.

#  $E\gamma$  is a little high for this placement ( $E\gamma=159.4$  I expected). However, there is no evidence of an  $\alpha$  feeding the 542, (15/2<sup>+</sup>) level so there is no reason to suppose that the observed 161 $\gamma$  includes any contribution from the known 160.8 $\gamma$  which connects that level to the observed 381, (13/2<sup>+</sup>) level.

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## Decay Scheme

