^{148}Sm α decay

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

Parent: ^{148}Sm: E=0.0; $J^\pi=0^+$; $T_{1/2}=7\times10^{15}$ y *2*; Q(α)=1986.0 *12*; %α decay=100.0

$T_{1/2}(^{148}Sm)=8\times10^{15}$ y *2* was measured by 1968Ko06, 7×10^{15} y *3* by 1970Gu14. The r_0 parameter is calculated as 1.575 *15* for $T_{1/2}=8\times10^{15}$ y and 1.58 *3* for $T_{1/2}=7\times10^{15}$ y *3*. A similar trend to the r_0 values of Er isotopes suggests $r_0(^{144}Nd)=1.55$ *3*.

$T_{1/2}(^{148}Sm)=12\times10^{15}$ y *5* is obtained for $r_0=1.55$ *3* from calculations of r_0's as a function of half-lives. Although within their uncertainties they agree with each other, the r_0 value calculated by using the measured $T_{1/2}$ of 1968Ko06 fits the local trend better.

%α=100. The nucleus ^{148}Sm is β stable.

^{144}Nd Levels

E(level)	J^π
0.0	0^+

α radiations

Eα	E(level)	Iα[†][#]	HF[‡]	Comments
1932.3 *12*	0.0	100	1.0	Eα: calculated from Q(α)(^{148}Sm)=1986.0 *12*. Eα=1.96 MeV *2* (1970Gu14). Other measurement: Eα=1.90 MeV *5* (1968Ko06). Iα: only one α group was observed. An upper limit of 1.2×10^{-15} per 100 α decays is calculated for an unobserved α transition to the 2^+ state at 696.513 keV by requiring its hindrance factor to be greater than 1.0.

† α intensity per 100 α decays.

‡ $r_0(^{144}Nd)=1.57$ *2* is the rounded-down value of r_0 obtained by using $T_{1/2}(^{148}Sm)=8\times10^{15}$ y in calculations and by requiring Hf(1932.3α)=1.0.

Absolute intensity per 100 decays.