EGU2020-16588, updated on 28 Oct 2021
https://doi.org/10.5194/egusphere-egu2020-16588
EGU General Assembly 2020
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Towards a revision of 234U and 230Th decay constants

Inga Kristina Kerber[1], Sophie Warken[1,2], Axel Gerdes[3], and Norbert Frank[1]
[1]Institute for Environmental Physics, Heidelberg University, Heidelberg, Germany (ikerber@iup.uni-heidelberg.de)
[2]Institute of Earth Sciences, Heidelberg University, Heidelberg, Germany
[3]Institute of Earth Sciences, Goethe University, Frankfurt, Germany

The quality of uranium-series ages depends on the accuracy and precision at which the decay constants of 234U, 230Th and 238U are determined. Here, we present intermediate results for a revision of the decay constants of 234U and 230Th. Therefore, we examined a selection of different materials in secular equilibrium using isotope dilution multi-collector inductively coupled plasma mass spectrometry (MC-ICP-MS). New approaches of our study in particular concern the characterization of routines for measuring all isotopes on Faraday cups, i. e. low abundance isotopes on cups with 10^13 Ohm amplifiers, and a different selection of materials in comparison to previous studies. λ_234 could be determined so far at a precision of 24 ε and agrees with the latest literature value of Cheng et al. (2013) within its error margins.