



Institut de Minéralogie et de Physique des Milieux Condensés
Unité Mixte de Recherche 7590
Code 115, 4 Place Jussieu F-75252 Paris CEDEX 05

SÉMINAIRE

Jeudi 29 novembre, 10h

*Salle de Conférence, 4ème étage, Tour 22-23, Salle 1
IMPMC, Université P. et M. Curie, 4, Place Jussieu, 75005 Paris*

Andreas SCHEINOST

*Helmholtz-Zentrum Dresden-Rossendorf, Institute of Radiochemistry, Dresden, Germany
Rossendorf Beamline at ESRF, Grenoble, France*

URANIUM (AND PLUTONIUM) AT SOLID/WATER INTERFACES: LESSONS TO BE LEARNED FROM X- RAY ABSORPTION SPECTROSCOPY

X-ray absorption spectroscopy is a versatile tool to investigate oxidation state and molecular structure of uranium in aqueous and solid phases and at their common interface. However, the structural analysis is often hampered by limited resolution and range. I will show recent advances to overcome these limitations, including improved XAFS data analysis approaches like Monte-Carlo and Landweber methods and modern data mining methods; and coupling to XAFS-independent methods like DFT and surface complexation modeling.

I will demonstrate the usefulness of these methods by showing recent results on uranyl sorption to mineral surfaces, with a focus on polynuclear and carbonate complexes; Fe(II)-driven interfacial redox processes of uranyl, also in comparison to other actinoides; colloid formation processes of U(IV) and its tetravalent actinoid neighbors.