

## **Dissertations resulting from research done at GSECARS**

### **2024**

Jianshu Duan, "Abiotic Transformation of Terrestrial Natural Organic Matter Probed by Multimodal Spectroscopy", Ph.D., Princeton University, 2024

### **2023**

Ellen G., Huggins, "Applications and examination of techniques used to determine magma storage and ascent timescales in arc volcanoes", Ph.D., University of Nevada, Reno, 2023.

Jasmine K. Hinton, "Response of the Isothermal Mode Gruneisen Tensor Across Phase Boundaries", Ph.D., University of Nevada, Las Vegas, 2023.

Janine Louise Andrys, "Water and Oxygen Fugacity in Subduction Zone Magmatism", Ph.D., University of Rhode Island, 2023.

Yize Pan, "Thermo-Mechanics of Sands", Ph.D., Northwestern University, 2023

Xinyi Liu, "Insight into the Nanostructure of "Water-In-Salt" Solutions: A SAXS/WAXS Study on IMIDE-Based Lithium Salts Aqueous Solutions", Ph.D., Northern Illinois University, 2023.

Jianbo Jin, "Study of Halide Perovskites at the Level of Ionic Octahedron", University of California, Berkeley, 2023

Joshua F Martin, "High-Precision Equations of State and Their Application to Terrestrial Planets", Ph.D., Ohio State University, 2023

Lydia Ann Pinkham, "New Insights to Angrite Petrogenesis: An Experimental Study of Crystal-Melt Partitioning Behavior of Iron and Chromium in Angritic Magmas", M.S., University of Colorado Boulder, 2023.

Nathan Z. Koocher, "Negative Thermal Expansion in Perovskite-Type Oxides and Sulfides", Ph.D., Northwestern University, 2023.

Ali K. Shargh, "Mechanics of Materials with Engineered Microstructures: Physics-Based Modeling and Deep Learning Investigation", Ph.D., University of Rochester, 2023.

Julie Junesoo Kim, "Mineral C precipitation and Mapping for Applications in Toxic Element Treatment and CO2 Sequestration", Ph.D., Princeton University, 2023.

Junjie Dong, "Water and Phase Transitions in Rocky Planetary Interiors", Ph.D., Harvard University, 2023.

Jackie M. Kleinsasser, "Sulfur Content and Speciation in Dacitic Silicate Melts as a Function of Oxygen Fugacity and the Genesis of Fe-Ti Oxide-Bearing Ultramafic Intrusions of the Duluth Complex, MN", Ph.D., University of Michigan, 2023.

Marko Kudrna Prasek, "Fractionation processes of platinum-group-elements in natural systems and experiments", Ph.D, McGill University, 2023.

Anthony Feldman, "Climatic Influences on Incipient Alteration in Mars-Relevant Ultramafic Soils" Ph.D., University of Nevada, Las Vegas, 2023.

Jiaming He, "Synthesis and Crystal Growth of Complex Oxides With Novel Physical Properties", Ph.D., University of Texas at Austin, 2023.

Hongze Li, "Investigation on the Structure-Property Relationship In Transition-Metal and Rare-Earth Perovskite Oxides", Ph.D., University of Texas at Austin, 2023.

## **2022**

Wenyi Zhou, "Single-crystal elasticity of Earth's mantle transition zone minerals and High pressure-temperature phase equilibrium experiments on Martian basalts", The University of New Mexico, Ph.D., 2022.

Ming Hao, "Single-Crystal Elasticity of Clinopyroxenes and the Viscosity of Kimberlite Magma Under High Pressure-Temperature Conditions", The University of New Mexico, Ph.D., 2022.

Yanyao Zhang, "Elasticity Across the Post-Stichovite Transition in Subducted Basalt", University of Texas Austin, Ph.D., 2022.

Andrew Charles Strzelecki, "Thermodynamics and Structure of Lanthanide and Actinide Silicates and Phosphates Under Extreme Conditions", Washington State University, Ph.D., 2022.

Xin Wang, "Interfacial Engineering of Nickel-Rich Layered Oxide Cathodes via Atomic Layer Deposition", University of Arkansas, Ph.D., 2022.

Tushar Bhowmick, "Pressure Effects on Fermi Surfaces of Lithium and Electronic and Structural Characterization of Superconducting and Magnetic Materials", University of Utah, Ph.D., 2022.

Sibo Chen, "Elasticity of Subducted Minerals at High Pressure and High Temperature and Their Implications for Seismic Anomalies in the Earth's Interior", State University of New York at Stony Brook, Ph.D., 2022.

Suzanne Renae Mulligan, "The Application of Detrital Zircon Geochronology, Pressure-Temperature Modeling, Monazite Petrochronology, and Quartz-In-Garnet Elastic Geobarometry to the Tectonic Evolution of the Funeral Mountains and Related Metamorphic Core Complexes", University of Nevada Las Vegas, Ph.D., 2022.

Mario R. Calderon Cueva, "On Thermal Transport and Its Relationship with Bond Stiffness in Materials for Thermoelectric Applications", Michigan State University, Ph.D., 2022.

Siheng Wang, "Elasticity of Iron and Iron-Nickel Alloys at High Pressure and High Temperature: Implication for Earth's and Planetary Cores", Stony Brook University, Ph.D., 2022.

Martin Ottesen, "High-pressure structural investigation of exotic perovskites", Aarhus University, Ph.D., 2022

Dawa Seo, "Multi-Scale Assessment of the Role of the Particle Shape on the Crushability of Sand", Northwestern University, Ph.D., 2022.

Ashwin Ambi, "Understanding the Role of Copper in Alzheimer's Disease and Cerebral Angiopathy", State University of New York at Stony Brook, Ph.D., 2022.

Harrison Allen-Sutter, "Chemical Reactions of Planetary Materials under Extreme Redox Conditions", Arizona State University, Ph.D., 2022.

Erin M. Recchuiti, "[Understanding Hydrogen Variations in Silicate Glasses as a Result of Degassing: Fire-Fountaining on the Moon and Earth](#)", M.S., University of Tennessee, Knoxville, 2022

Azhad Chowdhury, "[Geochemical Factors Affecting the Transport and Reactivity of Metals and Pyrite Colloids in Coal Mine Spoils](#)", Ph.D., Kent State University, 2022.

Erin M. Recchuiti, "[Understanding Hydrogen Variations in Silicate Glasses as a Result of Degassing: Fire Fountaining on the Moon and Earth](#)", Master Thesis, University of Tennessee, Knoxville, 2022.

Dongyoun Chung, "Changes in crystal structures of metal oxide/ hydroxide minerals during dissolution and heating: An In-situ synchrotron X-ray diffraction study", Master Thesis, Pennsylvania State University, 2022.

Anne Hope Davis, "The Chemical and Physical Properties of Carbon-Bearing Phases in the Deep Earth", Ph.D., The University of Chicago, 2022.

Avishek Rudra, "Ferric Iron Partitioning Between Pyroxene and Melt: Experiments, Microbeam Analysis, and Consequences for Mantle Redox," Ph.D., University of Minnesota, 2022.

Sassan Hajirezaie, "Mineral Precipitation Fractures for Subsurface Energy Applications: Multiscale Imaging, Geochemical Reactive Transport Modeling, and Laboratory Experiments", Ph.D., Princeton University, 2022.

Alwin James, "[Discovery of novel metal oxynitride photocatalysts using combinations of in-situ X-ray diffraction and crystal structure prediction](#)", Ph.D., Stony Brook University, 2022.

John M. Harmon, "[Predicting the Strength of Planetary Surfaces,](#)" Ph.D., California Institute of Technology, 2022.

Julia Neumann, "[Structural investigation of the retention of actinides and their transition metal homologues on selected aluminosilicate phases,](#)" Ph.D., Technical University of Dresden, Dresden, 2022.

## 2021

Inva Braha, "[Sorption of Metals at the Barite \(001\)-Water Interface](#)", M.S., Queen's College, City University of New York, 2021.

Cassidy R. VanderSchee, "Distribution and Speciation of Tungsten in Bone", Ph.D., McGill University, 2021.

Benjamin Lee Brugman, "[Strength, Deformation and Compression Behavior of Tungsten Carbide, Krypton, and Xenon Under Quasi-Static Loading](#)," Ph.D., Michigan State University, 2021.

Sharon Ellman, "[EVALUATING CONTACT ANGLE HYSTERESIS IN POROUS ROCKS BASED ON MICRO-CT IMAGING DATA A STUDY ON PORE-SCALE FLUID DISPLACEMENTS DURING IMBIBITION IN POROUS MEDIA](#)," M.S., Ghent University, 2021.

Jessica Lessing, "[Untersuchung der Wechselwirkungen von dreiwertigen Actiniden \(Am, Cm\) und ihrer Seltenerdhomologe \(Eu, Y\) mit synthetischem Ca-Feldspat](#)," M.S., Technische Universität Dresden, 2021.

Gill Levental, "THERMAL CHARACTERIZATION AND CRYSTAL GROWTH OF THE GERMANIUM TELLURIDE-TIN TELLURIDE SYSTEM," M.S., Michigan State University, 2021.

Ziyu Li, "A Nanoseismological Study on Acoustic Emission Events in High-Temperature and High-Pressure Rock Deformation Experiments," Ph.D., Saint Louis University, 2021.

Mingda Lyu, "Carbon and Nitrogen in Earth and Planetary Interiors," Ph.D., Michigan State University, 2021.

Vahe Mkrtychyan, "SYNTHESIS, X-RAY ABSORPTION, AND X-RAY DIFFRACTION SPECTROSCOPY STUDIES OF URANIUM BASED HEAVY FERMION SYSTEMS," Ph.D., University of Nevada, Las Vegas, 2021.

Zachary R. Osborne, "[INVESTIGATIONS OF TRACE ELEMENT TITANIUM IN SILICA MINERALS](#)," Ph.D., Syracuse University, 2021.

Wanyue Peng, "[HIGH-TEMPERATURE ELASTICITY AND ANHARMONICITY IN LAYERED THERMOELECTRIC MATERIALS](#)," Ph.D., Michigan State University, 2021.

Krista Lynn Sierra Sawchuk, "[High-Pressure Behavior and Chemical Reactions of Volatile-Bearing Minerals in Earth's Mantle](#)," Ph.D., UCLA, 2021.

Emma R. Stoutenburg, "[REFINING SPECTRORADIOMETRIC TEMPERATURE DETERMINATION IN THE LASER-HEATED DIAMOND ANVIL CELL, WITH IMPACT ON THE EQUATION OF STATE OF IRON.](#)" Masters, The Ohio State University, 2021.

Alexandra Tamerius, "Formation and Stability of High-Pressure Lead Intermetallic Compounds," Ph.D., Northwestern University, 2021.

Claire Zurkowski, "Crystallography and phase relations of iron sulfides at Earth and planetary core conditions," Ph.D., University of Chicago, 2021.

## 2020

Georgios Aprilis, "[Pulsed laser heating in the diamond anvil cell: applications in geo- and material sciences](#)," Ph.D., Universität Bayreuth, 2020.

Morgane Desmau, "[Rôle des biofilms bactériens sur le devenir des nanoparticules manufacturées dans les sols](#)," Ph.D., Institut de Physique du Globe de Paris, 2020.

Jiadi Fan, "Atomistically-Informed Finite Element Simulations of Phase Transformations and Fracture in Materials," Ph.D., University of Minnesota, 2020.

Curtis L. Johnson, "[The Relationship Between Eocene Magmatism and Gold Mineralization in the Great Basin, USA: Insights from the Phoenix-Fortitude Porphyry-Skarn System and Regional Intrusions Associated with Mineralization](#)," Ph.D., University of Nevada, Reno, 2020.

Byeongkwan Ko, "The Mineralogy and Chemical Evolution of the Earth's Deep Mantle," Ph.D., Arizona State University, 2020.

Egor Koemets, "[The crystal chemistry of iron oxides and oxyhydroxides at extreme conditions: implications for the deep Earth's oxygen cycle](#)," Ph.D., University of Bayreuth, 2020.

Camilla Hjort Kronbo, "[Materials science at extreme conditions - High-pressure crystallographic studies of perovskites](#)," Ph.D., Aarhus University, 2020.

Allan Henry Lerner, "THE DEPTHS AND LOCATIONS OF MAGMA RESERVOIRS AND THEIR CONSEQUENCES FOR THE BEHAVIOR OF SULFUR AND VOLCANIC DEGASSING," Ph.D., University of Oregon, 2020.

Douglas E. Meisenheimer, "Interfacial Relaxation and Two-Fluid Flow in Porous Media: A Fast X-Ray Microtomography Study," Ph.D., Oregon State University, 2020.

Clare Bethune Miller, "[Arsenic Mobility in a Changing Northern Climate: Implications for Geochemical Baselines and Long-Term Stability of Contaminants in Lake Systems](#)," Ph.D., Queen's University, 2020.

Laura A. Miller, "[An X-ray Absorption Spectroscopy Study of Redox Variable Elements in Silicate Melts](#)," Ph.D., The Australian National University, 2020.

Jason Ott, "[METASTABILITY OF TREMOLITE AT HIGH PRESSURES AND TEMPERATURES](#)," Masters, UNIVERSITY OF CALIFORNIA SANTA CRUZ, 2020.

Danielle Rebecca Schlesinger, "SALTING THE EARTH: BIOGEOCHEMICAL CYCLING OF CHLORINATED AND BROMINATED NATURAL ORGANIC COMPOUNDS IN COASTAL ECOSYSTEMS," Ph.D., PRINCETON UNIVERSITY, 2020.

Alana Ou Wang, "[Application of Biochar to Stabilize Mercury in Riverbank Sediments and Floodplain Soils from South River, VA under Conditions Relevant to Riverine Environments](#)," Ph.D., University of Waterloo , 2020.

Anna K. Wanhala, "[Structure and Adsorption at the Bastnäsite-Water Interface: Fundamental Investigations toward Rare Earth Mineral Recovery](#)," Ph.D., University of Tennessee, 2020.

Michelle Dawn Wenz, "Earth's Inner Workings Revealed through Mineral Inclusions in Diamond," Ph.D., Northwestern University, 2020.

Tianqi Xie, "[Raman Spectroscopy and Synchrotron X-ray Diffraction Study of Lunar and Terrestrial Plagioclase Feldspar at High-Pressure and High-Temperature Conditions](#)," Ph.D., The University of Western Ontario, 2020.

## **2019**

Yara A. Alzahid, "Multi-Dimensional Visualization Methods for Multiphase Flow Characterization of Alkaline-Surfactant-Polymer (ASP) Flooding: Impact of Phase Behavior," Ph.D., University of New South Wales , 2019.

Sarah Jane Balgooyen, "Manganese oxide structure and transformation during oxidation of phenolic contaminants," Ph.D., University of Wisconsin - Madison, 2019.

Kamal Chapagain, "Discovery and Study of Single-Phase and Single-Ion Manganese Perovskite Multiferroics," Ph.D., Northern Illinois University, 2019.

Stella Chariton, "The elastic properties and the crystal chemistry of carbonates in the deep Earth," Ph.D., University of Bayreuth, 2019.

Huawei Chen, "Hydrogen in the Nominally Anhydrous Phases and Possible Hydrated Phases in the Lower Mantle," Ph.D., Arizona State University, 2019.

Sasithorn Chornkrathok, "[Structure and Behavior of the Ni End-member Schreibersite, \(Ni<sub>3</sub>P\), Under Deep Earth Conditions](#)," M.S., University of Hawai'i at Manoa, 2019.

Kierstin Daviau, "High-Pressure and High-Temperature Experimental Investigation of SiC and Related Systems: Implications for Carbon-rich Planets," Ph.D., Yale University, 2019.

Alexander Scott Ditter, "Using advanced x-ray spectroscopic methods to probe actinide 5f electronic

structure," Ph.D., University of Washington, 2019.

Jonathan D. Dolinski, "Mineralogy of the Silicon-Rich Mantle: Implications for Mars and Exoplanets," M.S., Arizona State University, 2019.

Raskrishna Dutta, "High-Pressure Studies of Oxides and Fluorides: Analogs for Ultra-High Pressure Behavior of Planetary Silicates," Ph.D., Princeton University, 2019.

Paul Michael Edwards, "Viscosity of Iron-Rich Silicate Melts by Falling Sphere Viscometry at High Pressure: Implications for the Mobility of Pyroxenitic Melts in the Mantle," Masters, University of California, Davis, 2019.

Christopher M. Hoff, "DEFECT THERMOMETRY USING RUTILE AND FELDSPAR," Ph.D., Rensselaer Polytechnic Institute, 2019.

Yi Hu, "Metastable Pyroxenes and Their Role in the Subduction Process," Ph.D., University of Hawai'i at Manoa, 2019.

Larissa Q. Huston, "[The high pressure phase transformations of silicon and germanium at the nanoscale](#)," Ph.D., Australian National University, 2019.

Evan P. Jahrman, "Developing Laboratory-Based X-ray Spectroscopies for Energy and Materials Research spectroscopy," Ph.D., University of Washington, 2019.

Shiyun Jin, "A Comprehensive Study on the Subsolidus Phase Relations of the Plagioclase Feldspar Solid Solution," Ph.D., University of Wisconsin Madison, 2019.

Ryan A. Klein, "Synthesis and Magnetism at High Pressure," Ph.D., Northwestern University, 2019.

Xiaojing Lai, "Carbon in deep earth from high-pressure and high-temperature studies of the Fe-C system," Ph.D., University of Hawai'i at Manoa, 2019.

Brian Edward Light, "SPECIFIC HEAT, MAGNETIC SUSCEPTIBILITY, AND THE EFFECT OF PRESSURE ON STRUCTURAL PROPERTIES AND VALENCE OF  $\text{EuMn}_2\text{Si}_2$ ,  $\text{EuCo}_2\text{Si}_2$ , AND  $\text{Eu}_5\text{In}_2\text{Sb}_6$ ," Ph.D., University of Nevada, Las Vegas, 2019.

Jing Liu, "[Interactive Effects of Copper Oxide Nanoparticles and Arsenic on Rice \(\*O.sativa japonica\* 'Koshihikari'\) Plant Growth and Development](#)," Ph.D., Baylor University, 2019.

Rachel Ann Morrison, "Equations of State, Sound Velocities, and Thermoelasticity of Iron-Nickel-Silicon Alloys in the Earth's Inner Core," Ph.D., California Institute of Technology, 2019.

Pia Plese, "Interactions Between Gas Bubbles and Crystals in Silicate Melts," Ph.D., Université du Québec

à Chicoutimi, 2019.

Xintong Qi, "[Elastic Properties of Selected Transition Metals at Extreme Conditions: High Pressure and High Temperature](#)," Ph.D., Stony Brook University, 2019.

Michelle Yvonne Quigley, "CONTRIBUTION OF SOIL PORES TO THE PROCESSING AND PROTECTION OF SOIL CARBON AT MICRO-SCALE," Ph.D., Michigan State University, 2019.

Jocelyn Ann Richardson, "The Effect of Depositional Environment and Early Marine Diagenesis on Carbonate-Associated Sulfate," Ph.D., Washington University, St. Louis, 2019.

Christopher Edward Schuh, "[GEOCHEMICAL AND MINERALOGICAL CHARACTERIZATION OF ARSENIC IN LAKE SEDIMENTS IMPACTED BY LEGACY GOLD MINING IN THE YELLOWKNIFE REGION](#)," Ph.D., Queen's University, 2019.

Hannah Shelton, "Compressional Behavior of Hydrogen-Bonded Crystals: Anhydrous Comparisons and Polymorphism," Ph.D., University of Hawaii at Manoa, 2019.

Nicki Siersch, "The effect of Fe and Al on the elasticity of akimotoite," Ph.D., Univ. Bayreuth, 2019.

Yuwei Wang, "Mercury transformation by anaerobic microorganisms," Ph.D., Rutgers University, 2019.

Tommy W. Yong, "INVESTIGATION OF THE HIGH-PRESSURE BEHAVIOR OF AMPHIBOLES," M.S., University of Hawaii at Manoa , 2019.

Jasmin K. Hinton, "Response of the Isothermal Mode Gruneisen Tensor across Phase Boundaries", M.S., University of Nevada, Las Vegas, 2019.

## **2018**

Brendan A. Anzures, "Effect of oxygen fugacity on the chemical properties of very reduced mercurian melts," Masters, Brown University, 2018.

Katherine Armstrong, "Redox evolution of the early Earth's mantle," Ph.D., University of Bayreuth, 2018.

Joe M. Booth, "[RECOVERY OF CRUDE OIL FROM SATURATED POROUS MEDIA AS A FUNCTION OF GEOCHEMISTRY AND WETTING-PHASE DYNAMICS FOR MULTIPLE REMEDIATION FLUSHING STRATEGIES](#)," Masters, University of Alabama, 2018.

Samantha M. Clarke, "Discovery of Novel High-Pressure Binary Bismuth Intermetallic Compounds," Ph.D., Northwestern University, 2018.

T.J. Deboodt, "Investigation of x-ray computed tomography for Portland cement phase quantification,"



Ph.D., Oregon State University, 2018.

Sakun Duwal, "Chemistries of Hydrogen-Sulfur Compounds, Layered Materials and Nitrogen-Rich Azide under High Pressure," Ph.D., Washington State University, 2018.

Ramaprasad Kulkarni, "[Image Segmentation and Analysis Methods and Their Evaluation on Synthesized Porous Media Data](#)," Ph.D., University of Arizona, 2018.

John Daniel Lazarz, "Effect of Water on Thermoelasticity of Majoritic Garnet: Implications for the Seismic Structure at the Top of the Lower Mantle," Ph.D., Northwestern University, 2018.

Jieran Li, "[IMPACT OF PHYSICO-CHEMICAL PROPERTIES OF MANUFACTURED NANOMATERIALS ON PLANT UPTAKE AND TROPHIC TRANSFER](#)," Ph.D., University of Kentucky, 2018.

Siwei Ma, "[Rheological, Chemical and Mechanical Properties of Cementitious Materials with Nanoclays and Diutan Gum](#)," Ph.D., Columbia University, 2018.

Christopher McGuire, "Thermal Conductivity Measurements Across a Pressure-Induced Phase Transition: Application to Heat Flow in Earths Interior," Ph.D., University of California, Los Angeles, 2018.

Grant William Reeder, "Microscale Controls on Lead Speciation in Soils: A Framework for Sustainable Remediation," Masters, University of Vermont and State Agricultural College, 2018.

Salome M.S. Shokri-Kuehni, "[Dynamics of Saline Water Evaporation from Porous Media](#)," Ph.D., The University of Manchester, 2018.

Sheryl Ann Singerling, "[PRIMARY PRISTINE AND ALTERED IRON SULFIDES IN CM AND CR CARBONACEOUS CHONDRITES: INSIGHTS INTO NEBULAR AND PARENT BODY PROCESSES](#)," Ph.D., University of New Mexico, 2018.

Changbum Sohn, "Multiscale Assessment of the Role of Particle-Scale Attributes on the Crushability of Granular Soils," Ph.D., Northwestern University, 2018.

E.C. THOMPSON, "MINERAL PHYSICS OF HYDROGEN-BEARING PHASES IN THE DEEP EARTH," Ph.D., University of Chicago , 2018.

Tingying Xu, "Fundamental Controls on the Reactivity of Aluminum Oxide and Hydroxide Surfaces: Contributions of Surface Site Coordination States and Interfacial Water Structure," Ph.D., Washington University in St. Louis, 2018.

## **2017**

Alexandra Susann Bailey, "Characterization of arsenic-hosting solid phases in giant mine tailings and tailings dust," Masters, Queen's University, 2017.

A.S. Bailey, "CHARACTERIZATION OF ARSENIC-HOSTING SOLID PHASES IN GIANT MINE TAILINGS AND TAILINGS DUST," Masters, Queen's University, 2017.

J.A. Bower, "Speciation, distribution, prediction, and mobility of lead in urban soils: A multiscale study," Masters, The University of Vermont, 2017.

S. Car, "Unzipping the Zinc Homeostatic Network of Arabidopsis Thaliana," Ph.D., Dartmouth College, 2017.

Ting Chen, "Elasticity of coesite and stishovite: implications for the Earth's mantle," Ph.D., Stony Brook University, 2017.

B.A. Chidester, "The Distribution of Heat-Producing Radioactive Elements in the Deep Earth," Ph.D., University of Chicago, 2017.

H.A.N. Dharmagunawardhane, "Synthesis of oxynitride materials for solar water splitting: investigations with ambient pressure and high pressure synthesis techniques," Ph.D., Stony Brook University, 2017.

Yi Fang, "INDUCED MICROEARTHQUAKES AND SEISMICITY-PERMEABILITY RELATIONSHIPS IN FRACTURES," Ph.D., Pennsylvania State University, 2017.

Thomas Ferrand, "[Reproduction expérimentale d'analogues de séismes mantelliques par déshydratation de l'antigorite & Comparaison à des pseudotachylites naturelles](#)," Ph.D., Laboratoire de géologie de l'ENS, 2017.

Stefan Hellebrandt, "[Sorptions of \(trivalent\) Actinides and Lanthanides](#)," Ph.D., Technische Universität Dresden, 2017.

Sarah Incel, "[Experimental constraints on rheology during eclogite-facies metamorphic reactions](#)," Ph.D., Laboratoire de géologie de l'ENS, 2017.

Haesung Jung, "Abiotic- and Biotic-Formation of Manganese Oxides and Their Fate in Environmental Systems," Ph.D., Washington University, 2017.

Brandi Kamermans, "[Utilization of synchrotron radiation X-ray microscopy, micro-probe, and spectroscopy to characterize the carbon, sulfur, and iron speciation of particles from buoyant, deep-sea hydrothermal plumes in the Mid-Cayman Rise](#)," Ph.D., University of Minnesota, 2017.

K.P. Kong, "[MINERALOGICAL AND GEOCHEMICAL CONSTRAINTS OF CHROMIUM OXIDATION INDUCED BY BIRNESSITE](#)," Masters, Pennsylvania State University, 2017.

I.T. Madhoun, "[Measuring geometrical tortuosity of porous media from 3D computer tomography images](#)," M.S., QATAR UNIVERSITY, 2017.

M.G. Newman, "[On the Kinetics of Materials of Geophysical Interest](#)," Ph.D., California Institute of Technology, 2017.

E.M. Saurette, "[Emerging Contaminants: Artificial Sweetener Sample Preservation and Palladium Nanoparticle Transport in Porous Media](#)," M.S., University of Waterloo, 2017.

M. Steinepreis, "[Investigation of Gas Transport Rates Through a Covered Waste Rock Pile and Synchrotron Studies on the Sulfide Oxidation Reaction](#)," M.S., University of Waterloo, 2017.

Ashraf Thabet, "The Development and Numerical Modelling of a Representative Elemental Volume for Packed Sand," M.S., University of Western Ontario, 2017.

Elizabeth J. Tomaszewski, "Iron Mineral Transformations and Electron Transfer Reactions in Redox Dynamic Environments," Ph.D., UNIVERSITY OF WISCONSIN-MADISON, 2017.

Natalia Viatcheslavovna Solomatova, "Iron-bearing Oxides, Silicate Glasses and Carbonates at Lower Mantle Pressures," Ph.D., California Institute of Technology, 2017.

Charlotte J.L. de Grouchy, "[Trace element incorporation in silicate melts and glasses at high pressure](#)," Ph.D., The University of Edinburgh, 2017.

Thuy Thanh Trieu, "[FRACTURE BEHAVIOR OF SINGLE MASON SAND PARTICLES UNDER UNIAXIAL COMPRESSION](#)," Masters, The University of Tennessee, Knoxville, 2017.

## **2016**

Barker, "Speciation, transport and mobility of metals in pristine watersheds and contaminated soil systems in Alaska," Ph.D., University of Alaska Fairbanks, 2016.

Justin Robert Buis, "[Copper isotope fractionation and the evolution of sulfide alteration in a Sudbury tailings impoundment](#)," M.S., University of Waterloo, 2016.

Erika Callagon, "High-resolution studies of cadmium uptake on carbonate surfaces: mechanisms, rates, and structures," Ph.D., University of Illinois at Chicago, 2016.

D.Z. Chen, "Atomic-level structure and deformation in metallic glasses," Ph.D., CALIFORNIA INSTITUTE OF TECHNOLOGY, 2016.

A.N. Clark, "Geologic Applications for the Anomalous Elastic and Volumetric Properties of Amorphous Silicates," Ph.D., University of California, Davis, 2016.

E.S. Devers, "An examination of the reactivity of CO<sub>2</sub> with Mg-silicates at pressures and temperatures of the earth's mantle and implications for deep carbon storage," Masters, Northern Illinois University,

2016.

J.M. Grady, "Energetics across Ecological Scales," Ph.D., University of New Mexico, 2016.

M.J.E. Holland, "[Understanding Stabilization of Noncentrosymmetric Inorganic Phases by Analysis of Static Structures and Dynamic Processes](#)," Ph.D., Northwestern University, 2016.

J. Hu, "Shock Metamorphism in Ordinary Chondrites: Constraining Pressure and Temperature History," Ph.D., Arizona State University, 2016.

R. Lieb-Lappen, "How sea ice microstructure influences the polar transport of salts from the ocean into the atmosphere," Ph.D., Dartmouth College, 2016.

Florence T. Ling, "[Mineralogical and Geochemical Analyses of Synthetic and Natural Birnessites](#)," Ph.D., Pennsylvania State University, 2016.

Peng Liu, "[Stabilization of Mercury in River Water and Sediment Using Biochars](#)," Ph.D., University of Waterloo, 2016.

L. Manoukian, "Geochemical Characterization of Coexisting Precipitates and Waters from High-Sulfidation Epithermal Gold Deposits," M.S., Queen's University, 2016.

J.A. Nesbitt, "[Geochemical investigation of fluid petroleum coke deposits at an oil sands mine in northern Alberta, Canada](#)," M.S., University of Saskatchewan, 2016.

Morten Bormann Nielsen, "High pressure – A different approach to materials science," Ph.D., Aarhus University, 2016.

K.A. O'Neil, "[An Investigation of the Adsorption Behavior Between Silver Nanoparticles \(AgNPs\) and Corundum \( \$\alpha\$ -Al<sub>2</sub>O<sub>3</sub>\) at Environmental pH Values using Inductively-Coupled Plasma Optical Emission Spectroscopy \(ICP-OES\) and Raman Spectroscopy](#)," M.S., Wright State University, 2016.

Sarah Eileen Maloney Palaich, "Carbon in the Deep Earth: A Mineral Physics Perspective," Ph.D., University of California, Los Angeles, 2016.

N. Senabulya, "[Structural Characterization Studies on Semiconducting ZnSnN<sub>2</sub> Films using Synchrotron X-ray Diffraction](#)," Ph.D., University of Michigan, 2016.

C.V. Stan, "High-pressure studies of analogs with Applications to Materials Science and Geoscience," Ph.D., Princeton University, 2016.

D.L. Starnes, "The Effects of Manufactured Nanomaterial Transformations on Bioavailability, Toxicity and Transcriptomic Responses of CAENORHABDITIS ELEGANS," Ph.D., University of Kentucky, 2016.

C. Thissen, "Deformation processes in orogenic wedges: New methods and application to Northwestern Washington State," Ph.D., Yale University, 2016.

Sally June Tracy, "Polaron hopping in olivine phosphates studied by nuclear resonant scattering," Ph.D., California Institute of Technology, 2016.

X. Wang, "[Mantle composition and temperature of western North America revealed from in-situ](#)," Ph.D., State University of New York at Stony Brook, 2016.

## **2015**

T.M. Clancy, "Biogeochemical evaluation of disposal options for arsenic-bearing wastes generated during drinking water treatment," Ph.D., University of Michigan, 2015.

R.A. Fischer, "Earth's accretion, core formation, and core composition," Ph.D., University of Chicago, 2015.

M.B. Galkaduwa, "Mechanistic Understanding of Fate and Transport of Selenium, Arsenic and Sulfur in a Pilot-Scale Constructed Wetland Treatment System Designed for Flue-Gas Desulfurization Wastewater," Ph.D., Kansas State University, 2015.

E. Greenberg, "[Pressure-induced electronic and related structural phase transitions in iron-bearing oxides](#)," Ph.D., Tel-Aviv University, 2015.

D.C. Hannah, "Spectroscopic and Computational Studies of Light and Heat Generation in Semiconductor Nanomaterials," Ph.D., Northwestern University, 2015.

Sascha Hofmann, "Der Einfluss endlagerrelevanter Elektrolyte auf die Wechselwirkung dreiwertiger Lanthanide und Actinide mit Calcit," Ph.D., Karlsruhe Institute of Technology, 2015.

Patricia Kalita, "High Pressure Behavior of Mullite-Type Oxides: Phase Transitions, Amorphization, Negative Linear Compressibility and Other Microstructural Implications," Ph.D., University of Nevada, Las Vegas, 2015.

N.M.T.B. Khan, "High Pressure and High Temperature Study of Magnesiochromite and Its Geophysical Implications," Masters, The University of Western Ontario, 2015.

C. Kilbert, "[Method for Synchrotron X-ray Computed Tomographic Imaging of BioFilms in Porous Media](#)," Masters, Louisiana State University, 2015.

T. Li, "Linking Pore-scale Fluid-Fluid Interfacial Curvature in Porous Media to Capillary Pressure and Local Morphology with A Novel Method for Curvature Measurement.," Masters, Oregon State University, 2015.

Xiayang (Sunny) Lin, "Causes of iridescence in natural gem materials," Ph.D., Pennsylvania State University, 2015.

C.J. Lubanowski, "Fe, Cu and Zn concentration in a MVP as a function of sulfur in magmatic-hydrothermal systems comparable to the porphyry-style environment," M.S., Northern Illinois University, 2015.

Matthew Jacob Oxman, "[A time-resolved synchrotron X-ray diffraction study of the in situ, hydrothermal synthesis of goethite from 2-line ferrihydrite.](#)" Ph.D., Pennsylvania State University, 2015.

A. Palmer, "Pressure-tuned quantum phase transitions in elemental chromium," Ph.D., University of Chicago, 2015.

Peter K. Peterson, "Examining the role of sea ice and meteorology in Arctic boundary layer halogen chemistry," Ph.D., University of Alaska Fairbanks, 2015.

C. Qiu, "Structural study of Pb(II) and Sb(V) adsorption on the hydroxylated hematite(1102) surface," Ph.D., University of Alaska Fairbanks, 2015.

Paula C. Sanematsu, "Image-based modeling of porous media using FEM and Lagrangian particle tracking," Ph.D., Louisiana State University, 2015.

I.H. Widanagamage, "Stable strontium isotope fractionation in abiotic and microbially mediated barite in modern continental settings," Ph.D., Kent State University, 2015.

W.R. Woerner, "In Situ Scattering and Modeling Approaches for the Discovery and Optimization of Novel Mineral-Inspired Materials," Ph.D., Stony Brook University, 2015.

H.L. Zhang, "Investigation of iron speciation in silicate glasses and implications for magma oceans," Ph.D., University of Minnesota, 2015.

## **2014**

J.B. Araujo, "Measuring air-water interfacial areas: Contributions of capillary and film domains in natural porous media," Ph.D., The University of Arizona, 2014.

Benjamin Blonder, "Venation networks link climate to plant form and function," Ph.D., University of Arizona, 2014.

Y.-Y. Chang, "Influence of point defects on the elastic properties of mantle minerals and superhard materials," Ph.D., Northwestern University, 2014.

G.J. Finkelstein, "Phase transitions in selected silicate minerals at high pressure and room temperature

from single-crystal X-ray diffraction," Ph.D., Princeton University, 2014.

Z.M. Geballe, "Melting and Freezing of Metals under the High Pressures of Planetary Interiors," Ph.D., University of California, Berkeley, 2014.

S. Huang, "[Influence of Chemical Composition and Water on the Bulk Modulus of Pyrope](#)," Ph.D., Florida International University, 2014.

R. Karna, "Mechanistic understanding of biogeochemical transformations of trace elements in contaminated mine waste materials under reduced conditions," Ph.D., Kansas State University, 2014.

A.T. Lech, "Synthesis, Structure, and Properties of Refractory Hard-Metal Borides," Ph.D., University of California, Los Angeles, 2014.

Chengyang Li, "Studies of the Quantum Phase Transition in Chromium using Inelastic X-ray Scattering and AB Initio Methods," Ph.D., Western Michigan University, 2014.

R.Y.C. Mak, "Reducing Complexity: A Regularized Non-negative Matrix Approximation (NNMA) Approach to X-ray Spectromicroscopy Analysis," Ph.D., Northwestern University, 2014.

W.A. Martin, "Antimony Environmental Interactions and Sequestration Associated with Amendments at Small Arms Firing Ranges," Ph.D., Purdue University, 2014.

Morten Bormann Nielsen, "High-pressure synthesis and diamond anvil cell synchrotron diffraction studies," M.S., Aarhus University, 2014.

Ayla Pamukcu, "[Understanding the What, When, Where, and Why of Supereruptions](#)," Ph.D., Vanderbilt University, 2014.

K. Peterson, "Nucleation, growth, and phase transformation mechanisms of the iron (oxy) hydroxides," Ph.D., Pennsylvania State University, 2014.

E.M. Smith, "Fluid inclusions in fibrous and octahedrally-grown diamonds," Ph.D., The University of British Columbia, 2014.

E.A. Tanis, "Constraints on the ability of Cl- and F- bearing aqueous fluid to dissolve and transport trace elements (Y, Nb, Zr) in subduction zone environments," Ph.D., University of Michigan, 2014.

L.D. Troyer, "Impact of iron and redox chemistry on the environmental fate of metalloids and radionuclides," Ph.D., Colorado State University, 2014.

Yongsoo Yang, "Synchrotron X-ray Diffraction Studies on Oxide Surfaces and Interfaces," Ph.D., University of Michigan, 2014.

J. Zhang, "New high pressure phase transition of natural orthoenstatite and sound velocity measurements at simultaneous high pressures and temperatures by laser heating," Ph.D., University of Illinois at Urbana-Champaign, 2014.

## **2013**

M.J. Colombo, "Experimental Studies of Mercury Oxidation by Anaerobic Bacteria," Ph.D., Rutgers The State University of New Jersey, 2013.

K. Desrochers, "Geochemical Characterization and Assessment of Stabilization Mechanisms for Mercury-Contaminated Riverbank Sediments from the South River, Virginia," Masters, University of Waterloo, 2013.

S.J. Gaudio, "High-Pressure Structural Relaxation of Vitreous NaAlSi<sub>3</sub>O<sub>8</sub>," Ph.D., University of California, Davis, 2013.

Gabriel Charles Iltis, "Visualization and Characterization of Biofilm Spatial Distribution in Porous Media using X-ray Computed Microtomography," Ph.D., Ohio State University, 2013.

Carla Rosenfeld, "Heavy metal biogeochemistry: zinc and cadmium dynamics at the plant-soil interface," Ph.D., Pennsylvania State University, 2013.

H. Shrimpton, "Selenate Reduction by Granular Iron and the Associated Isotope Fractionation," Masters, University of Waterloo, 2013.

K.A. Todd, "The Effects of Shear Deformation on Planetesimal Core Segregation: Results from In-situ X-ray Microtomography," Masters, Northern Illinois University, 2013.

Aaron S. Wolf, "Probing the Thermodynamic Properties of Mantle Rocks in Solid and Liquid States," Ph.D., California Institute of Technology, 2013.

M. Xie, "High Pressure Studies of Ultra-Incompressible, Superhard Metal Borides," Ph.D., University of California, Los Angeles, 2013.

## **2012**

Katerina Ananyeva, "Spatial analysis tools for characterizing within-aggregate pore structure," M.S., Michigan State University, 2012.

R.T. Armstrong, "Microbial Enhanced Oil Recovery: A Pore-Scale Investigation of Interfacial Interactions," Ph.D., Oregon State University, 2012.

L. Bai, "In-Situ Degassing Studies on Crystal-Free and Crystal-Bearing Stromboli Basalts: Implications for Stromboli Volcano Eruptions," Ph.D., McGill University, 2012.

K.I. Brown, "Pore-Scale Observations of Three-Fluid-Phase Transport in Porous Media," M.S., Oregon



State University, 2012.

J. Chantel, "Measurement of elastic properties of silicates at realistic mantle pressures," Ph.D., Universität Bayreuth, 2012.

S.M. Dorfman, "Effects of iron enrichment on the chemistry and physical properties of deep lower mantle silicates," Ph.D., Princeton University, 2012.

S. Hannam, "Diavik Waste Rock Project: Geochemical and mineralogical investigations of waste-rock weathering," Ph.D., University of Waterloo, 2012.

E.M. Herndon, "Biogeochemistry of Manganese Contamination in a Temperate Forested Watershed," Ph.D., Pennsylvania State University, 2012.

Anna Herring, "Saturation, Morphology, and Topology of Nonwetting Phase Fluid in Bentheimer Sandstone; Application to Geologic Sequestration of Supercritical CO<sub>2</sub>," M.S., Ohio State University, 2012.

J.H. Jamieson-Hanes, "Characterizing Chromium Isotope Fractionation During Reduction of Cr(VI): Batch and Column Experiments," M.S., University of Waterloo, 2012.

W. Kanitpanyacharoen, "Synchrotron X-ray Applications toward an Understanding of Elastic Anisotropy," Ph.D., University of California, Berkeley, 2012.

Narges Milani, "Zinc oxide nanoparticles in the soil environment: dissolution, speciation, retention and bioavailability," Ph.D., University of Western Australia, 2012.

C.A. Murphy, "Thermoelasticity of Hexagonal Close-Packed Iron from the Phonon Density of States," Ph.D., California Institute of Technology, 2012.

M.E. Narter, "Characterizing Non-Wetting Fluid in Natural Porous Media using Synchrotron X-ray Microtomography," Ph.D., The University of Arizona, 2012.

L. O'Dwyer-Brown, "Viscosities of Silicate Liquids at High Pressures," Ph.D., University of California, Davis, 2012.

John McClain Pray, "The morphology of etched and unetched ion tracks in apatite as a function of orientation and thermal annealing," Ph.D., University of Michigan, 2012.

L. Sang, "Brillouin studies of diopside and H<sub>2</sub>O," M.S., University of Illinois at Urbana-Champaign, 2012.

W. Wang, "Investigating Soil Aggregate Pore Structures and their Relationship to Bacteria Spatial Distribution using X-ray Computed Microtomography," Ph.D., Michigan State University, 2012.

Y. Ye, "Effects of Hydration on Equation of State (EOS) of Mg<sub>2</sub>SiO<sub>4</sub> Phases in the Upper Mantle & Transition Zone by Single-Crystal X-Ray Diffraction," Ph.D., University of Colorado, 2012.

## 2011

M.C. Barkley, "Classification and topology of hydrogen environments in hydrous minerals," Ph.D., The University of Arizona, 2011.

D.A. Brown, "On the Hydration of Majoritic Garnet," M.S., University of Texas at Austin, 2011.

A.N. Clark, "On the Anomalous Compressibility of Vitreous Silica: New Insights from High Pressure X-ray Microtomography and Gigahertz Ultrasonic Interferometry," M.S., University of California, Davis, 2011.

T.B. Fischer, "Structural transformations of birnessite ( $\delta$ -MnO<sub>2</sub>) during biological and abiological reduction," Ph.D., Pennsylvania State University, 2011.

C. Fleeger, "Contaminant Sequestration and Phase Transformation Properties of Birnessite-Like Phases ( $\delta$ -MnO<sub>2</sub>)," Ph.D., Pennsylvania State University, 2011.

G. Fu, "Development of Novel Emission Tomography System," Ph.D., University of Illinois at Urbana-Champaign, 2011.

J. Ghose, "Pore scale study of crude oil distribution and interfacial processes in unconsolidated porous media: An application of synchrotron X-ray microtomography," Ph.D., The University of Alabama, 2011.

B.D. Gibson, "Integrating Methods for Characterizing the Passive Treatment of Mercury and Selenium in Groundwater and Sediment," Ph.D., University of Waterloo, 2011.

R.D. Ross, "Functionalized Gold Nanoparticles as Damage-Specific X-Ray Computed Tomography Contrast Agents in Bone Tissue," Ph.D., University of Notre Dame, 2011.

G.A. Shofner, "High pressure redox geochemistry of tungsten in metal-silicate systems: Implications for core formation in the Earth," Ph.D., University of Maryland, 2011.

B.J. Walker, "Dissolution of Ophiuroid Ossicles (*Ophiuroides victoriae*) in Explorers Cove, Antarctica: Implications for the Antarctic Fossil Record," M.S., Vanderbilt University, 2011.

A.J. Wall, "Abiotic Controls on Copper Isotope Fractionation during the Dissolution of Copper Sulfide Minerals," Ph.D., Pennsylvania State University, 2011.

Wei Wang, "Soil intra-aggregate pore structures under different long-term managements studied by means of computed tomography," Ph.D., Michigan State University, 2011.

## 2010

Yahya Mahmoud Al Khatabeth, "High-Pressure Behavior of Transition-Metal Dioxides  $\text{TiO}_2$ ,  $\text{ZrO}_2$  and  $\text{HfO}_2$  as Determined by Synchrotron X-ray Diffraction and Density-Functional Theory," Ph.D., New Mexico State University, 2010.

L. Gao, "Density, Magnetic Properties and Sound Velocities of Iron-Rich Materials at High Temperatures and High Pressure," Ph.D., University of Illinois at Urbana-Champaign, 2010.

T. Gebrenegus, "Application of X-ray Computed Tomography to Study Initiation and Evolution of Surface Cracks in Sand-Bentonite Mixtures," Ph.D., University of Idaho, 2010.

S.M. Hayes, "Effects of Mineral Weathering and Plant Roots on Contaminant Metal Speciation and Lability in Arid Lead-Zinc Sulfide Mine Tailings at the Klondyke Superfund Site, Graham County, AZ," Ph.D., University of Arizona, 2010.

Anastasia G. Ilgen, "Controls on antimony and arsenic speciation via sorption and redox chemistry at the clay mineral - water interface in natural and laboratory settings," Ph.D., University of Alaska Fairbanks, 2010.

A. Kumar, "Spin-Charge-Lattice Coupling in Multiferroics and Strained Ferroelectrics," Ph.D., Penn State University, 2010.

Ayla S. Pamukcu, "The evolution of the Peach Spring Tuff magmatic system as revealed by accessory mineral textures and compositions," Masters, Vanderbilt University, 2010.

Klaus Schollenbruch, "Systematics of the post-spinel transition in Fe-bearing compositions," Ph.D., Goethe-Universität Frankfurt, 2010.

## **2009**

E. Aarestad, " $\text{CH}_3\text{OH}$  in High Pressure Phases of  $\text{H}_2\text{O}$ : Implications for Ice-Rich Planets," M.S., Northern Illinois University, 2009.

R. Cai, "Tomographic Analysis and Simulation of Reactive Flow in Column Experiments," Ph.D., Stony Brook University, 2009.

B. Chen, "Nature and Dynamics of Earth and Planetary Cores from High-Pressure Properties of Iron-Rich Alloys," Ph.D., University of Illinois at Urbana-Champaign, 2009.

Zhu Mao, "Single-Crystal Elasticity of Hydrous Mantle Minerals," Ph.D., Princeton University, 2009.

N.A. Miller, "Melting and Phase Relations in Iron-Silicon Alloys with Applications to the Earth's Core," Masters, University of Maryland, 2009.

Lowell Miyagi, "Deformation and Texture Development in Deep Earth Mineral Phases: Implications for

Seismic Anisotropy and Dynamics," Ph.D., University of California, Berkeley, 2009.

C.T. Seagle, "Phase Equilibria and Physical Properties of Core Materials," Ph.D., University of Chicago, 2009.

J.M. Seiter, "The Fate and Speciation of Arsenic in Soils and Poultry Production Systems," Ph.D., University of Delaware, 2009.

R.V. Tappero, "Microspectroscopic Study of Cobalt Speciation and Localization in Hyperaccumulator Alyssum Murale," Ph.D., University of Delaware, 2009.

H. Uchida, "Crystal Chemical and Structural Analyses of Some Common Rock-Forming Minerals: Spinel, Kalsilite, Clinopyroxene and Olivine," Ph.D., The University of Arizona, 2009.

X. Yu, "Viscosity and Melting Temperature of Fe-Si Alloys at High Pressure and Temperature," Ph.D., The University of Western Ontario, 2009.

## **2008**

S.E. Afton, "The development of varying methodologies to speciate and monitor the interactions of selenium and environmental contaminants in plants," Ph.D., University of Cincinnati, 2008.

L.R. Baker, "In Situ Remediation of Pb/Zn Contaminated Materials: Field- and Molecular-Scale Investigations," Ph.D., Kansas State University, 2008.

H.A. Barnett, "Chemical Analysis of Polymer Blends via Synchrotron X-ray Tomography," M.S., Louisiana State University in Shreveport, 2008.

J. Han, "Transport and Retention of Viruses and Microspheres in Saturated and Unsaturated Porous Media," Ph.D., University of Delaware, 2008.

Laurence P. Jassogne, "Characterization of porosity and root growth in a sodic texture-contrast soil," Ph.D., University of Western Australia, 2008.

B.D. Kocar, "Soil-Sediment Processes Perpetuating History's Largest Mass Poisoning through Release of Arsenic to Asian Groundwaters," Ph.D., Stanford University, 2008.

M.L. Porter, "Investigating Capillary Pressure and Interfacial Area for Multiphase Flow in Porous Media using Pore-scale Imaging and Lattice-Boltzmann Modeling," Ph.D., Oregon State University, 2008.

A. Russo, "Immiscible Liquid Dissolution in Heterogeneous Porous Media," Ph.D., University of Arizona, 2008.

D.M. Singer, "Uranium and Strontium (Bio) Chemistry: Limits on Uranium and Strontium Mobility in the Environment," Ph.D., Stanford University, 2008.

K.S. Tanwar, "Surface Structure of Hydrated and Fe(II) Reacted Hematite (1 T02) and (0001)," Ph.D., University of Alaska Fairbanks, 2008.

J. Wang, "The effect of hydration state, iron, and spin state of iron on the elasticity of mantle minerals at high pressure," Ph.D., University of Illinois at Urbana-Champaign, 2008.

## **2007**

T.R. Diedrich, "The Effect of Hydrogen on Olivine to Ringwoodite Transformation," Ph.D., Arizona State University, 2007.

X. Gao, "Speciation and Geochemical Cycling of Lead, Arsenic, Chromium, and Cadmium in a Metal-Contaminated Histosol," Ph.D., Purdue University, 2007.

Guilherme Gualda, "Crystal and bubble populations in the early-erupted Bishop rhyolitic magma: microscopy, X-ray tomography and microanalysis of pumice clasts," Ph.D., The University of Chicago, 2007.

D.L. Lakshtanov, "Elasticity and Phase Transitions of Stishovite and NaCl at High Pressure," Ph.D., University of Illinois at Urbana Champaign, 2007.

C.D. Martin, "Structure and Elasticity of Sodium Magnesium Fluoride and Calcium Iridium Oxide at High Pressures and Temperatures—the Perovskite and Post-Perovskite Structure Model of Magnesium Silicate Investigated with Rietveld Structure Refinement and Ultrasonic Interferometry.," Ph.D., State University of New York at Stony Brook, 2007.

M.L. Werner, "A XANES Study of Chromium and Iron Speciation in Laboratory-Generated and Ambient PM2.5," Ph.D., The University of California, Davis, 2007.

F. Zhang, "Distribution of Metabolic Characteristics among Aerobic Soil Bacteria and Implications for Biotransformation of Organic and Metallic Wastes," Ph.D., Case Western Reserve University, 2007.

## **2006**

R. Alderden, "[The Distribution of Platinum Complexes in Biological Systems](#)," Ph.D., University of Sydney, 2006.

C.M. Holl, "Effects of hydration on the structure and compression of wadsleyite: implications for water in the Earth's interior," Ph.D., University of Colorado, 2006.

D.H. McNear, "The plant-soil interface: Nickel bioavailability and the mechanisms of plant hyperaccumulation," Ph.D., University of Delaware, 2006.

D.H. McNear, Jr., "The Plant Soil Interface: Nickel Bioavailability and the Mechanisms of Plant Hyperaccumulation," Ph.D., University of Delaware, 2006.

G. Schnaar, "Pore-scale characterization of organic immiscible liquid in natural porous media using synchrotron X-ray microtomography," Ph.D., The University of Arizona, 2006.

## **2005**

J.G. Catalano, "Molecular Scale Studies of Uranium Speciation in Contaminated Hanford, Washington Sediments and Related Model Systems," Ph.D., Stanford University, 2005.

H. Couvy, "Experimental deformation of forsterite, wadsleyite and ringwoodite: Implications for seismic anisotropy of the Earth's mantle," Ph.D., University of Bayreuth, Germany, and University of Lille, France, 2005.

Katherine A. Culligan, "On the Internal Structure of Porous Media," Ph.D., University of Notre Dame, 2005.

Y.-S. Jun, "Microscopic mechanisms of dissolution and precipitation of manganese minerals?" Ph.D., Harvard University, 2005.

W. Mao, "Geophysics and geochemistry of iron in the earth's core," Ph.D., The University of Chicago, 2005.

J.P. Vermilyen, "The thermoelastic properties of hematite with implications for Galilean satellite interiors," Ph.D., Princeton University, 2005.

## **2004**

E.A. Haack, "Microbial-mineral-trace metal interactions in acid-rock drainage biofilms: Integrating macro-, micro- and molecular-level techniques to understand metal behaviour," Ph.D., McMaster University, 2004.

Y. Kashiv, "Trace element abundances in single presolar SiC grains by synchrotron x-ray fluorescence," Ph.D., The University of Chicago, 2004.

Christian Pantea, "Kinetics of diamond-silicon reaction under high pressure-high temperature conditions," Ph.D., Texas Christian University, 2004.

A.H. Reed, "Quantification of Marine Sediment Properties from Planar and Volumetric Pore Geometries," Ph.D., Louisiana State University, 2004.

T.-H. Yoon, "Naturally occurring organic compounds at the mineral-water interfaces: their interactions with mineral surfaces and impacts on pollutant speciation," Ph.D., Stanford University, 2004.

## **2003**

S.L. Japel, "A study of light elements and water in the Earth's interior," Ph.D., Johns Hopkins University, 2003.

Kanani Lee, "Exploring planetary interiors: Experiments at extreme conditions," Ph.D., UC Berkeley, 2003.

Nagayoshi Sata, "High pressure studies on Fe<sub>2</sub>O<sub>3</sub>: Quasi-isothermal compression experiments and applications to the Earth's core," Ph.D., University of Tokyo, 2003.

S. Speziale, "Elastic Properties of Earth Materials," Ph.D., Princeton University, 2003.

S. Thiam, "Characterization of Native and Bypass Human Coronary Artery Plaque Deposits from the Same Heart: Investigation of the Chemical Form of Calcium in Human Coronary Artery Plaque Deposits," Ph.D., Louisiana State University, 2003.

David Christopher Tinker, "The Pressure Dependence of Silicon and Oxygen Self-diffusion and Melt Viscosity in Polymerized Silicate Melts," Ph.D., University of California, Davis, 2003.

## **2002**

R.I. Al-Raoush, "Extraction of Physically-Representative Pore Network from Unconsolidated Porous Media Systems Using Synchrotron Microtomography," Ph.D., Louisiana State University, 2002.

Y. Arai, "Reaction dynamics and chemical speciation of phosphorus and arsenic (III and V) at the metal oxide-water interface and in soils," Ph.D., University of Delaware, 2002.

Nicole E. Keon, "Controls on Arsenic Mobility in Contaminated Wetland and Riverbed Sediments," Ph.D., MIT, 2002.

Jung-Fu Lin, "Alloying effects of silicon and nickel on iron in the Earth's core," Ph.D., The University of Chicago, 2002.

Sebastien Merkel, "Elasticité et orientations préférentielles dans la Terre profonde: Approche expérimentale," Ph.D., Ecole Normale Supérieure de Lyon, France, 2002.

Alexis Templeton, "Lead and Selenium distributions and speciation at biofilm/metal-oxide interfaces," Ph.D., Stanford University, 2002.

## **2001**

Laura Robin Benedetti, "Molecular Systems at High Pressures and Temperatures: Solar System Astronomy in a Physics Laboratory," Ph.D., University of California, Berkeley, 2001.

Stephanie Bosze, "Surface structure controlled sectoral zoning in fluorite: Implication to understanding heterogeneous reactivity at the mineral-water interface," Masters, Miami University Oxford, OH, 2001.

Daniel Mueth, "Measurements of particle dynamics in slow, dense granular Couette flow," Ph.D., The University of Chicago, 2001.

Wendy Panero, "Experimental observations of basaltic crust in the lower mantle," Ph.D., University of California at Berkeley, 2001.

S. Rekhi, "Study of the physical properties of metals and oxides at extreme pressure and temperature conditions," Ph.D., Florida International University, 2001.

Michael Rutter, "Viscosity of Fe and Fe-8.5wt%S liquids at high pressures using synchrotron x-ray radiography," Masters, The University of Western Ontario, 2001.

Sean Shieh, "A high pressure and high temperature study of serpentine and its implications to Earth's lower mantle," Ph.D., Princeton University, 2001.

Sang-Heon Shim, "Stability, crystal structure, and equation of state of silicate perovskites in the Earth's lower mantle," Ph.D., Princeton University, 2001.

Thomas Trainor, "X-ray scattering and x-ray absorption spectroscopy studies of the structure and reactivity of aluminum oxide surfaces," Ph.D., Stanford University, 2001.

Z. Wang, "The study of silicates and refractory materials at high pressures and temperatures," Ph.D., Florida International University, 2001.

## **2000**

Yujun Wu, "Rheological Studies of Olivine under High Pressure and Temperature," Ph.D., State University of New York at Stony Brook, 2000.

## **Undergraduate Thesis**

### **2022**

Jack Sheehan, "Machine Learning Detection of P-Waves in Laboratory Acoustic Emission Events to Understand Deep-Focus Earthquakes", Senior Honors Thesis, Rice University, 2022