

$^{45}\text{Sc}(p,\gamma)$ : primary  $\gamma$ 's [1987Mo17](#),[1968Er04](#)

| Type            | Author    | History Citation | Literature Cutoff Date |
|-----------------|-----------|------------------|------------------------|
| Full Evaluation | S. -c. Wu | NDS 91, 1 (2000) | 15-Jul-2000            |

## Additional information 1.

[1987Mo17](#): E=1026 keV, 1047 keV, 1377 keV; measured  $\gamma$ ,  $\gamma(\theta)$ .[1968Er04](#): E=1363-1377, 1645-1660; measured  $\gamma$ ,  $\gamma\gamma$ .[1987Ra17](#): E=1.78, 1.8 MeV; measured  $\gamma$ ,  $\gamma(t)$  (DSA). $^{46}\text{Ti}$  Levels

| E(level) <sup>†</sup> | J $\pi^{\ddagger}$ | T <sub>1/2</sub> <sup>#</sup> | Comments   |
|-----------------------|--------------------|-------------------------------|--|
| 0.0                   | 0 <sup>+</sup>     |                               |  |
| 888.8 <i>19</i>       | 2 <sup>+</sup>     | 1.4 ps +35-7                  |  |
| 2008.8 <i>24</i>      | 4 <sup>+</sup>     | 1.5 ps 3                      |  |
| 2961 <i>4</i>         | 2 <sup>+</sup>     | 166 fs 7                      |  |
| 3057 <i>4</i>         | 3 <sup>-</sup>     | 2 ps +2-1                     |  |
| 3167.9 <i>21</i>      | 1 <sup>-</sup>     | 191 fs +31-21                 |  |
| 3235.7 <i>21</i>      | 2 <sup>+</sup>     | 29 fs +7-3                    |  |
| 3296 <i>4</i>         | 6 <sup>+</sup>     | 0.97 ps 11                    |  |
| 3439 <i>4</i>         | 4 <sup>-</sup>     | >2.2 ps                       |  |
| 3451 <i>8</i>         |                    |                               |  |
| 3568 <i>4</i>         | 3 <sup>-</sup>     | 211 fs 24                     |  |
| 3570 <i>4</i>         | 0 <sup>+</sup>     | 194 fs +17-14                 | <a href="#">Additional information 2.</a>                        |
| 3582 <i>4</i>         |                    |                               | <a href="#">Additional information 3.</a>                        |
| 3721 <i>3</i>         | (2) <sup>+</sup>   | 59 fs 4                       |  |
| 3827 <i>8</i>         |                    |                               |  |
| 3844 <i>8</i>         | 2 <sup>+</sup>     | 10 fs 4                       | <a href="#">Additional information 4.</a>                        |
| 3856 <i>4</i>         |                    |                               |  |
| 3905.0 <i>23</i>      |                    | 38 fs +14-9                   | <a href="#">Additional information 5.</a>                        |
| 3940 <i>4</i>         |                    |                               |  |
| 4040 <i>4</i>         |                    |                               |  |
| 4137 <i>8</i>         | 2 <sup>+</sup>     |                               |  |
| 4198 <i>7</i>         |                    |                               |  |
| 4417                  |                    |                               |  |
| 4519 <i>4</i>         |                    |                               |  |
| 4530?                 |                    |                               |  |
| 4698 <i>4</i>         |                    |                               |  |
| 4827.2 <i>25</i>      |                    |                               |  |
| 4982 <i>10</i>        |                    |                               | Not in Adopted Levels.   |
| 5024 <i>5</i>         |                    |                               |  |
| 5060 <i>6</i>         |                    |                               | E(level): from <a href="#">1968Er04</a> ; not in Adopted Levels. |
| 5079 <i>4</i>         |                    |                               |  |
| 5185 <i>8</i>         |                    |                               |  |
| 5304 <i>7</i>         |                    |                               | E(level): from <a href="#">1968Er04</a> ; not in Adopted Levels. |
| 5529 <i>4</i>         | 3 <sup>-</sup>     |                               |  |
| 5794 <i>5</i>         |                    |                               |  |
| 5951 <i>4</i>         |                    |                               |  |
| 6061 <i>5</i>         |                    |                               | Not in Adopted Levels.   |
| 6080                  |                    |                               | E(level): from <a href="#">1968Er04</a> ; not in Adopted Levels. |
| 6261 <i>8</i>         |                    |                               |  |
| 6400 <i>10</i>        |                    |                               |  |
| 6522 <i>8</i>         |                    |                               | E(level): from <a href="#">1968Er04</a> ; not in Adopted Levels. |
| 11354 <i>3</i>        | 3 <sup>@</sup>     |                               |  |
| 11374.2 <i>23</i>     |                    |                               |  |
| 11698 <i>3</i>        | (2,3) <sup>@</sup> |                               |  |
| ≈11973                |                    |                               | E(level): from <a href="#">1968Er04</a> ; not in Adopted Levels. |

Continued on next page (footnotes at end of table)

<sup>45</sup>Sc(p,γ): primary γ's **1987Mo17,1968Er04** (continued)

<sup>46</sup>Ti Levels (continued)

- † From secondary γ's, except as noted.
- ‡ From Adopted Levels, except as noted.
- # From 1983Ra17.
- @ From γ(θ) (1987Mo17).

γ(<sup>46</sup>Ti)

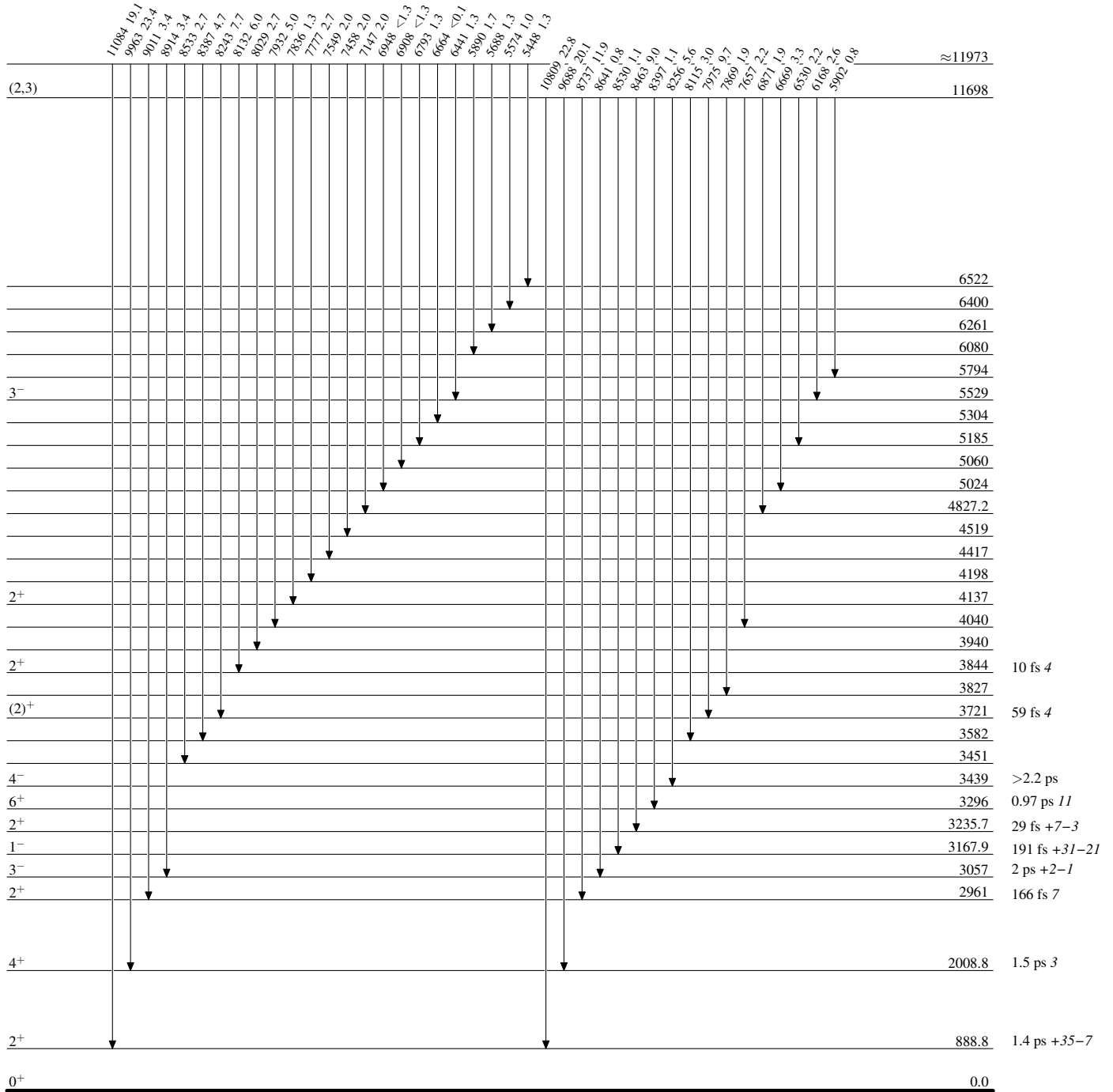
| <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>γ</sub><sup>†</sup></u> | <u>I<sub>γ</sub><sup>#</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> | <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>γ</sub><sup>†</sup></u> | <u>I<sub>γ</sub><sup>#</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> |
|-----------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------|----------------------------------|-----------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------|----------------------------------|
| 11354                       | 3                                | 6325                             | 4.1                              | 5024                 |                                  | 11698                       | (2,3)                            | 8256                             | 5.6                              | 3439                 | 4 <sup>-</sup>                   |
|                             |                                  | 6373                             | 1.8                              | 4982                 |                                  |                             |                                  | 8397                             | 1.1                              | 3296                 | 6 <sup>+</sup>                   |
|                             |                                  | 6525                             | 4.2                              | 4827.2               |                                  |                             |                                  | 8463                             | 9.0                              | 3235.7               | 2 <sup>+</sup>                   |
|                             |                                  | 6653                             | 16.6                             | 4698                 |                                  |                             |                                  | 8530                             | 1.1                              | 3167.9               | 1 <sup>-</sup>                   |
|                             |                                  | 7315                             | 2.3                              | 4040                 |                                  |                             |                                  | 8641                             | 0.8                              | 3057                 | 3 <sup>-</sup>                   |
|                             |                                  | 7623                             | 9.7                              | 3721                 | (2) <sup>+</sup>                 |                             |                                  | 8737                             | 11.9                             | 2961                 | 2 <sup>+</sup>                   |
|                             |                                  | 7784                             | 0.9                              | 3570                 | 0 <sup>+</sup>                   |                             |                                  | 9688                             | 20.1                             | 2008.8               | 4 <sup>+</sup>                   |
|                             |                                  | 7912                             | 3.7                              | 3439                 | 4 <sup>-</sup>                   |                             |                                  | 10809                            | 22.8                             | 888.8                | 2 <sup>+</sup>                   |
|                             |                                  | 8189                             | 5.5                              | 3167.9               | 1 <sup>-</sup>                   | ≈11973                      |                                  | 5448 <sup>‡</sup> 12             | 1.3 <sup>@</sup> 3               | 6522                 |                                  |
|                             |                                  | 8296                             | 1.4                              | 3057                 | 3 <sup>-</sup>                   |                             |                                  | 5574 <sup>‡</sup> 12             | 1.0 <sup>@</sup> 2               | 6400                 |                                  |
|                             |                                  | 8393                             | 6.9                              | 2961                 | 2 <sup>+</sup>                   |                             |                                  | 5688 <sup>‡</sup> 12             | 1.3 <sup>@</sup> 3               | 6261                 |                                  |
|                             |                                  | 9345                             | 6.9                              | 2008.8               | 4 <sup>+</sup>                   |                             |                                  | 5890 <sup>‡</sup> 12             | 1.7 <sup>@</sup> 3               | 6080                 |                                  |
|                             |                                  | 10466                            | 35.9                             | 888.8                | 2 <sup>+</sup>                   |                             |                                  | 6441 <sup>‡</sup> 12             | 1.3 <sup>@</sup> 2               | 5529                 | 3 <sup>-</sup>                   |
| 11374.2                     |                                  | 5312                             | 13.6                             | 6061                 |                                  |                             |                                  | 6664 <sup>‡</sup> 12             | <0.1 <sup>@</sup>                | 5304                 |                                  |
|                             |                                  | 6346                             | 2.8                              | 5024                 |                                  |                             |                                  | 6793 <sup>‡</sup> 12             | 1.3 <sup>@</sup> 2               | 5185                 |                                  |
|                             |                                  | 6673                             | 1.7                              | 4698                 |                                  |                             |                                  | 6908 <sup>‡</sup> 12             | <1.3 <sup>@</sup>                | 5060                 |                                  |
|                             |                                  | 6845 <sup>&amp;</sup>            | 15.3                             | 4530?                |                                  |                             |                                  | 6948 <sup>‡</sup> 12             | <1.3 <sup>@</sup>                | 5024                 |                                  |
|                             |                                  | 7517                             | 7.3                              | 3856                 |                                  |                             |                                  | 7147 <sup>‡</sup> 12             | 2.0 <sup>@</sup> 3               | 4827.2               |                                  |
|                             |                                  | 7652                             | 7.3                              | 3721                 | (2) <sup>+</sup>                 |                             |                                  | 7458 <sup>‡</sup> 12             | 2.0 <sup>@</sup> 3               | 4519                 |                                  |
|                             |                                  | 7933                             | 7.3                              | 3439                 | 4 <sup>-</sup>                   |                             |                                  | 7549 <sup>‡</sup> 12             | 2.0 <sup>@</sup> 3               | 4417                 |                                  |
|                             |                                  | 8076                             | 33.9                             | 3296                 | 6 <sup>+</sup>                   |                             |                                  | 7777 <sup>‡</sup> 12             | 2.7 <sup>@</sup> 3               | 4198                 |                                  |
|                             |                                  | 8315                             | 3.4                              | 3057                 | 3 <sup>-</sup>                   |                             |                                  | 7836 <sup>‡</sup> 12             | 1.3 <sup>@</sup> 3               | 4137                 | 2 <sup>+</sup>                   |
|                             |                                  | 9364                             | 5.1                              | 2008.8               | 4 <sup>+</sup>                   |                             |                                  | 7932 <sup>‡</sup> 12             | 5.0 <sup>@</sup> 4               | 4040                 |                                  |
|                             |                                  | 10486                            | 2.3                              | 888.8                | 2 <sup>+</sup>                   |                             |                                  | 8029 <sup>‡</sup> 12             | 2.7 <sup>@</sup> 3               | 3940                 |                                  |
| 11698                       | (2,3)                            | 5902                             | 0.8                              | 5794                 |                                  |                             |                                  | 8132 <sup>‡</sup> 12             | 6.0 <sup>@</sup> 5               | 3844                 | 2 <sup>+</sup>                   |
|                             |                                  | 6168                             | 2.6                              | 5529                 | 3 <sup>-</sup>                   |                             |                                  | 8243 <sup>‡</sup> 12             | 7.7 <sup>@</sup> 5               | 3721                 | (2) <sup>+</sup>                 |
|                             |                                  | 6530                             | 2.2                              | 5185                 |                                  |                             |                                  | 8387 <sup>‡</sup> 12             | 4.7 <sup>@</sup> 5               | 3582                 |                                  |
|                             |                                  | 6669                             | 3.3                              | 5024                 |                                  |                             |                                  | 8533 <sup>‡</sup> 12             | 2.7 <sup>@</sup> 3               | 3451                 |                                  |
|                             |                                  | 6871                             | 1.9                              | 4827.2               |                                  |                             |                                  | 8914 <sup>‡</sup> 12             | 3.4 <sup>@</sup> 4               | 3057                 | 3 <sup>-</sup>                   |
|                             |                                  | 7657                             | 2.2                              | 4040                 |                                  |                             |                                  | 9011 <sup>‡</sup> 12             | 3.4 <sup>@</sup> 4               | 2961                 | 2 <sup>+</sup>                   |
|                             |                                  | 7869                             | 1.9                              | 3827                 |                                  |                             |                                  | 9963 <sup>‡</sup> 12             | 23.4 <sup>@</sup> 10             | 2008.8               | 4 <sup>+</sup>                   |
|                             |                                  | 7975                             | 9.7                              | 3721                 | (2) <sup>+</sup>                 |                             |                                  | 11084 <sup>‡</sup> 12            | 19.1 <sup>@</sup> 10             | 888.8                | 2 <sup>+</sup>                   |
|                             |                                  | 8115                             | 3.0                              | 3582                 |                                  |                             |                                  |                                  |                                  |                      |                                  |

- † From 1987Mo17, ΔE for γ's are better than 3keV, except as noted.
- ‡ From 1968Er04.
- # Given in intensities per 100 captures at 1026, 1047 and 1377 keV from 1987Mo17, except as noted.
- @ Intensities per 100 captures at 1660 keV from 1968Er04.
- & Placement of transition in the level scheme is uncertain.

$^{45}\text{Sc}(p,\gamma)$ : primary  $\gamma$ 's 1987Mo17,1968Er04

## Level Scheme

Intensities: Relative photon branching from each level

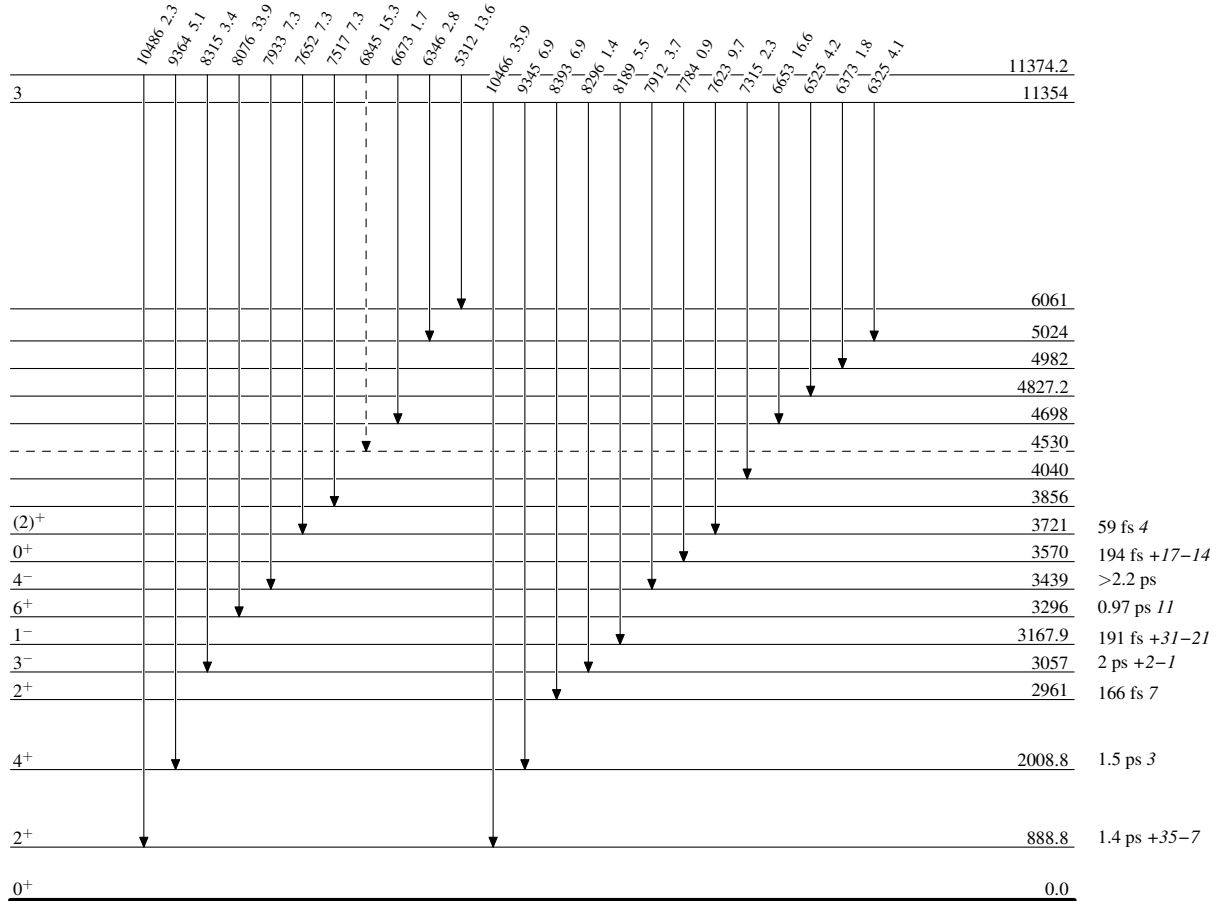
 $^{46}\text{Ti}_{24}$

$^{45}\text{Sc}(p,\gamma)$ : primary  $\gamma$ 's 1987Mo17,1968Er04

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain) $^{46}\text{Ti}_{24}$