**Jordan Stanberry**

Postdoctoral Research Associate

Chemical & Isotopic Mass Spectrometry Group

Chemical Sciences Division

Oak Ridge National Laboratory

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# Education

University of Central Florida Dec 2023

Ph. D. in Chemistry

University of Central Florida May 2019

B.S. in Chemistry

Seminole State College May 2016

A.A. in General Science

# Experience

FEB 2024 – PRESENT

Postdoctoral Research Associate – Oak Ridge National Laboratory

* Research Focus: Single Particle – Inductively Coupled Plasma – Mass Spectrometry
* Engaged in collaborative NNSA related research efforts for several projects.
* Development of novel instrumental techniques for the detection and characterization of nanoparticles.
* Operation of Inducively Coupled Plasma – Triple Quadrupole – Mass Spectrometer, Inductively Coupled Plasma – Time of Flight – Mass Spectrometer, and Scanning Electron Microscope.

AUG 2019 – DEC 2023

Graduate Research Assistant – University of Central Florida

Teaching:

* Responsible for two sections of Analytical Chemistry Laboratory
* Instructed and mentored students in a teaching laboratory setting.
* Ensured procedures were followed safely.
* Graded weekly lab reports.

Research:

* Studies on oxidative dissolution of technetium oxide (99TcO2) by redox active minerals under different geochemical conditions, focusing on anaerobic environments.
* Interface redox chemistry between technetium oxide and Mn(III)-ligand oxidizing complexes: kinetic, speciation and surface characterization studies.
* Synthesis of technetium sulfides & stability as a function of pH, ionic strength, and presence of inorganic ligands.
* Ligand promoted dissolution of radionuclide sparingly soluble phases.
* Sample analysis using ICP-MS, UV-Vis Spectroscopy, SEM, Liquid Scintillation Counting (α-, β- discrimination), XRD, IC, IR, Raman, and XRF.

JUNE 2022 – AUG 2022

Glenn T. Seagbord Institute Summer Intern – Lawrence Livermore National Laboratory

* Studied the geochemical processes controlling plutonium and cesium transport in sediment cores from the Nevada National Security Site (NNSS).
* Performed full qualitative X-Ray Diffraction analysis of NNSS sediment cores, including sample preparation, instrument operation and data analysis via Profex refinement software.
* Extracted Plutonium from sediment cores via column chemistry for multicollector inductively coupled plasma mass spectrometry (MC-ICP-MS) analysis.
* Determined Total Organic Carbon content of sediment cores using a TOC analyzer.
* Analyzed Gamma Spectrometry data to determine Cesum-137 concentrations in sediment cores.

# SKILLS

* Analytical Techniques: ICP-MS (Inductively Coupled Plasma Mass Spectrometry), Tandem IC-ICP-MS (Ion Chromatograph – Inductively Coupled Plasma Mass Spectrometry), Liquid Scintillation Counting, UV-Vis Spectroscopy, XRD (X-Ray Diffraction), XRF (X-Ray Fluorescence), Infrared Spectroscopy, Raman Spectroscopy, IC (Ion Chromatography), XPS (X-ray Photoelectron Spectroscopy), Gamma Spectrometry, and SEM (Scanning Electron Microscopy).
* Extensive experience with ICP-MS, including: instrument operation, maintenance, tuning, calibration, method development and optimization, interference correction, and sample preparation (both environmental and synthetic).
* Extensive experience working within an anaerobic glovebox.
* Extensive experience maintaining an anaerobic glovebox and associated vacuum pump, including: gas cylinder replacement, catalyst regeneration, catalyst replacement, filter replacement, oil changes, glove replacement.
* Knowledge and Experience in the proper handling, storage, and disposal of radioactive materials, as well as lab safety (contamination surveys and de-contamination procedure).
* Data processing using Origin, Match! (XRD analysis), Profex (XRD analysis), IR Master, Qtegra (ICP-MS), Hydra/Medusa (thermodynamic speciation), Excel.

# Publications

(10) **Stanberry, J.**; Andrew, H.; Thompson, C.; Ticknor, B.; Manard, B. **Microextraction – single particle - inductively coupled plasma – mass spectrometry for the direct analysis of nanoparticles on surfaces**. Submitted to *Analytical Chemistry 2024*.

(9) Szlamkowicz, I.; **Stanberry, J.**; Hager, T.; Hunley, L.; Anagnostopoulos, V. **The importance of filtration in technetium and iodine experiments**. *Journal of Radioanalytical and Nuclear Chemistry* 2024, 1-7.

(8) Ruiz-Garcia, M.; **Stanberry, J.**; Ribeiro, G. B.; Anagnostopoulos, V. **Oxidative dissolution of Cr (OH) 3 and mixed Fe-Cr (III) phases by aqueous Mn (III)-pyrophosphate complex**. *Journal of Environmental Sciences* 2024, 139, 105-113.

(7) Snyder, M.; Hunley, L.; **Stanberry, J.**; Szlamkowicz, I.; Jones, B.; Anagnostopoulos, V. A **Preliminary Sorption Study of Uranium on MnO2 (Pyrolusite) in the Presence of Siderophore Desferrioxamine B—The Mechanism of a Ternary System**. *Water* 2023, 15 (18), 3241.

(6) Szlamkowicz, I. B.; Fentress, A. J.; Longen, L. F.; **Stanberry, J. S.**; Anagnostopoulos, V. A. **Transformations and Speciation of Iodine in the Environment as a Result of Oxidation by Manganese Minerals**. *ACS Earth and Space Chemistry* 2022, 6 (8), 1948-1956.

(5) Szlamkowicz, I.; **Stanberry, J.**; Lugo, K.; Murphy, Z.; Ruiz Garcia, M.; Hunley, L.; Qafoku, N. P.; Anagnostopoulos, V. **Role of manganese oxides in controlling subsurface metals and radionuclides mobility: a review**. *ACS Earth and Space Chemistry* 2022, 7 (1), 1-10.

(4) Pilevar, M.; Hwang, J.-H.; **Stanberry, J.**; Anagnostopoulos, V.; Chumbimuni-Torres, K.; Lee, W. H. **Bismuth-chitosan nanocomposite sensors for trace level detection of Ni (II) and Co (II) in water samples**. *Water* 2022, 14 (3), 302.

(3) **Stanberry, J.**; Szlamkowicz, I.; Purdy, L. R.; Anagnostopoulos, V. **TcO 2 oxidative dissolution by birnessite under anaerobic conditions: a solid–solid redox reaction impacting the environmental mobility of Tc-99**. *Environmental Science: Processes & Impacts* 2021, 23 (6), 844-854.

(2) **Stanberry, J.**; Szlamkowicz, I.; Magno, D.; Shultz, L.; Anagnostopoulos, V. **Oxidative dissolution of TcO2 by Mn (III) minerals under anaerobic conditions: Implications on technetium-99 remediation**. *Applied Geochemistry* 2021, 127, 104858.

(1) Hwang, J.-H.; Fox, D.; **Stanberry, J.**; Anagnostopoulos, V.; Zhai, L.; Lee, W. H. **Direct Mercury Detection in Landfill Leachate Using a Novel AuNP-Biopolymer Carbon Screen-Printed Electrode Sensor**. *Micromachines* 2021, 12 (6), 649.

# Manuscripts Under Preparation

(1) **Stanberry, J**.; Russel, I.; Morgan, K.; Ronchetti, Z.; Carroll, T.; Anagnostopoulos, V., Tc(IV) **Oxidation and Mobilization of Tc-99 Reduced Phases by Mn(III)-Pyrophosphate Aqueous Complexes Under Anoxic Conditions: Implications for Remediation of a Risk Driving Radionuclide**.

# Presentations

## Oral

(7) **J. Stanberry**, H. Andrews, B. Ticknor, C. Thompson, B. Manard. **MicroExtraction-ICP-MS for the Direct Analysis of Nanoparticles Loaded on a Solid Surface**. ORPA Symposium, 2024, Oak Ridge, TN

(6) **J. Stanberry**, Z. Ronchetti, T. Carroll, V. Anagnostopoulos. **Oxidative Dissolution of Tc-99 by Aqueous Mn(III) Under Anoxic Conditions: Redox Mediated Mobilization of a Risk Driving Radionuclide**. ACS, Spring 2023, Indianapolis, IN

(5) **J. Stanberry**, Z. Murphy, V. Anagnostopoulos. **The Proliferation of Tc-99 as Affected by Ferrous Reductants and Manganous Oxidants: a Battle of Oxidations States**. ACS, Fall 2022, San Diego, CA

(4) **J. Stanberry**, K. Morgan, I. Russelll, S. Long, B. Pereira. Anagnostopoulos. **Rapid Oxidation of TcO2 by Aqueous Mn(III)-Pyrophosphate Under Anoxic Conditions: A Liability for the Remediation of Technetium-99**. ACS, Spring 2022, San Diego, CA

(3) **J. Stanberry**, K. Morgan, S. Long, B. Pereira, V. Anagnostopoulos**. Manganese(III)-Ligand Complexes as Major Oxidizing Agents Affecting TcO2 Stability Under Anaerobic Conditions**. Remplex Summit, Fall 2021, Richland, WA

(2) **J. Stanberry**, I. Szlamkowicz, A. Grabe, V. Anagnostopoulos. **Survey of redox reactive manganese oxides and their role in oxidative dissolution of TcO2**. Young Investigator Symposium, Spring 2020 ACS, Philadelphia, PA

(1) **J. Stanberry**, I. Szlamkowicz, A. Grabe, V. Anagnostopoulos. **Manganese oxide geochemical controls over Tc-99 fate in the environment: TcO2 oxidative dissolution**. Southeast Regional ACS Meeting 2019, Savannah, GA

## Poster

(6) **J. Stanberry**, N. Wasserman, A. Kersting, M. Zavarin. A Case Study of Radionuclide Migration at the Nevada National Security Site: Attenuation of Cesium and Plutonium by Pond Sediments. *Waste Management Symposia, 2023, Phoenix, AZ*

(5) **J. Stanberry**, I. Szlamkowicz, L. Shultz, V. Anagnostopoulos. Oxidative Dissolution of TcO2 by Manganese Oxides Under Anoxic Conditions. *Waste Management Symposia, 2021, Phoenix, AZ*

(4) **J. Stanberry**, I. Szlamkowicz, L. Purdy, V. Anagnostopoulos. Oxidative Dissolution of TcO2 by Synthetic Birnessite Under Anaerobic Conditions. *57th Annual Meeting of the Clay and Mineral Society, Fall 2020, Richland, WA*

(3) **J. Stanberry**, J. Chang, D. Jagodic, V. Anagnostopoulos. Kinetic rate comparison of technetium sulfide and technetium oxide dissolution in bicarbonate systems. *Spring 2020 ACS, Philadelphia PA*

(2) **J. Stanberry**, V. Anagnostopoulos. Effect of pH ionic strength and presence of ligands in the dissolution of technetium (IV) sulfides. *2019 Florida ACS Meeting, Palm Harbor, FL*

(1) **J. Stanberry**, V. Anagnostopoulos. Technetium sulfide as a potential immobilization form for Tc-99 in the environment: stability and dissolution studies under oxidizing conditions. *2019 Waste Management Symposium, Phoenix, AZ*

# Awards

* 2021 National Award in Innovations in Nuclear Research & Technology from the Department of Energy in the category of Nuclear Fuel Disposal (2nd Place). The award was accompanied by a monetary award.
* 2021 ACS Graduate Student Award in Environmental Chemistry
* Fall 2020 Clay and Mineral Society Travel Grant
* 2019 ACS Undergraduate Student Award in Environmental Chemistry
* UCF Student Travel Award for participation and presentation in Waste Management Symposium (2019)