

Adopted Levels, Gammas

| Type            | Author       | History<br>Citation | Literature Cutoff Date |
|-----------------|--------------|---------------------|------------------------|
| Full Evaluation | Jean Blachot | NDS 113,515 (2012)  | 1-Jan-2012             |

$Q(\beta^-)=5.49\times 10^3$  8;  $S(n)=6.42\times 10^3$  4;  $S(p)=14699$  5;  $Q(\alpha)=-8098$  25 [2012Wa38](#)

Note: Current evaluation has used the following Q record  $5.50\text{E}+3$  7  $6.41\times 10^3$  4  $1.463\text{e}^+410-8.09\times 10^{33}$  [2011AuZZ](#).

[2007Ha20](#): Measured mass excess= $-70213$  13, mismatched in  $-70215$  12 from [2011AuZZ](#), [1990AyZX](#).

Others (mostly superseded): [1992JoZN](#), [1992JoZX](#), [1991LeZU](#).

 $^{114}\text{Ru}$  Levels

Identified by mass separation IGISOL ([1988AyZY](#),[1991Le09](#)).

Cross Reference (XREF) Flags

**A**  $^{248}\text{Cm}$  SF decay  
**B**  $^{114}\text{Tc}$   $\beta^-$  decay:100 ms  
**C**  $^{114}\text{Tc}$   $\beta^-$  decay:90 ms  
**D**  $^{252}\text{Cf}$  SF decay

| E(level)&              | $J^\pi$ @          | $T_{1/2}$ | XREF | Comments                                                                                                                                                                 |
|------------------------|--------------------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0 <sup>†</sup>       | 0 <sup>+</sup>     | 0.54 s 3  | ABCD | $\% \beta^- = 100$<br>$T_{1/2}$ : Weighted average: 0.51 s 7 ( <a href="#">2006Mo07</a> ), 0.53 s 6 ( <a href="#">1992Jo05</a> ), 0.57 s 5 ( <a href="#">1991Le09</a> ). |
| 265.19 <sup>†</sup> 17 | 2 <sup>+</sup>     |           | ABCD |                                                                                                                                                                          |
| 563.31 <sup>‡</sup> 17 | (2 <sup>+</sup> )  |           | ABC  |                                                                                                                                                                          |
| 708.2 <sup>†</sup> 3   | (4 <sup>+</sup> )  |           | AB D |                                                                                                                                                                          |
| 828.50 <sup>‡</sup> 25 | (3 <sup>+</sup> )  |           | ABCD |                                                                                                                                                                          |
| 1056.1 4               | ( $\geq 3$ )       |           | B    |                                                                                                                                                                          |
| 1081.9 <sup>‡</sup> 5  | (4 <sup>+</sup> )  |           | B D  |                                                                                                                                                                          |
| 1298.8 <sup>†</sup> 4  | (6 <sup>+</sup> )  |           | AB D |                                                                                                                                                                          |
| 1372.5 <sup>‡</sup> 4  | (5 <sup>+</sup> )  |           | AB D |                                                                                                                                                                          |
| 1578.5 <sup>#</sup> 6  | (4 <sup>+</sup> )  |           | B D  |                                                                                                                                                                          |
| 1602.4 6               | ( $\geq 3$ )       |           | B    |                                                                                                                                                                          |
| 1761.4 <sup>‡</sup> 7  | (6 <sup>+</sup> )  |           | D    |                                                                                                                                                                          |
| 1813.6 <sup>#</sup> 5  | (5 <sup>+</sup> )  |           | D    |                                                                                                                                                                          |
| 1883.1 5               | (2 <sup>+</sup> )  |           | C    |                                                                                                                                                                          |
| 2007.9 <sup>†</sup> 6  | (8 <sup>+</sup> )  |           | A D  |                                                                                                                                                                          |
| 2057.1 <sup>‡</sup> 6  | (7 <sup>+</sup> )  |           | D    |                                                                                                                                                                          |
| 2068.7 10              | ( $\geq 3$ )       |           | B D  |                                                                                                                                                                          |
| 2792.4 <sup>†</sup> 8  | (10 <sup>+</sup> ) |           | A D  |                                                                                                                                                                          |
| 2832.3 <sup>‡</sup> 8  | (9 <sup>+</sup> )  |           | D    |                                                                                                                                                                          |
| 3573.4 <sup>†</sup> 10 | 12 <sup>+</sup>    |           | D    |                                                                                                                                                                          |
| 4319.5 <sup>†</sup> 11 | 14 <sup>+</sup>    |           | D    |                                                                                                                                                                          |

<sup>†</sup> Band(A):  $\Delta J=2$  sequence built on g.s..

<sup>‡</sup> Band(B):  $\gamma$  band.

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{114}\text{Ru}$  Levels (continued)

# Band(C): Band based on (4<sup>+</sup>). Assigned to 2-phonon  $\gamma$ -vibrational band.

@ All  $J^\pi$  are from band assignments.

& From least-squares fit to  $E\gamma$ 's.

 $\gamma(^{114}\text{Ru})$ 

| $E_i(\text{level})$ | $J_i^\pi$          | $E_\gamma^\dagger$ | $I_\gamma^\dagger$ | $E_f$  | $J_f^\pi$          | Mult. |
|---------------------|--------------------|--------------------|--------------------|--------|--------------------|-------|
| 265.19              | 2 <sup>+</sup>     | 265.1 2            | 100                | 0.0    | 0 <sup>+</sup>     | [E2]  |
| 563.31              | (2 <sup>+</sup> )  | 298.0 2            | 100                | 265.19 | 2 <sup>+</sup>     | [E2]  |
|                     |                    | 563.4 2            | 66                 | 0.0    | 0 <sup>+</sup>     | [E2]  |
| 708.2               | (4 <sup>+</sup> )  | 443.0 2            | 100                | 265.19 | 2 <sup>+</sup>     |       |
| 828.50              | (3 <sup>+</sup> )  | 265.1 2            | 100                | 563.31 | (2 <sup>+</sup> )  | [E2]  |
| 1056.1              | ( $\geq 3$ )       | 227.6 3            | 100                | 828.50 | (3 <sup>+</sup> )  | [E2]  |
| 1081.9              | (4 <sup>+</sup> )  | 518.7 5            | 100                | 563.31 | (2 <sup>+</sup> )  |       |
| 1298.8              | (6 <sup>+</sup> )  | 590.6 2            | 100                | 708.2  | (4 <sup>+</sup> )  |       |
| 1372.5              | (5 <sup>+</sup> )  | 544.0 2            | 100                | 828.50 | (3 <sup>+</sup> )  |       |
| 1578.5              | (4 <sup>+</sup> )  | 870.3 5            | 100                | 708.2  | (4 <sup>+</sup> )  |       |
| 1602.4              | ( $\geq 3$ )       | 773.9 5            | 100                | 828.50 | (3 <sup>+</sup> )  |       |
| 1761.4              | (6 <sup>+</sup> )  | 679.5 5            | 100                | 1081.9 | (4 <sup>+</sup> )  |       |
| 1813.6              | (5 <sup>+</sup> )  | 235.8 <sup>‡</sup> |                    | 1578.5 | (4 <sup>+</sup> )  |       |
|                     |                    | 731.9 5            | 39                 | 1081.9 | (4 <sup>+</sup> )  |       |
|                     |                    | 985.0 5            | 100                | 828.50 | (3 <sup>+</sup> )  |       |
| 1883.1              | (2 <sup>+</sup> )  | 1054.2 5           | 23 13              | 828.50 | (3 <sup>+</sup> )  |       |
|                     |                    | 1320.2 9           | 100 25             | 563.31 | (2 <sup>+</sup> )  |       |
|                     |                    | 1618.7 9           | 45 23              | 265.19 | 2 <sup>+</sup>     |       |
| 2007.9              | (8 <sup>+</sup> )  | 709.1 5            | 100                | 1298.8 | (6 <sup>+</sup> )  |       |
| 2057.1              | (7 <sup>+</sup> )  | 684.6 5            | 100                | 1372.5 | (5 <sup>+</sup> )  |       |
| 2068.7              | ( $\geq 3$ )       | 1360.5 9           | 100                | 708.2  | (4 <sup>+</sup> )  |       |
| 2792.4              | (10 <sup>+</sup> ) | 784.5 5            | 100                | 2007.9 | (8 <sup>+</sup> )  |       |
| 2832.3              | (9 <sup>+</sup> )  | 775.2 5            | 100                | 2057.1 | (7 <sup>+</sup> )  |       |
| 3573.4              | 12 <sup>+</sup>    | 781.0 5            | 100                | 2792.4 | (10 <sup>+</sup> ) |       |
| 4319.5              | 14 <sup>+</sup>    | 746.1 5            | 100                | 3573.4 | 12 <sup>+</sup>    |       |

<sup>†</sup> From  $^{114}\text{Tc}$   $\beta^-$  decay.

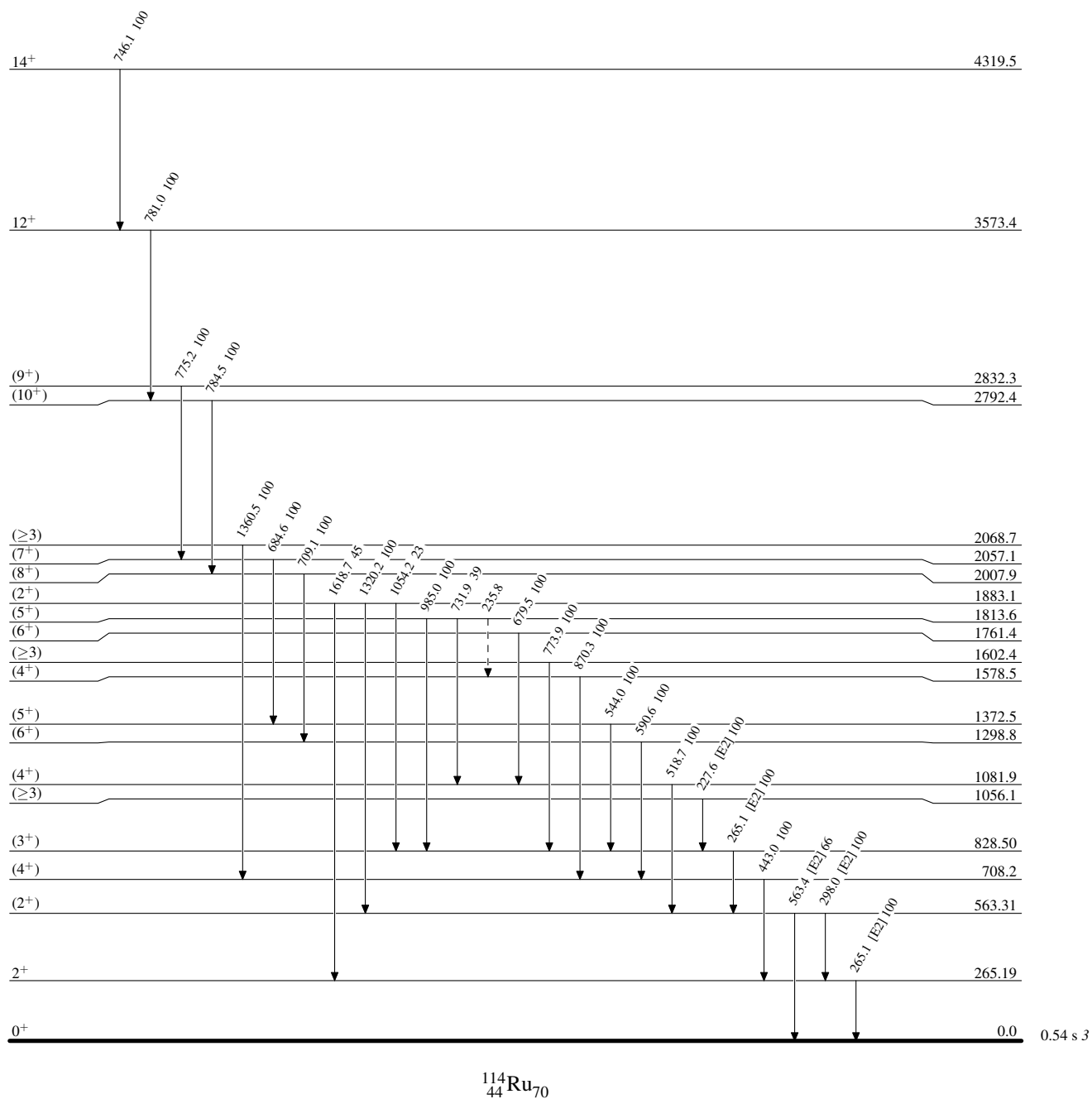
<sup>‡</sup> Placement of transition in the level scheme is uncertain.

# Adopted Levels, Gammas

Legend

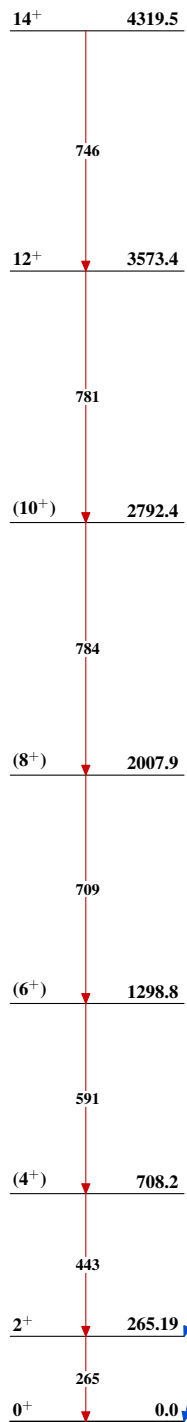
## Level Scheme

Intensities: Relative photon branching from each level

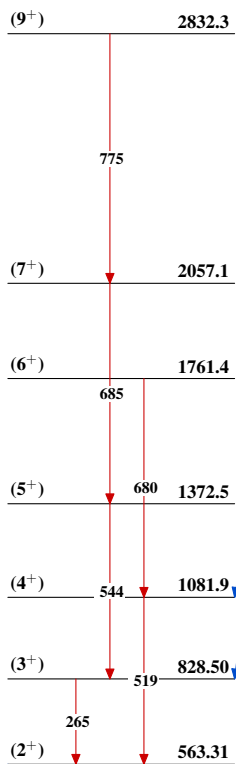
 - - - - -  $\gamma$  Decay (Uncertain)


Adopted Levels, Gammas

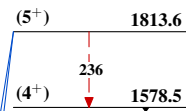
Band(A):  $\Delta J=2$  sequence  
built on g.s.



Band(B):  $\gamma$  band



Band(C): Band based on  
( $4^+$ )

 $^{114}_{44}\text{Ru}_{70}$