## Adopted Levels

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | C. Morse | NDS 182, 167 (2022) | 14-Sep-2021 |

Q($\beta^-$)=−3860 *SY*; S(n)=5636 *SY*; S(p)=3321 *SY*; Q($\alpha$)=1.068×10$^4$ *6* 2021Wa16
ΔQ($\beta^-$)=933, ΔS(n)=920, ΔS(p)=869 (2021WA16).
S(2n)=12819 SY *808*, S(2p)=5510 SY *869* (2021WA16).

Four publications have reported the production of $^{293}$Lv through the $^{248}$Cm($^{48}$Ca,3n) reaction, two using DGFRS at JINR (2001OG01,2002OG09), one using SHIP at GSI (2012HO12), and one using GARIS at RIKEN (2017KA66). In the DGFRS experiments, $^{293}$Lv was originally identified as $^{292}$Lv, but the assignment was later revised. Evaporation residues from the reaction were implanted into position-sensitive silicon detectors, and identified by the observation of subsequent time- and position-correlated $\alpha$-decay chains terminated by spontaneous fission. Comparison of the decay chains with the properties of the known daughter nuclei allowed assignment of the evaporation residues to $^{293}$Lv. A total of seven events were positively identified, with another three events being considered tentative.

Half-lives, branching ratios, and $\alpha$-decay energies in this evaluation have been computed from the individual events listed in the references above. Half-life uncertainties have been computed according to the method of 1984SC13. An additional 10 keV systematic uncertainty is assumed for the $\alpha$-decay energies, which is added in quadrature to the averaged statistical uncertainty.

### $^{293}$Lv Levels

| E(level) | $T_{1/2}$ | Comments |
|---|---|---|
| 0 | 95 ms *+63−27* | %$\alpha$=100; %SF≤12.5<br>E(level): Assumed ground state.<br>$T_{1/2}$: From six events. |