Supplement of Saf. Nucl. Waste Disposal, 2, 159–160, 2023
https://doi.org/10.5194/sand-2-159-2023-supplement

SaND
Safety of Nuclear
Waste Disposal
Open Access

Supplement of

X-ray absorption fine structure (XAFS)-based radionuclide research at the KIT Light Source

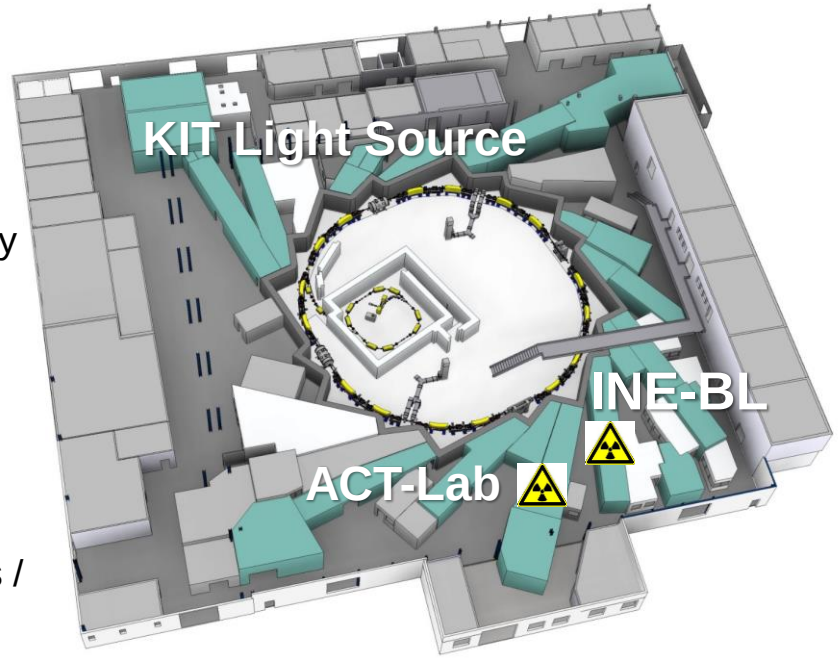
Jörg Rothe

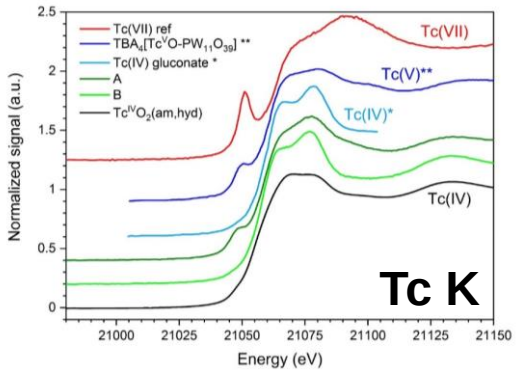
Correspondence to: Jörg Rothe (rothe@kit.edu)

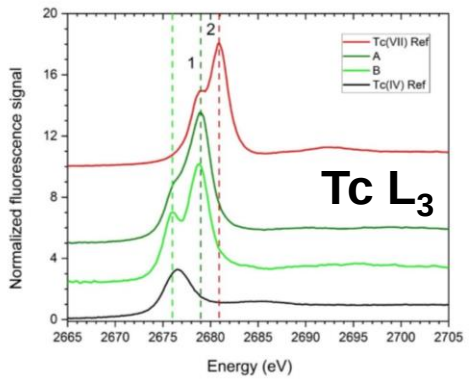
Poster Session II / S11: X-ray absorption fine structure (XAFS) based radionuclide research at the KIT Light Source

In the past two decades, X-ray absorption spectroscopy (XAS) and related synchrotron-based radionuclide speciation techniques have become indispensable for supporting open issues in fundamental radiochemistry and nuclear waste disposal safety research alike. Specialized beamlines at the KIT Light Source provide:

- direct chemical *in situ* speciation of pristine nuclear materials - encompassing fragments of highly active nuclear waste forms
- analysis of samples with activities up to 10^6 times the exemption limits and 200 mg U^{235}/Pu^{239}
- flexible containment concepts allowing to measure solids, liquids, gases and samples at non-ambient conditions
- a broad energy range from “tender” to hard X-rays
- worldwide unique infrastructure with close proximity between beamlines and radiochemistry labs / shielded box line on the same campus







Dual-edge XAFS speciation of Tc(IV,V)-gluconate complexes

K. Dardenne et al., Inorg. Chem. 2021