^{249}Bk β^- decay 2014Ch47

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 195,718 (2024)	12-Oct-2023

Parent: ^{249}Bk: E=0; $J^\pi=7/2^+$; $T_{1/2}$=327.2 d *3*; Q(β^-)=123.6 *4*; %β^- decay=99.9986 *1*

^{249}Bk-Q(β^-): From 2021Wa16.

^{249}Bk-J^π,$T_{1/2}$: From Adopted Levels.

^{249}Bk-%β^- decay: From Adopted Levels.

2014Ch47: Half-life and β end-point energy for ^{249}Bk was measured at Argonne National Laboratory. The ^{249}Bk source was produced at High Flux reactor of Oak Ridge National Laboratory followed by chemical separation. For ^{249}Bk half-life measurement, the sample of ^{249}Bk source was mixed with 0.10 μCi of ^{137}Cs source and measured using γ-ray spectroscopy. An open thin source was used in electron counting to measure the β end-point energy. γ-rays were measured with a Ge detector with FWHM=1.8 keV at 1332.5 keV. The β- spectrum was collected using the PIPS detector with FWHM=3.0 keV. For half-life measurement, intensities of the Cm Kα_2 and Kα_1 x rays, 333.37γ and 388.17γ rays from the α decay of ^{249}Cf, and the 661.66-keV γ ray from ^{137}Cs decay were measured for 62.5 h once a week for 728 days. The half-life was deduced from the growth of 351-y ^{249}Cf activity, and the ratios of the intensities of x rays and γ rays.

1990Po14: Measured relative L and M x-ray intensities from the decay using the x-ray spectrometer.

1974Gl10: β spectrum was measured with stiblenn crystal detector. Maximum beta energy was determined via two different methods; curie graph and absorption method. ^{249}Bk half-life was from decay curve.

1959Va02: Measured beta spectrum from the decay of ^{249}Bk using a beta spectrometer, sodium iodide and anthracene crystal spectrometers. Determined maximum end-point energy from Fermi-Kurie plot.

1957Ea01: Determined half-life from decay data and estimated maximum β-particle from absorption curve.

Other: 1956Ch77.

^{249}Cf Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$9/2^-$	351 y *2*	J^π,$T_{1/2}$: From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(123.6 *15*)	0.0	100	7.019 *5*	av Eβ=32.28 *11* E(decay): 123.6 keV *4* (2014Ch47),123 *3* (1974Gl10), 125 *2* (1959Va02), 114 *15*(1957Ea01).

[†] For absolute intensity per 100 decays, multiply by 0.999986 *1*.