^{203}Tl(^{48}Ca,2nγ) 2021Go26,2020Br08,2019Br06

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

2021Go26: Fusion-evaporation experiment was performed with E(^{48}Ca)≈219 MeV from K130 cyclotron at the Accelerator Laboratory of the University of Jyvaskyla. The ^{203}Tl targets were ≈300 μg/cm^2 thick and surrounded by the SAGE spectrometer consisting of an electron spectrometer and the JUROGAM gamma-ray array. The fusion-evaporation residues were separated by RITU gas-filled separator and detected in the GREAT spectrometer which consisted of position-sensitive multiwire proportional counter (MWPC) that provides a TOF and energy-loss measurement and two Double-Sided Silicon Strip Detectors (DSSSD) where the residues were then implanted. Additional PIN diodes, a thick planar Ge detector, and four Ge clover detectors were used in the setup. Measured, Eγ recoil-electron recoil-electron-alpha correlations and $T_{1/2}$. Observed the high-K isomeric state.

2020Br08: Fusion-evaporation experiment was performed with E(^{48}Ca)=219 MeV from the Accelerator Laboratory of the University of Jyvaskyla bombarding ^{203}Tl targets (280 μg/cm^2 thick and 97.08% enriched). The fusion-evaporation residues were separated by RITU gas-filled separator and detected in a position- sensitive multiwire proportional counter (MWPC) that provides a TOF and energy-loss measurement. The residues are then implanted into a set of Double-Sided Silicon Strip Detectors. Measured Eγ, using 20 coaxial and 24 clover HPGe detectors and a 90-fold segmented Si detector.

2019Br06: Fusion-evaporation experiment was performed with E(^{48}Ca)≈210 MeV from the Accelerator Laboratory of the University of Jyvaskyla (JYFL). Fusion-evaporation residues were separated and selected using the Recoil Ion Transport Unit(RITU) gas-filled separator. At the focal plane of RITU, the separated residues were first detected in a position-sensitive multiwire proportional counter (MWPC) and then implanted into two adjacent double-sided strip detector (DSSDs). Measured energy spectra of subsequent α decays of residue recoils, recoil-α-correlations, recoil-α(t). Deduced production cross sections, α-decay $T_{1/2}$, branching ratio.

^{249}Md Levels

E(level)	J$^\pi$	$T_{1/2}$	Comments
0.0	(7/2$^-$)	26 s *1*	%α=75 *5* (2019Br06) J$^\pi$: From Adopted Levels. $T_{1/2}$: from recoil-α(t) in 2019Br06. %α: from counting of α decays of ^{249}Md and its ε/β^+-decay daughter ^{249}Fm, and known %α=15.6 *10* for ^{249}Fm α decay from 2012He09, with correction for the fraction of ^{249}Fm nuclide decaying during the search time of 600 s using $T_{1/2}$(^{249}Fm)=2.6 min *7* from Adopted Levels of ^{249}Fm. Production cross section=300 nb *80*(stat) at E(beam)=214.3 MeV *11* without degrader, 70 nb *40*(stat) at E(beam)=212.7 MeV *11* with degrader (2019Br06), 300 nb at E(beam)≈219 MeV (2021Go26).
≥910	(19/2$^-$)	2.8 ms *5*	E(level): From 2021Go26. $T_{1/2}$: From time distribution of recoil-electron correlation (2021Go26). J$^\pi$: From configuration. Configuration=π7/2$^-$[514]⊗5/2$^+$[622]⊗7/2$^+$[624] (2021Go26).

γ(^{249}Md)

E$_\gamma$	E$_i$(level)	Comments
^{x}387		E$_\gamma$: Most intense transition observed in the recoil-tagged spectrum by 2020Br08. The energy and characteristics is similar to to the tentatively placed 389γ at the 389-keV level in ^{251}Md (2020Br08).

^{x} γ ray not placed in level scheme.