## $^{173}$Yb($^{24}$Mg,X$\gamma$),$^{176}$Yb($^{23}$Na,X$\gamma$) 2012Fo25

| History | | | |
|---|---|---|---|
| Type | Author | Citation | Literature Cutoff Date |
| Full Evaluation | Coral M. Baglin | NDS 114, 1293 (2013) | 1-Sep-2013 |

$^{173}$Yb($^{24}$Mg,X$\gamma$):
E($^{24}$Mg)=134.5 MeV; 1 mg/cm$^2$ enriched $^{173}$Yb target with 7 mg/cm$^2$ Au backing; measured E$\gamma$, I$\gamma$, $\gamma\gamma$ coin using Gammasphere array (92 HPGe detectors) at the 88-inch cyclotron facility at LBNL.
$^{176}$Yb($^{23}$Na,X$\gamma$):
E($^{23}$Na)=129 MeV; 1 mg/cm$^2$ $^{176}$Yb enriched target on 10 mg/cm$^2$ Au backing; measured E$\gamma$, I$\gamma$, $\gamma\gamma$ coin using Gammasphere array with 100 HPGe detectors at LBNL.

### $^{91}$Y Levels

| E(level)[†] | J$^\pi$[‡] | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0 | $1/2^-$ | 58.51 d | $T_{1/2}$,J$^\pi$: from Adopted Levels. |
| 555.57 *5* | $9/2^+$ | 49.71 min | %IT>98.5<br>$T_{1/2}$,%IT,J$^\pi$: from Adopted Levels. |
| 1484.8 *4* | $(13/2^+)$ | | |
| 2156.7 *6* | $(17/2^+)$ | | |
| 2761.5 *7* | (15/2,17/2) | | |
| 3162.5 *7* | (15/2,17/2) | | |
| 3527.2 *7* | $(21/2^+)$ | | |
| 3567.6 *7* | (19/2,21/2) | | |
| 3732.8 *7* | (19/2,21/2) | | |
| 4064.0 *9* | | | |
| 4146.2 *7* | (23/2)[#@] | | |
| 4190.0 *9* | | | |
| 4480.4 *8* | $(25/2^+)$ | | |
| 4610.8 *9* | | | |
| 4807.5 *8* | | | |
| 5573.9 *9* | | | |
| 5777.3 *11* | | | |
| 6502.3 *11* | | | |
| 6895.3 *12* | | | |

[†] From least-squares fit to E$\gamma$.
[‡] Values proposed by 2012Fo25. consistent with their I$\gamma$ and $\gamma\gamma$ coin data, assuming J$^\pi$=9/2$^+$ for 556 level.
[#] $(25/2^+)$ was proposed In ($^{82}$Se,p2n$\gamma$) for 4146 level. However, 954$\gamma$ crossover from 4480 level to $(21/2^+)$ 3527 rules out stretched Q − Q character for the 334$\gamma$-619$\gamma$ cascade from the 4480 level through the 4146 level to the 3527 level, although $\pi$=− cannot be ruled out. placement of 954$\gamma$ is supported by $\gamma\gamma$ coin (2012Fo25).
[@] Differs from adopted value. See comment on J(4147) In Adopted Levels.

### $\gamma$($^{91}$Y)

| E$_\gamma$[†] | I$_\gamma$[‡] | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ |
|---|---|---|---|---|---|
| 327.0 *4* | 16.7 *20* | 4807.5 | | 4480.4 | $(25/2^+)$ |
| 334.2 *4* | 29.3 *30* | 4480.4 | $(25/2^+)$ | 4146.2 | (23/2) |
| 393.2 *9* | 3.2 *5* | 6895.3 | | 6502.3 | |
| 413.2 *7* | 9.3 *9* | 4146.2 | (23/2) | 3732.8 | (19/2,21/2) |
| 420.8 *9* | 1.0 *3* | 4610.8 | | 4190.0 | |
| 546.8 *9* | 2.5 *4* | 4610.8 | | 4064.0 | |
| 555.57[#] *5* | | 555.57 | $9/2^+$ | 0 | $1/2^-$ |
| 570.3 *7* | 5.0 *6* | 3732.8 | (19/2,21/2) | 3162.5 | (15/2,17/2) |

Continued on next page (footnotes at end of table)

## $^{173}$Yb($^{24}$Mg,Xγ),$^{176}$Yb($^{23}$Na,Xγ) 2012Fo25 (continued)

### γ($^{91}$Y) (continued)

| $E_\gamma$ [†] | $I_\gamma$ [‡] | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 578.6 *7* | 6.4 *8* | 4146.2 | (23/2) | 3567.6 | (19/2,21/2) |
| 619.0 *4* | 21.1 *20* | 4146.2 | (23/2) | 3527.2 | (21/2$^+$) |
| 671.9 *4* | 80 *4* | 2156.7 | (17/2$^+$) | 1484.8 | (13/2$^+$) |
| 766.4 *7* | 5.1 *7* | 5573.9 | | 4807.5 | |
| 806.2 *7* | 5.7 *8* | 3567.6 | (19/2,21/2) | 2761.5 | (15/2,17/2) |
| 928.5 *7* | 8.5 *8* | 6502.3 | | 5573.9 | |
| 929.2 *4* | 100.0 | 1484.8 | (13/2$^+$) | 555.57 | 9/2$^+$ |
| 953.5 *9* | 3.2 *6* | 4480.4 | (25/2$^+$) | 3527.2 | (21/2$^+$) |
| 963.2 *9* | 3.3 *5* | 5573.9 | | 4610.8 | |
| 1093.7 *9* | 3.1 *5* | 5573.9 | | 4480.4 | (25/2$^+$) |
| 1117.8 *9* | 1.7 *4* | 6895.3 | | 5777.3 | |
| 1276.8 *7* | 9.0 *8* | 2761.5 | (15/2,17/2) | 1484.8 | (13/2$^+$) |
| 1296.7 *9* | 3.3 *5* | 5777.3 | | 4480.4 | (25/2$^+$) |
| 1370.5 *4* | 28 *3* | 3527.2 | (21/2$^+$) | 2156.7 | (17/2$^+$) |
| 1410.8 *7* | 5.6 *7* | 3567.6 | (19/2,21/2) | 2156.7 | (17/2$^+$) |
| 1576.0 *7* | 5.7 *8* | 3732.8 | (19/2,21/2) | 2156.7 | (17/2$^+$) |
| 1677.7 *7* | 5.4 *7* | 3162.5 | (15/2,17/2) | 1484.8 | (13/2$^+$) |
| 1907.3 *9* | 2.2 *4* | 4064.0 | | 2156.7 | (17/2$^+$) |
| 2033.3 *9* | 1.2 *3* | 4190.0 | | 2156.7 | (17/2$^+$) |

[†] Uncertainty is reported to be 0.4-0.9 keV; the evaluator has assigned 0.4 keV for Iγ>10, 0.7 keV for Iγ=5-10 and 0.9 keV for Iγ<5.

[‡] Relative intensity from $^{173}$Yb($^{24}$Mg,Xγ) At E=134.5 MeV.

[#] from Adopted Gammas; γ not reported by 2012Fo25.

## $^{173}$Yb($^{24}$Mg,X$\gamma$),$^{176}$Yb($^{23}$Na,X$\gamma$) 2012Fo25

Level Scheme

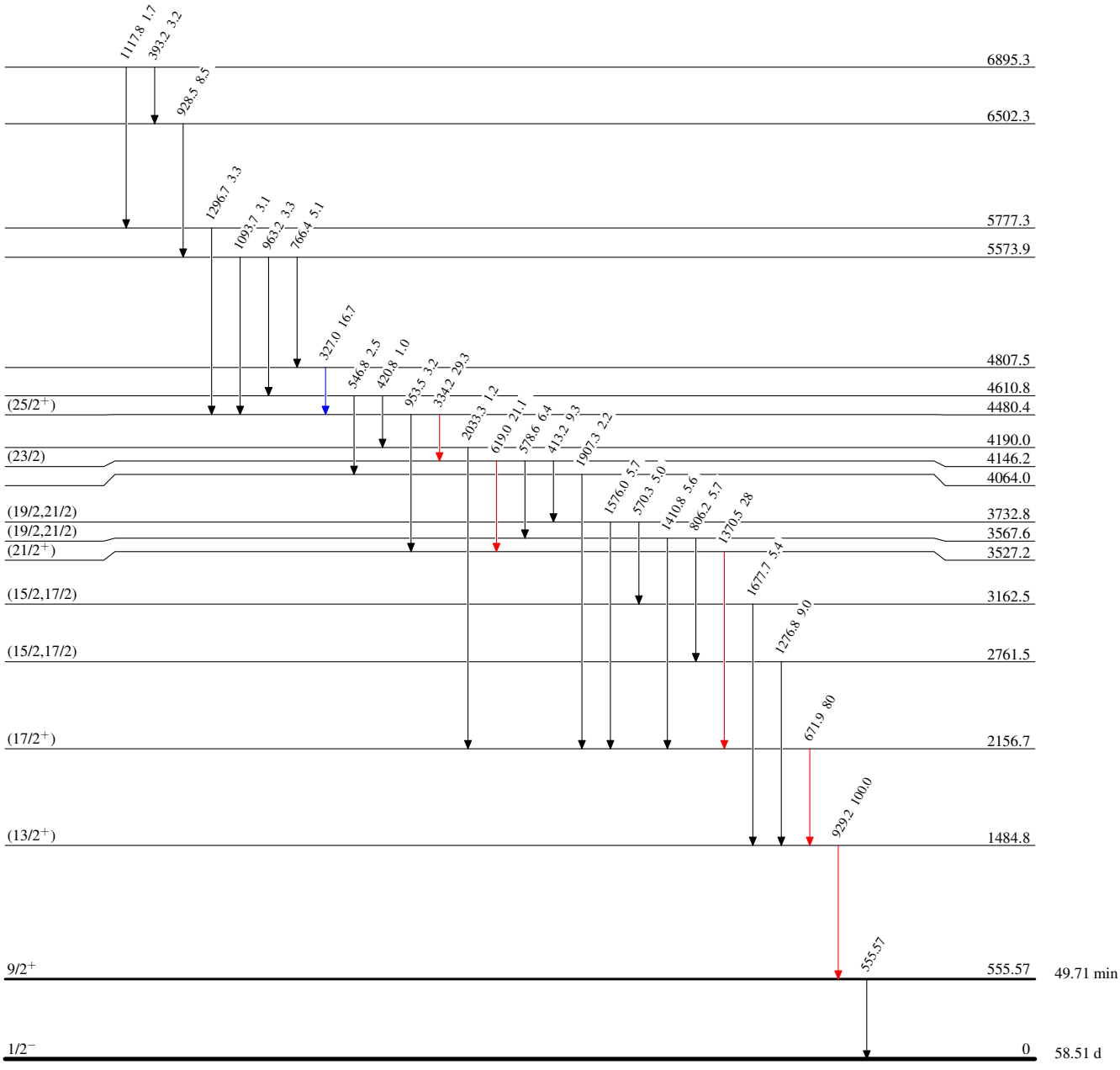
Intensities: Relative $I_\gamma$

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$




$^{91}_{39}Y_{52}$