IAN COLLIARD, PH.D.
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LINKEDIN | GOOGLE SCHOLAR | LANGUAGES: ENGLISH (NATIVE), SPANISH (NATIVE), FRENCH (PROFICIENT)

LABORATORY & TECHNICAL SKILLS

Synthesis & Handling: Air-sensitive techniques; aqueous & microscale; actinide/lanthanide complexes; metallic aerogels; Polyoxometalate synthesis & functionalization; nanowire synthesis; radioactive material worker (Th, U, Np, Pu, Am, Cm, Cf)
Characterization: SCXRD, PXRD, PDF, SAXS; IR, Raman, luminescence spectroscopy; multinuclear NMR (^{1}H, ^{13}C, ^{31}P, ^{119}Sn, ^{183}W); SEM, AFM, X-ray tomography, etc.
Instrumentation & Management: XRD facility management (Rigaku, Bruker); maintenance, service requests, financial oversight; user training, safety compliance, inventory, waste management, scheduling coordinator,
Software & Data Analysis: Crystallographic software (OLEX2, Chrysalis, JANA); data analysis & reporting (Igor, Origin, Excel, Word); Coding (Python); Graphic design (CorelDraw, inkscape).

EDUCATION

Ph.D., Materials Chemistry, Oregon State University, Corvallis, OR (2017 – 2022)
Advisor: Dr. May Nyman; *Dissertation focus*: Metal-oxo cluster chemistry of actinides (Th, U) and Ce; synthesis and structural characterization of polyoxometalate complexes.
B.S., Chemistry Fordham University, Bronx, NY (2014 – 2017)

RESEARCH EXPERIENCE

Lawrence Livermore National Laboratory (LLNL) – *Postdoctoral Researcher & XRD Facility Manager* (2022–Present)
Advisors: Dr. Gauthier Deblonde & Dr. Tyler Fears

- Pioneered micro-scale synthesis of lanthanide and transplutonium polyoxometalate complexes, enabling first structural characterization of curium–POM compounds at the microgram scale (*Nature Chemistry*, *ChemComm*).
- Developed synthetic strategies to modulate optical and spectroscopic properties of *f*-element complexes, revealing coordination trends between lanthanides and actinides (*JACS Au*).
- Fabricated multi-component metallic aerogels (Ag, Au) via novel routes, enhancing structural stability and catalytic activity.
- Managed and optimized three X-ray diffraction instruments (Rigaku SCXRD, Bruker D8, D2 Phaser) supporting 20+ research groups annually; led safety oversight, user training, and scheduling.
- Solved and refined 100+ crystal structures in support of multi-lab, multi-disciplinary projects.

Lawrence Livermore National Laboratory – *DOE SCGSR and GEM Fellow* (Feb–Aug 2021)
Advisor: Dr. Gauthier Deblonde

- Designed and implemented synthetic and spectroscopic methods for transplutonium–POM complexes, culminating in the isolation of novel curium coordination compounds (Nature Chemistry)

Oregon State University, Corvallis, OR – *Graduate Research Assistant (Jan 2018 – March 2022)*
Advisor: Dr. May Nyman

- Expanded aqueous actinide chemistry (Th, U, Ce) through controlled cation-mediated synthesis, isolating clusters from 1–70 metal centers and advancing understanding of metal–oxo assembly.
- Synthesized and functionalized tungsten polyoxometalates with organotin ligands to enhance actinide binding and tune solubility.
- Applied SCXRD, SAXS, and multinuclear NMR to establish structure–property relationships, contributing to 10+ peer-reviewed publications.

Fordham University, Bronx, NY – *Undergraduate Research Assistant (Jan 2016 – June 2017)*
Advisor: Prof. Christopher Koenigsmann

- Investigated bi-metallic nanowire synthesis for electrochemical glucose sensing, optimizing core–shell fabrication and electrochemical performance.

FELLOWSHIPS AND AWARDS

- **Lindau Nobel Laureate Fellowship**, LLNL – 2025
- **PLS Directorate Winter Scientific & Technical Award**, LLNL – 2024
- **Director's Excellence in Publication Award**, LLNL – 2023
- **PLS Directorate Winter Publication Award**, LLNL – 2023
- **GEM Consortium Fellowship**, National GEM Consortium – 2019
- **DOE SCGSR Fellowship**, U.S. Department of Energy – 2019
- **NSF GRFP Honorable Mention**, National Science Foundation – 2018

CONFERENCE PRESENTATIONS

Oral Presentations

- *Polyoxometalate ligands reveal different coordination chemistries among lanthanides and heavy actinides* – ACS National Meeting, San Francisco, CA (2023)
- *Actinide–Oxide Cluster: Structure and Properties* – Actinide Center of Excellence Meeting, Pojoaque, NM (2018)
- *Core-Shell Platinum Coated Nickel Nanowires as Electrochemical Catalysts for Glucose Sensors* – Undergraduate Research Symposium, Fordham University, NY (2017)

Poster Presentations

- *Effects of Metal Ions on Uranium(IV) Sulfate Speciation and Supra-molecular Assembly* – FMOCS VI, Corvallis, OR (2019)
- *Synthesis and Characterization of Novel Uranium Sulfate Frameworks: From Simple Dimeric Species to Hetero-Metallic Frameworks* – ACS NORM, Portland, OR (2019)
- *Synthesis and Investigation of Tetravalent Uranium Sulfate Speciation* – NNSA SSAP Symposium, Albuquerque, NM (2019)
- *Synthesis and Investigation of Mono- and Poly-nuclear Actinide POM Complexes* – SACNAS National Conference, San Antonio, TX (2018)
- *Synthesis and Investigation of Mononuclear Actinide POM Complexes* – ACS Northwest Regional Meeting, Richland, WA (2018)

TEACHING AND OUTREACH EXPERIENCE

- Graduate School Ambassador, Oregon State University – 2018–2022
- SACNAS Volunteer Mentor, Oregon State University – 2018–2022
- Chair and Organizer, SACNAS Symposium "Opportunities in Actinide Chemistry" – 2019
- Teaching Assistant, Oregon State University – 2017
- Volunteer Tutor, Fordham University – 2016–2017

PROFESSIONAL ASSOCIATIONS

- American Chemical Society
- IUCr Crystallographer
- Society of the Advancement of Chicano and Native American in the Sciences
- Sigma Xi