

## ***Curriculum Vitae***

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### **Academic Appointments at UMD**

Professor, Department of Chemistry and Biochemistry	2022 – present
Professor, Department of Materials Science and Engineering	2024 - present
Associate Professor, Department of Chemistry and Biochemistry	2018 – 2022
Assistant Professor, Department of Chemistry and Biochemistry	2012 – 2018
Affiliate Professor, Department of Materials Science and Engineering	2013 – 2023
Affiliate Professor, Department of Physics	2015 – 2018
Core Faculty Member, Maryland Quantum Materials Center	2019 – present
Faculty Member, Chemical Physics Program	2013 – present
Faculty Member, UMD NanoCenter	2014 – present

### **Administrative Appointments at UMD**

Associate Chair of Graduate Studies for Chemistry & Biochemistry	2025 – present
Graduate Program Director for Chemistry,	2018 – 2021

### **Other Employment**

National Research Council Post-Doctoral Fellow NIST Center for Neutron Research, National Institute of Standards and Technology Gaithersburg, MD	2009-2012
Graduate Research Assistant Los Alamos National Laboratories (LANL) Los Alamos, NM	2005-2008
Post-baccalaureate Researcher Manuel Lujan Neutron Scattering Center, LANL Los Alamos, NM	2003-2004

### **Educational Background**

PhD. Materials Science, Department of Materials University of California, Santa Barbara, CA	2009
B.S. Materials Science, Department of Materials Science and Engineering Massachusetts Institute of Technology, Cambridge, MA	2003

### **Research Fellowships, Prizes and Awards**

University of Maryland Distinguished Scholar Teacher Award	2023
Alexander von Humboldt Fellowship for Experienced Researchers	2022
Richard D. Green Science and Mathematics Award	2020
Margaret C. Etter Early Career Award in Crystallography	2019
National Science Foundation CAREER Award	2015
National Research Council Postdoctoral Fellowship Award	2009

### Leadership Positions in Professional Societies

SACNAS, Board of Directors	2025-present
American Institute of Physics, Board of Directors	2019-2024
Neutron Scattering Society of America, Executive Committee	2021-2024
National Institute of Standards and Technology Neutron User Group	2023-present
Society for the Advancement of Chicanos/Hispanics and Native Americans in Science, member and faculty adviser	
U.S. National Committee for Crystallography (USNC/Cr),	2021-present

### **Research, Scholarly, Creative and/or Professional Activities**

#### Books

Books Edited

*Fundamentals of Quantum Materials: A Practical Guide to Synthesis and Exploration*

J. Paglione, N. Butch, and **E. E. Rodriguez**

World Scientific, New Jersey, 2020

ISBN: 978-981-121-937-5

#### Refereed Journals Articles

h-index = 33, i10-index = 76, citations: 4098 (from Google Scholar)

#### **107 peer-reviewed publications in chemistry, physics, and materials science journals**

Recent representative papers shown below where \* indicates corresponding author and driver of published work

Mandujano, H. C.; Mondie, A.; Diethrich, T. J.; Zhang, Q.; **Rodriguez, E. E.\***, "Magnetic structure evolution of  $\text{LiFe}_{1-x}\text{Co}_x\text{PO}_4$  olivines upon delithiation", *Journal of Alloys and Compounds*, **2025**, 1044, 184237. [[DOI: 10.1016/j.jallcom.2025.184237](https://doi.org/10.1016/j.jallcom.2025.184237)]

Mandujano, H. C.; Zavalij, P. Y.; Manjon-Sanz, A.; Huibo, C.; **Rodriguez, E. E.\***, "Coexistence of commensurate and incommensurate antiferromagnetic ground states in  $\text{Co}_x\text{NbSe}_2$  single crystal", *Phys. Rev. Materials*, **2025**, 9, 014403. [[DOI: 10.1103/PhysRevMaterials.9.014403](https://doi.org/10.1103/PhysRevMaterials.9.014403)]

Lopez, M.; Yan, P.; Javadi, A.; Silva, I. D.; Wang, Z.; Ren, S.; Bennett, J. W.; **Rodriguez, E. E.\***, "Evidence of ferrimagnetism in  $\text{Fe}_3\text{GaTe}_2$  via neutron diffraction studies", *Journal of Materials Chemistry C*, **2025** 13, 15354—15361. [[DOI:10.1039/D5TC01719J](https://doi.org/10.1039/D5TC01719J)]

Hong, S.J.; Li, T.; Mandujano, H. C.; Manjon-Sanz, A.; Liou, S. C.; Niu, Y.; **Rodriguez, E. E.\***, "Reversible structural and colorimetric transitions in  $\text{LuMnGaO}_4$  upon oxygen uptake and release", *Dalton Trans.*, **2025**, 54, 13431-13442. [[DOI:10.1039/D5DT00798D](https://doi.org/10.1039/D5DT00798D)] **Cover Article.**

Mandujano, H. C.; Salas, G. S.; Li, T.; Zavalij, P. Y.; Manjon-Sanz, A.; Butch, N. P.; **Rodriguez, E. E.\***, "Itinerant A-type Antiferromagnetic Order in  $\text{Co}_{1/4}\text{TaSe}_2$ ", *Physical Review B*, **2024**, 110, 144420. [[DOI: 10.1103/PhysRevB.110.144420](https://doi.org/10.1103/PhysRevB.110.144420)]

Leonard, M. B.; Li, T.; **Rodriguez, E. E.\***, "Low-Temperature Decomposition and Oxidation of the Nerve Agent Simulant on Mesoporous Nickel Oxide and Cu-Doped Nickel Oxides", *ACS Applied Materials and Interfaces*, **2024**, 16, 29, 38757—38767. [[DOI: 10.1021/acsami.4c07620](https://doi.org/10.1021/acsami.4c07620)]

Mandujano, H. C.; Li, T.; **Rodriguez, E. E.\***, "Kinetic and Thermodynamic Pathways Via Ion Exchange Metathesis of Cobalt Thiophosphate", *Chemistry of Materials*, **2024**, 36, 10, 5172–5183. [DOI: [10.1021/acs.chemmater.4c00556](https://doi.org/10.1021/acs.chemmater.4c00556)]

Balisetty, L.; Wilfong, B.; Zhou, X.; Zheng, H.; Liou, S.-C.; **Rodriguez, E. E.\***, "Twisting two-dimensional iron sulfide layers into coincident site superlattices via intercalation chemistry", *Chemical Science*, **2024**, 11(6), 061120. [DOI: [10.1039/d3sc02994h](https://doi.org/10.1039/d3sc02994h)]

Li, T.; Liou, S.-C.; Hong, S. J.; Zhang, Q.; Mandujano, H. C.; **Rodriguez, E. E.\***, "Structural modulation and spin glassiness upon oxidation in oxygen storage material  $LnFeMnO_{4+x}$  for  $Ln = Y, Lu, \text{ and } Yb$ ", *APL Materials*, **2023**, 11, 061120. [DOI: [10.1063/5.0144717](https://doi.org/10.1063/5.0144717)]

Li, T.; Leonard, M.; Tsyshevsky, R.; McEntee, M.; Karwacki, C.; Durke, E. M.; Kuklja, M.; **Rodriguez, E. E.\***, "High reactivity of mesoporous CeO<sub>2</sub> to dissociate chemical warfare agent sarin", *Materials Chemistry Frontiers*, **2023**, 7(9), 1855-1866. [DOI: [10.1039/D2QM01253G](https://doi.org/10.1039/D2QM01253G)]

Li, T.; A., L.; McEntee, M.; Tsyshevsky, R.; Leonard, M.; Durke, E.; Karwacki, C.; Kuklja, M.; Zachariah, M.; **Rodriguez, E. E.\***, "Aliovalent-Doping Effects on the Surface Activity of Mesoporous CeO<sub>2</sub> towards Nerve Agent Simulant DMMP Decomposition" *The Journal of Physical Chemistry C*, **2022**, 126 (42) 17923-17934. [DOI: [10.1021/acs.jpcc.2c04853](https://doi.org/10.1021/acs.jpcc.2c04853)]

Diethrich, T. J.; Gnewuch, S.; Dold, K.; Taddei, K.; **Rodriguez, E. E.\***, "Tuning Magnetic Symmetry and Properties in the Olivine Series  $Li_{1-x}Fe_xMn_{1-x}PO_4$  through Selective Delithiation", *Chemistry of Materials*, **2022**, 34, 5039-5053. [DOI: [10.1021/acs.chemmater.2c00372](https://doi.org/10.1021/acs.chemmater.2c00372)]

Li, T.; Jayathilake, R.; Balisetty, L.; Zhang, Y.; Wilfong, B.; Diethrich, T.; **Rodriguez, E. E.\***, Crystal field-induced lattice expansion upon reversible oxygen uptake/release in  $YbMn_xFe_{2-x}O_4$ ", *Materials Advances*, **2022**, 3(2), 1087-110. [DOI: [10.1039/D1MA00822F](https://doi.org/10.1039/D1MA00822F)]

Li, T.; **Rodriguez, E. E.\***, "Mesoporous perovskite titanates via hydrothermal conversion", *Chemical Communications*, **2022**, 58, 783-786. [DOI: [10.1039/D1CC05343D](https://doi.org/10.1039/D1CC05343D)]

## Conferences, Workshops, and Talks

**Over 85 invited talks and seminars.** Representative talks shown below.

### Keynotes:

"Plenary talk: Solid state reactions on the beam line, what we gain by peering into the black box"  
Advanced Photon Source User Group Meeting, Argonne National Lab 2025, Lemont, IL

"Breaking barriers and exploring frontiers: Quantum materials at the interface of physics & chemistry"  
Conference for Undergraduate Underrepresented Minorities in Physics 2024, College Park, MD

"Beyond Sparkle and Glitter: How the Science of Crystals will Usher in the Quantum Revolution"  
Distinguished Scholar Teacher Speaker Series 2024, College Park, MD

"Richard D. Green Science and Mathematics Award and Lecture"  
California State University at Long Beach 2020, Long Beach, CA

"Hard Matter Science of Synthesis: Where are We Headed?"

Neutron Scattering User Group Meeting, ORNL 2019, Oak Ridge, TN

*"Hydrogen Bonding and Symmetry Relationships in Quantum Materials"*

Annual Meeting of the American Crystallographic Association 2019, Covington, KY

Recent invited Talks

*"Magnetocaloric and mechanocaloric materials for next-generation solid-state refrigeration"*

American Chemical Society Fall Annual Meeting 2025, Washington D.C.

*"Low-temperature oxygen uptake behavior in the 124-hexagonal metal oxides"*

American Chemistry Society Spring Annual Meeting 2025, San Diego, CA

*"Project Magneto: Multiferroics for sensing and recording chemical threats"*

Chemical and Biological Defense Science & Technology Conference 2024, Ft. Lauderdale, FL

Recent invited seminars:

*"Breaking Symmetry to Induce Novel Properties in Layered Metal Chalcogenides"*

Seminar at Iowa State University 2025, Ames, IA

Seminar at Pennsylvania State University 2025, State College, PA

Seminar at University of Washington 2025, Seattle, WA

Seminar at Johns Hopkins University 2025, Baltimore, MD

Seminar at University of Berkeley Inorganic Division 2024, Berkeley, CA

Seminar at Howard University 2024, Washington D.C.

Seminar at Colorado School of Mines 2024, Golden, CO

Recent symposia organized:

Symposium, *Finding the Missing Puzzle Piece: An Introduction to Neutron Scattering*

SACNAS Annual Conference 2025, Columbus, OH

Symposium on *Crystallography of Quantum Materials*

American Crystallography Association National Meeting 2019, Covington, KY

Symposium on *Structure-Property Correlations in Functional Materials*

American Chemical Society National Meeting 2019, Orlando, FL

Recent workshops co-organized:

*"Interaction of X-rays and Neutrons with Matter"*

National School on X-ray and Neutron Scattering 2019-2025 Oak Ridge, TN and Argonne, IL

*Fundamentals of Quantum Materials,*

6-day workshop and school on Synthesis of Quantum Materials 2017-2025 College Park, MD

*School on Representational Analysis and Magnetic Structures,*

4-day school on solving magnetic structures with neutron data 2015, 2018, 2021 College Park, MD

**Teaching, Extension, Mentoring, and Advising**

Courses Taught

CHEM401: Inorganic Chemistry

CHEM602: Advanced Inorganic Chemistry II

CHEM608E: Crystallography of the Solid State  
CHEM146: General Principles of Chemistry for Majors  
CHEM271: General Chemistry and Energetics  
CHEM498E: Chemistry for Energy and Sustainability  
CHEM611: Professional Skills for Graduate Students  
CHEM612: Scientific Presentations for Graduate Students  
CHEM889: Inorganic/Organic Seminar

#### **Advising: Research**

- Advised 13 PhD students, representative dissertations below
- Currently advising 7 PhD students
- Advised 17 undergraduate students as research interns, 4 currently
- Advised 3 Master's students
- Served as PhD defense committee 47 students
- Advised 4 postdoctoral research associates

#### **Other Directed Research Mentoring**

##### Louis Stokes Alliance for Minority Participation (LSAMP) Fellows

Cherub Seifu, Summer 2023  
Allejandra Chavez, Summer 2020  
Corleigh Forrester, Summer 2020  
Isai Ramirez Gonzalez, Summer 2020  
Hector Vivanco, Spring 2015-Spring 2017

##### High School Students

Mitchell Moore, Eleanor Roosevelt High School, currently undergraduate at Texas A&M University (Summer 2015 – Spring 2016)  
Ariane Chandler, McKinley Technology High School, ACS Project SEED (Summer 2014)

##### Advising: Other than Directed Research

- Faculty advisor of the *American Chemical Society UMD Student Affiliates*, undergraduate club for hosting seminars and performing outreach from Fall 2012 to 2018
- Faculty advisor to the Dept. of Chemistry and Biochemistry's *Graduate Student Organization* from Fall 2016 to 2019
- Faculty co-advisor of the Society of Chicanos/Hispanics and Native Americans in Science (SACNAS) UMD chapter.

#### **Grants**

Total grant to date: **\$4.92M** as **Principal Investigator**, **\$39M** as **Co-PI** on multi-PI grants and cooperative agreements.

Funding agencies include National Science Foundation, Department of Energy- Basic Energy Sciences, Defense Threat Reduction Agency, and the National Institute of Standards and Technology

#### **Service and Outreach**

Serve on numerous reviewing committees at departmental level, college level, and university-wide. Also participate in reviewing for Oak Ridge National Laboratory, National Science Foundation, DOE Office of Science, and National Institute of Standards and Technology.