^{199}Bi α decay (24.70 min) 1950Ne77,1964Si11,1966Ma51

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 121, 395 (2014)	1-Mar-2014

Parent: ^{199}Bi: E=667 *4*; J^π=(1/2$^+$); $T_{1/2}$=24.70 min *15*; Q(α)=4933 *7*; %α decay≈0.01

^{199}Bi-%α decay: ε/a≈8×10^3 (1950Ne77), K x ray/a≈1×10^4 (1964Si11); ε/a< 0.028 (1970DaZM). Value from 1988Sc02.

Sources produced by ^{208}Pb(d,^{11}N) (1950Ne77) and ^{208}Pb(p,^{10}N) (1964Si11,1966Ma51).

1950Ne77: ^{208}Pb(d,^{11}N), E(d)=180 MeV; identification based upon excitation function, chemistry, and growth of ^{199}Tl daughter.

1964Si11, 1966Ma51: ^{208}Pb(p,^{10}N), E(p)=100-160 MeV; identification based upon mass separator.

For analysis, see 1978Va21.

The identification of the 5.486-MeV α with a ^{199}Bi excited state cannot be made with complete confidence since systematic gives 4820 keV *1000* (1975BoYG) for the ground-state Q(β^-)value, and this I not necessarily inconsistent with the observed Q(α) of 5599 keV *6*. Further, the $T_{1/2}$=27 min *1* reported for ce decay (1964Si11) lies relatively close to the more accurately determined $T_{1/2}(\alpha)$=24.70 min *15*. However, α decay from a (9/2$^-$) ^{199}Bi ground state would Be expected to populate the 483-keV (9/2$^-$) level In ^{195}Tl with a consequently even smaller energy release.

For the evaluations, see 1988Sc02 and 1986BrZQ.

^{195}Tl Levels

E(level)	J^π	$T_{1/2}$
0.0	1/2$^+$[†]	1.16[†] h *5*

[†] From Adopted Levels.

α radiations

Eα	E(level)	Iα[†]	HF	Comments
5484 *5*	0.0	100	≈65	Eα: from weighted average of 5.49 MeV *2* (1970DaZM), 5.49 *1* (1967Ti04), 5.481 *6* (1966Ma51), 5.52 *2* (1964Si11), 5.47 *6* (1950Ne77). HF: r_0=1.45. The α decay of ^{199}Bi(24.7 min) may be compared with that of the 846(1/2$^+$) level in ^{201}Bi.

[†] For absolute intensity per 100 decays, multiply by ≈0.0001.