## Adopted Levels, Gammas

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. Shamsuzzoha Basunia | NDS 151, 1 (2018) | 1-Apr-2018 |

Q($\beta^-$)=1.232×10$^4$ *SY*; S(n)=2.47×10$^3$ *SY*; S(p)=1.792×10$^4$ *SY*; Q($\alpha$)=−9.58×10$^3$ *SY* 2017Wa10
ΔQ($\beta^-$)=260, ΔS(n)=280, ΔS(p)=450, ΔQ($\alpha$)=360 (2017Wa10).
Production: 60.4 MeV/nucleon $^{86}$Kr beam fragmentation by $^{58}$Ni (1999So20); LISE3 achromatic mass spectrometer with 4 Si detectors in focal plane; measured B(t).

### $^{59}$Ti Levels

Cross Reference (XREF) Flags

A Be($^{238}$U,X$\gamma$)
B Ta($^{86}$Kr,X$\gamma$)
C $^{58}$Ni($^{76}$Ga,X$\gamma$)

| E(level) | J$^\pi$ | T$_{1/2}$ | XREF | Comments |
|---|---|---|---|---|
| 0.0 | (5/2$^-$) | 28.5 ms *25* | ABC | %$\beta^-$=100<br>J$^\pi$: From systematics of $^{55}$Ti and $^{57}$Ti nuclei.<br>T$_{1/2}$: Weighted average of 27.5 ms *25* (2011Da08) and 30 ms *3* (2005Ga01). Uncertainty − lower input value. Other: 58 ms *17* (1999So20). |
| 113.3 *23* | (1/2$^-$) | 594 ns *50* | ABC | J$^\pi$: Proposed in 2012Ka36, assuming 113.3$\gamma$ E2 to (5/2$^-$) g.s.<br>T$_{1/2}$: Weighted average of 587 ns *+57−51* (2012Ka36 − ($^{238}$U,X$\gamma$)), 590 ns *130* (2005Ga01 − ($^{76}$Ga,X$\gamma$)), and 600 ns *50* (2002MaZN − ($^{86}$Kr,X$\gamma$)). Uncertainty is the lowest input value. |

### $\gamma$($^{59}$Ti)

| E$_i$(level) | J$_i^\pi$ | E$_\gamma$ | E$_f$ | J$_f^\pi$ | Mult. | $\alpha^\dagger$ | Comments |
|---|---|---|---|---|---|---|---|
| 113.3 | (1/2$^-$) | 113.3 *23* | 0.0 | (5/2$^-$) | [E2] | 0.245 *5* | B(E2)(W.u.)=3.0 *4*<br>E$_\gamma$: Unweighted average of 117 keV *2* (2005Ga01 − ($^{76}$Ga,X$\gamma$)), 114 keV *2* (2002MaZN − ($^{86}$Kr,X$\gamma$)), and 109.0 keV *6* (2012Ka36 − ($^{238}$U,X$\gamma$)).<br>Mult.: Proposed in 2012Ka36 considering similar E2 isomers such as $^{54m}$Sc and $^{56m}$Sc. Higher multipolarities excluded, based on RUL. |

$^\dagger$ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on $\gamma$-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

## Adopted Levels, Gammas

### Level Scheme