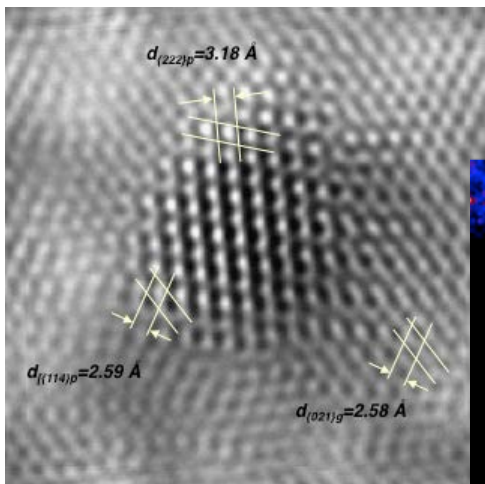


Subsurface Biogeochemistry of Actinides

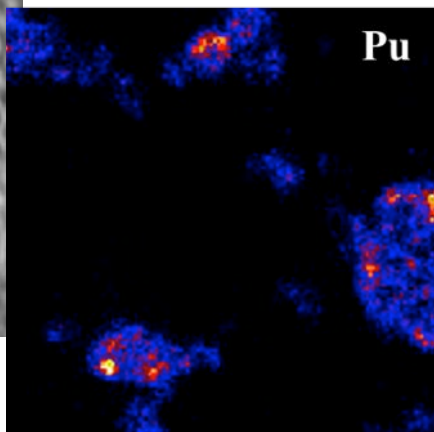


Research Overview

Identify the dominant biogeochemical processes and the underlying mechanisms that control actinide transport (focusing on Pu and Np) in an effort to reliably predict and control the cycling and mobility of actinides in the subsurface.



TEM of Pu_4O_7 colloids on goethite surface



NanoSIMS of Pu in Hanford sediments

Potential Collaborations

- Surface mediated Pu redox processes
- Pu surface precipitation and coprecipitation with minerals
 - TEM/NanoSIMS analysis of Pu morphology and distribution
- Role of microbial exudates in Pu redox chemistry
 - GC-MS of redox active
- Field scale observations
 - Radionuclide migration in Sellafield estuary (Manchester, KIT)
 - Pu and Np migration at Savannah River Site (Clemson)

Previous Dissertations

- Cs sorption reversibility (Chad Durrant, Penn State, 2016)
- Pu biogeochemistry with Natural Organic Matter (Nate Conroy, Clemson, 2016)
- Ultratrace Np analysis of Sellafield sediments (Daisy Ray, Manchester, 2015)