

<sup>252</sup>Cf SF decay 2011Li29

| Type            | Author       | History Citation     | Literature Cutoff Date |
|-----------------|--------------|----------------------|------------------------|
| Full Evaluation | Jean Blachot | NDS 113, 2391 (2012) | 1-Sep-2012             |

Parent: <sup>252</sup>Cf: E=0; J<sup>π</sup>=0<sup>+</sup>; T<sub>1/2</sub>=2.645 y 8; %SF decay=?

<sup>252</sup>Cf source placed between two 10 mg/cm<sup>2</sup> iron foils to stop fission fragments and surrounded by a plastic ball to absorb β-rays and conversion electrons. Gamma rays detected by the Gammasphere array at Lawrence Berkeley National Laboratory. <sup>115</sup>Rh events identified by relative intensities and coincidences with transitions of the complementary fragments <sup>133-135</sup>I. Data analyzed with RADWARE software package. Measured E<sub>γ</sub>, I<sub>γ</sub>, γγ coincidence. Deduced levels, J, π, and branching ratios. Comparison with rigid triaxial rotor plus particle (RTRP) model. Systematics of odd-A Rh isotopes discussed.

<sup>115</sup>Rh Levels

| E(level) <sup>†</sup>    | J <sup>π</sup> <sup>‡</sup> | E(level) <sup>†</sup>     | J <sup>π</sup> <sup>‡</sup> | E(level) <sup>†</sup>     | J <sup>π</sup> <sup>‡</sup> |
|--------------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------|
| 0.0 <sup>#</sup>         | (7/2 <sup>+</sup> )         | 703.2 <sup>@</sup> 3      | (13/2 <sup>+</sup> )        | 1371.0 <sup>@</sup> 4     | (17/2 <sup>+</sup> )        |
| 213.3 <sup>@</sup> 3     | (9/2 <sup>+</sup> )         | 1001.1 <sup>a</sup> 5     | (13/2 <sup>+</sup> )        | 1776.0 <sup>a</sup> 6     | (17/2 <sup>+</sup> )        |
| 461.0 <sup>#</sup> 3     | (11/2 <sup>+</sup> )        | 1141.8 <sup>#</sup> 3     | (15/2 <sup>+</sup> )        | 1926.4 <sup>#</sup> 4     | (19/2 <sup>+</sup> )        |
| 599.9 <sup>&amp;</sup> 4 | (11/2 <sup>+</sup> )        | 1339.3 <sup>&amp;</sup> 5 | (15/2 <sup>+</sup> )        | 2116.1 <sup>&amp;</sup> 7 | (19/2 <sup>+</sup> )        |
|                          |                             |                           |                             | 2141.9 <sup>@</sup> 5     | (21/2 <sup>+</sup> )        |

<sup>†</sup> From least-squares fit to E<sub>γ</sub> data.

<sup>‡</sup> Assignments based on systematics as well as yrast nature of population of states.

<sup>#</sup> Band(A): Band built on 7/2<sup>+</sup>, α=-1/2.

<sup>@</sup> Band(a): Band built on 7/2<sup>+</sup>, α=+1/2.

<sup>&</sup> Band(B): Yrare band based on 11/2<sup>+</sup>, α=-1/2.

<sup>a</sup> Band(b): Yrare band based on 11/2<sup>+</sup>, α=+1/2.

γ(<sup>115</sup>Rh)

| E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup> | E <sub>γ</sub> | I <sub>γ</sub> | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup> | E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup> | E <sub>γ</sub>       | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup> |
|------------------------|-----------------------------|----------------|----------------|----------------|-----------------------------|------------------------|-----------------------------|----------------------|----------------|-----------------------------|
| 213.3                  | (9/2 <sup>+</sup> )         | 213.3 3        |                | 0.0            | (7/2 <sup>+</sup> )         | 1371.0                 | (17/2 <sup>+</sup> )        | 229.2 3              | 1141.8         | (15/2 <sup>+</sup> )        |
| 461.0                  | (11/2 <sup>+</sup> )        | 247.7 3        | 169 20         | 213.3          | (9/2 <sup>+</sup> )         |                        |                             | 667.8 3              | 703.2          | (13/2 <sup>+</sup> )        |
|                        |                             | 461.0 3        | 100            | 0.0            | (7/2 <sup>+</sup> )         | 1776.0                 | (17/2 <sup>+</sup> )        | 436.7 3              | 1339.3         | (15/2 <sup>+</sup> )        |
| 599.9                  | (11/2 <sup>+</sup> )        | 386.6 3        |                | 213.3          | (9/2 <sup>+</sup> )         |                        |                             | 774.9 <sup>†</sup> 3 | 1001.1         | (13/2 <sup>+</sup> )        |
| 703.2                  | (13/2 <sup>+</sup> )        | 242.2 3        | 119 14         | 461.0          | (11/2 <sup>+</sup> )        | 1926.4                 | (19/2 <sup>+</sup> )        | 555.4 3              | 1371.0         | (17/2 <sup>+</sup> )        |
|                        |                             | 489.9 3        | 100            | 213.3          | (9/2 <sup>+</sup> )         |                        |                             | 784.6 3              | 1141.8         | (15/2 <sup>+</sup> )        |
| 1001.1                 | (13/2 <sup>+</sup> )        | 401.2 3        |                | 599.9          | (11/2 <sup>+</sup> )        | 2116.1                 | (19/2 <sup>+</sup> )        | 340.1 3              | 1776.0         | (17/2 <sup>+</sup> )        |
| 1141.8                 | (15/2 <sup>+</sup> )        | 438.6 3        | 172 20         | 703.2          | (13/2 <sup>+</sup> )        |                        |                             | 776.8 <sup>†</sup> 3 | 1339.3         | (15/2 <sup>+</sup> )        |
|                        |                             | 680.8 3        | 100            | 461.0          | (11/2 <sup>+</sup> )        | 2141.9                 | (21/2 <sup>+</sup> )        | 215.5 <sup>†</sup> 3 | 1926.4         | (19/2 <sup>+</sup> )        |
| 1339.3                 | (15/2 <sup>+</sup> )        | 338.2 3        |                | 1001.1         | (13/2 <sup>+</sup> )        |                        |                             | 770.9 3              | 1371.0         | (17/2 <sup>+</sup> )        |
|                        |                             | 739.4 3        |                | 599.9          | (11/2 <sup>+</sup> )        |                        |                             |                      |                |                             |

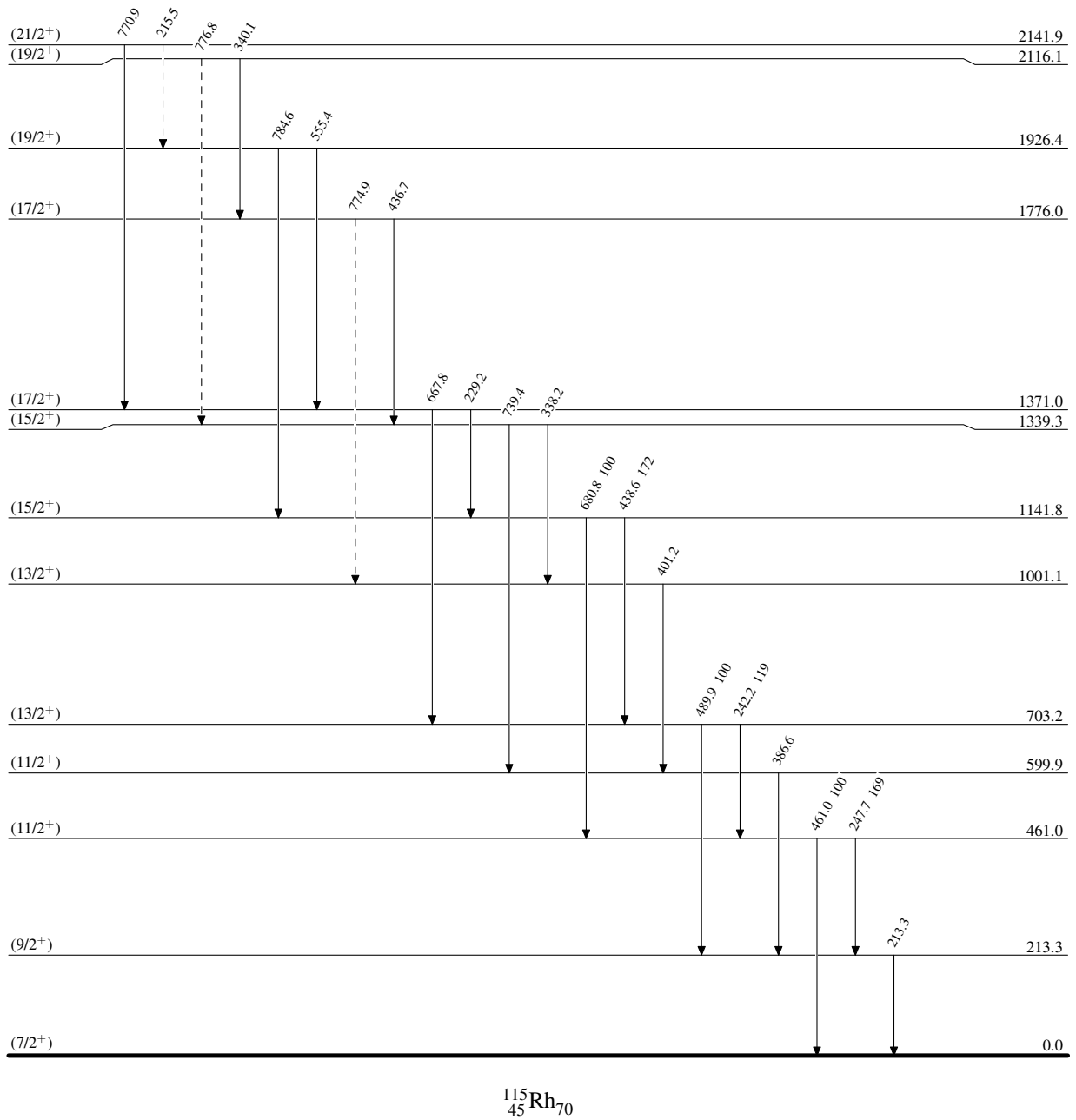
<sup>†</sup> Placement of transition in the level scheme is uncertain.

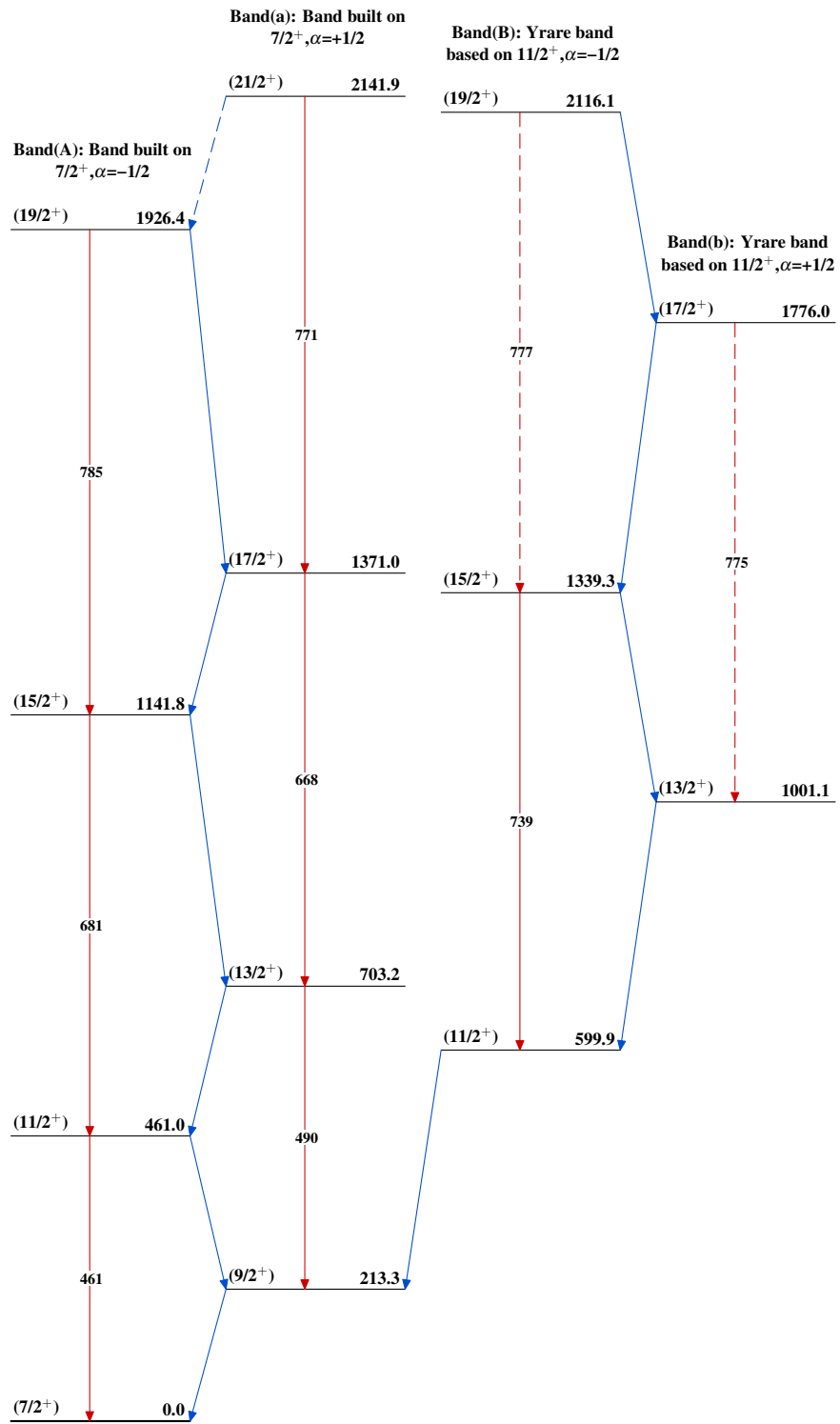
$^{252}\text{Cf}$  SF decay 2011Li29

Legend

## Level Scheme

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain) $^{115}_{45}\text{Rh}_{70}$

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