## $^{260}$Sg $\alpha$ decay (4.95 ms) 2009He20,1985Mu11

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Balraj Singh | NDS 141,327 (2017) | 22-Mar-2017 |

Parent: $^{260}$Sg: E=0.0; $J^\pi=0^+$; $T_{1/2}$=4.95 ms *33*; Q($\alpha$)=9901 *10*; %$\alpha$ decay=29 *3*

$^{260}$Sg-$T_{1/2}$: Measured by 2009He20. Others: 3.6 ms *+9−6* (1985Mu11,from $\alpha$ decay curves); 2.5 ms *15* was deduced by 1984De07 from fission counts ($T_{1/2}$(SF)=6 ms *+2−1* was measured from SF activities, and the time distribution of fission fragments were utilized in calculation of the half-life by subtracting the SF activities of $^{256}$Rf, the $\alpha$ daughter; %$\alpha$>80 was assumed).

$^{260}$Sg-Q($\alpha$): From 2017Wa10.

$^{260}$Sg-%$\alpha$ decay: %$\alpha$=29 *3*, %SF=71 *3* (2009He20). Other: %$\alpha$=50 *+20−30* (1985Mu11).

$^{260}$Sg assignment: $^{207}$Pb($^{54}$Cr,n), $^{208}$Pb($^{54}$Cr,2n); parent of $^{256}$Rf (1984De07,1984Og03,1985Mu11).

1985Mu11: measured E$\alpha$, I$\alpha$, half-life.

2009He20: $^{260}$Sg produced in the $^{208}$Pb($^{54}$Cr,2n) and $^{207}$Pb($^{54}$Cr,n) reactions with the $^{54}$Cr beam delivered by the charge state injector of the UNILAC accelerator at GSI Darmstadt. Evaporation residues were separated by the velocity filter SHIP and implanted into a 16-strip Si PIPS detector. A box of six Si-wafers was used to measure escaping $\alpha$-particles. A Ge clover detector consisting of four crystals was used to measure $\gamma$ rays in coincidence with particles. Measured E$\alpha$, E$\gamma$, half-lives, $\sigma$.

### $^{256}$Rf Levels

| E(level) | $J^\pi$[†] | $T_{1/2}$[†] |
|---|---|---|
| 0.0 | $0^+$ | 6.67 ms *10* |
| 51 *35* | $(2^+)$ | |

[†] From Adopted Levels.

### $\alpha$ radiations

$r_0(^{256}Rf)$=1.456 fm *8* from assumption of HF=1.0 for g.s. to g.s. $\alpha$ transition.

| E$\alpha$ | E(level) | I$\alpha$[†‡] | HF | Comments |
|---|---|---|---|---|
| 9720 *30* | 51 | 17 *10* | 3.6 *22* | HF: deduced using $r_0(^{256}Rf)$=1.456 fm *8*.<br>E$\alpha$: from 1985Mu11. |
| 9750 *10* | 0.0 | 83 *10* | 1.0 | E$\alpha$: weighted average of 9770 *30* (1985Mu11) and 9748 *10* (2009He20). |

[†] $\alpha$ intensity per 100 $\alpha$ decays, measured by 1985Mu11.

[‡] For absolute intensity per 100 decays, multiply by 0.29 *3*.