

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
Research and Scholarship Award from the University of Maryland Graduate School	2013
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

Chapters

“Chapter 6: Hydrothermal Synthesis and Crystal Growth”

Wilfong, B., Zhou, X. and **Rodriguez, E. E.**

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

World Scientific, New Jersey, **2021**

ISBN: 978-981-121-937-5

Encyclopedia

Rodriguez, E. E.* “Iron-based Superconductors”

Encyclopedia of Inorganic and Bioinorganic Chemistry, **2019**.

Refereed Journals Articles

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

* indicates corresponding author and driver of published work

110. Guratinder, K.; Romig, T. G.; Mandujano, H. C.; Stock, C.; **Rodriguez, E. E.***, “Spin reorientations in structurally metastable, disordered, and hexagonal Cr₇Te₈”, *under review*.

109. Mandujano, H. C.; Sheoran, S.; Zhang, Y.; Li, T.; Hong, S. J.; Dev, P.; **Rodriguez, E. E.***, “Evolution of Altermagnetism to Spin Density Waves in Co_xNbSe₂”, *under review*.

108. Li, T.; Hong, S. J.; Liou, Sz-C.; Foley, E.; Elazar-Mittelman, H.; Zhou, X.; Mandujano, H. C.; **Rodriguez, E. E.***, "A Crystallographic Shear Driven by Oxygen Insertion in $(\text{LuFeO}_3)_n\text{LuFe}_2\text{O}_4$ ", *under review*.
107. Balisetty, L.; Zhou, X.; Wilfong, B.; Mandujano, H. C.; **Rodriguez, E. E.***, "Selenotochilinite: a heterostructure of layered double hydroxides with layered tetragonal FeSe", *Inorganic Chemistry*, *accepted*.
106. 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)]
105. Mandujano, H. C.; Zavalij, P. Y.; Manjon-Sanz, A.; Huibo, C.; **Rodriguez, E. E.***, "Coexistence of commensurate and incommensurate antiferromagnetic ground states in Co_xNbSe_2 single crystal", *Phys. Rev. Materials*, **2025**, 9, 014403. [[DOI: 10.1103/PhysRevMaterials.9.014403](https://doi.org/10.1103/PhysRevMaterials.9.014403)]
104. Lopez, M.; Yan, P.; Javadi, A.; Silva, I. D.; Wang, Z.; Ren, S.; Bennett, J. W.; **Rodriguez, E. E.***, "Evidence of ferrimagnetism in Fe_3GaTe_2 via neutron diffraction studies", *Journal of Materials Chemistry C*, **2025** 13, 15354—15361. [[DOI:10.1039/D5TC01719J](https://doi.org/10.1039/D5TC01719J)]
103. 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 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**.
102. Yan, P.; Layegh, M.; Stadel, R.; Birenzvige, J.; Zavalij, P. Y.; **Rodriguez, E. E.**; Bennett, J.W.*, "Data-Enabled Discovery of Two-Dimensional van der Waals Layered Phosphochalcogenides", *Chemistry of Materials*, **2025**, 14, 5086–5098. [[DOI:10.1021/acs.chemmater.5c00678](https://doi.org/10.1021/acs.chemmater.5c00678)]
101. 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)]
100. Wang, Z.; Zheng, H.; Chen, A.; Ma, L.; Hong, S. J.; **Rodriguez, E. E.**; Woehl, T. J.; Shi, S.-F.; Parker, T.; Ren, S., "Room-Temperature CrI_3 Magnets through Lithiation", *ACS Nano*, **2024**, available online. [[DOI: 10.1021/acsnano.4c02613](https://doi.org/10.1021/acsnano.4c02613)]
99. Li, T.; **Rodriguez, E. E.***, "Multiscale characterizations of structural evolution in mesoporous CeO_2 ", *Chemical Communications*, **2024**, 16, 29, 38757–38767. [[DOI: 10.1039/D4CC02128B](https://doi.org/10.1039/D4CC02128B)]
98. 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)]
97. Fedderwitz, R.; Hammell, A.; Lujan, A.; Park, D.; Fleischer, J.; Mandujano, H. C.; **Rodriguez, E. E.**; Kofinas, P., "Magnetic ferrite nanoparticle inks for syringe printable inductors", *ACS Applied Electronic Materials*, **2024**, 6, 5, 3480–3490 [[DOI: 10.1021/acsaelm.4c0028](https://doi.org/10.1021/acsaelm.4c0028)].

96. 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)]
95. 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)]
94. Guratinder, K.; Chan, E.; **Rodriguez, E. E.**; Rodriguez-Rivera, J. A.; Stuhr, U.; Stunault, A.; Travers, R.; Green, M.A.; Qureshi, N.; Stock, C. "Acoustic lattice instabilities at the magneto-structural transition in Fe_{1.06}Te", *Physical Review B*, **2023**, 104, 214411. [DOI: [10.1103/PhysRevB.108.214411](https://doi.org/10.1103/PhysRevB.108.214411)]
93. 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 $Ln = Y, Lu$, and Yb ", *APL Materials*, **2023**, 11, 061120. [DOI: [10.1063/5.0144717](https://doi.org/10.1063/5.0144717)]
92. Li, T.; Leonard, M.; Tsyshevsky, R.; McEntee, M.; Karwacki, C.; Durke, E. M.; Kuklja, M.; **Rodriguez, E. E.***, "High reactivity of mesoporous CeO₂ to dissociate chemical warfare agent sarin", *Materials Chemistry Frontiers*, **2023**, 7(9), 1855-1866. [DOI: [10.1039/D2QM01253G](https://doi.org/10.1039/D2QM01253G)]
91. Saar, L.; Liang, H.; Wang, A.; McDannald, A.; **Rodriguez, E.**; Takeuchi, I.; Kusne, A. G.*, "The LEGOLAS Kit: A low-cost robot science kit for education with symbolic regression for hypothesis discovery and validation", *MRS Bulletin*, **2022**, 47, 881–885. [DOI: [10.1557/s43577-022-00430-2](https://doi.org/10.1557/s43577-022-00430-2)]
90. Leonard, M. B; Bruni, E.; Hall, M.; Li, T.; **Rodriguez, E. E.**; Durke, E. M., "Experimental Study of the Adsorption and Decomposition of Sarin on Dry Copper(II) Oxide", *The Journal of Physical Chemistry Letters*, **2022**, 13 (50), 11663-11668. [DOI: [10.1021/acs.jpclett.2c0318](https://doi.org/10.1021/acs.jpclett.2c0318)]
89. 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 CeO₂ 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)]
88. Leonard, M.; Li, T.; Kramer, M.; McDonnell, S. M.; Vedernikov, A. N.; **Rodriguez, E. E.***, "Synthesis of Ordered Mesoporous Cerium Doped Titanium Oxide for Toxic Chemical Filtration", *Journal of Hazardous Materials*, **2022**, 438, 129536. [DOI: [10.1016/j.jhazmat.2022.129536](https://doi.org/10.1016/j.jhazmat.2022.129536)]
87. 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)]
86. Campbell, D. J.; Wilfong, B.; Zic, M. P.; Levy, G.; Na, M. X.; Pedersen, T. M.; Gorovikov, S.; Zavalij, P. Y.; Zhdanovich, S.; Damascelli, A.; **Rodriguez, E. E.**; Paglione, J., "Physical properties and electronic structure of single-crystal KCo_2As_2 ." *Physical Review Materials*, **2022**, 6, 045003. [DOI: [10.1103/PhysRevMaterials.6.045003](https://doi.org/10.1103/PhysRevMaterials.6.045003)]

85. Li, T.; Tsyshevsky, R.; McEntee, M.; Durke, E. M.; Karwacki, C.; **Rodriguez, E. E.**, Kuklja, M. M., "Detection of Sarin Reactivity on Titania Nanomaterials: Understanding Fundamentals" *ACS Applied Nano Materials*, **2022**, 5, 6659–6670. [DOI: doi.org/10.1021/acsanm.2c00693]
84. A. McDannald, M. Frontzek, A. T. Savici, M. Doucet, **E. E. Rodriguez**, K. Meuse, J. Opsahl-Ong, D. Samarov, I. Takeuchi, A. G. Kusne, and W. Ratcliff, "On-the-fly autonomous control of neutron diffraction via physics-informed bayesian active learning," *Applied Physics Reviews*, **2022**, 9, 021408 [DOI: [10.1063/5.0082956](https://doi.org/10.1063/5.0082956)].
83. 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 $\text{YbMn}_x\text{Fe}_{2-x}\text{O}_4$, *Materials Advances*, **2022**, 3(2), 1087-110. [DOI: [10.1039/D1MA00822F](https://doi.org/10.1039/D1MA00822F)]
82. 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)]
81. Lane, H. **Rodriguez, E. E.**; Walker, H.C.; Niedermayer, Ch.; Stuhr, U.; Bewley, R.I.; Voneshen, D.J.; Green, M.A.; Rodriguez-Rivera, J.A.; Fouquet, P.; Cheong, S.-W.; Attfield, J. P.; Ewings, R. A.; Stock, C., "Metastable antiphase boundary ordering in CaFe_2O_4 ", *Physical Review B*, **2021**, 104(1), 104404 . [DOI: [10.1103/PhysRevB.104.104404](https://doi.org/10.1103/PhysRevB.104.104404)]
80. Li, T.; Tsyshevsky, R.; Algrim, L.; McEntee, M.; Durke, E. M.; Eichhorn, B.; Zachariah, M. R.; Kuklja, M. M.; **Rodriguez, E. E.***, "Understanding Dimethyl Methylphosphonate Adsorption and Decomposition on Mesoporous CeO_2 ", *ACS Applied Materials & Interfaces* **2021**, 13(45), 54597-54609 [DOI: [10.1021/acsami.1c16668](https://doi.org/10.1021/acsami.1c16668)].
79. Zheng, H.; Wilfong, B.; Hickox-Young, D.; Rondinelli, J.; Zavalij, P. Y.; **Rodriguez, E. E.*** "A Polar Ferromagnetic Metal by Intercalation of Metal-amine Complexes," *Chemistry of Materials*, **2021**, 33, 4936-4947. [DOI: [10.1021/acs.chemmater.1c00540](https://doi.org/10.1021/acs.chemmater.1c00540)]
78. Diethrich, T. J.; Gnewuch, S.; Zavalij, P.Y.; **Rodriguez, E. E.*** "Orbital contribution to paramagnetism and non-innocent thiophosphate anions in layered $\text{Li}_2\text{MP}_2\text{S}_6$ where $M = \text{Fe, Co}$," *Inorganic Chemistry*, **2021**, 60, 10280-10290. [DOI: [10.1021/acs.inorgchem.1c00710](https://doi.org/10.1021/acs.inorgchem.1c00710)]
77. Gillard, C.; Zhou, X.; Avdeev, M.; **Rodriguez, E. E.**; Sharma, Neeraj "On the electrochemical phase evolution of cobalt selenide in alkali ion batteries," *Inorganic Chemistry*, **2021**, 60, 7150-7160. [DOI: [10.1021/acs.inorgchem.1c00226](https://doi.org/10.1021/acs.inorgchem.1c00226)]
76. Campbell, D. J.; Collini, J.; Slawinska, J.; Autieri, C.; Wang, L.; Wang, K.; Wilfong, B.; Eo, Y.S.; Neves, P.; Graf, D.; **Rodriguez, E. E.**; Butch, N. P.; Buongiorno Nardelli, M.; Paglione, J., "Topologically-Driven Linear Magnetoresistance in Helimagnetic FeP ," *npj Quantum Materials*, **2021**, 6, 38. [DOI: [10.1038/s41535-021-00337-2](https://doi.org/10.1038/s41535-021-00337-2)]
75. Trainer C.; Songvilay, M.; Qureshi, N.; Stunault, A.; Yim, C. M.; **Rodriguez, E. E.**; Heil, C.; Tsurkan, V.; Green, M. A.; Loidl, A.; Wahl, P. and Stock, C., "Magnetic surface reconstruction in the van der Waals antiferromagnet Fe_{1+x}Te ," *Physical Review B*, **2021**, 103, 024406. [DOI: [10.1103/PhysRevB.103.024406](https://doi.org/10.1103/PhysRevB.103.024406)]
74. Guiton, B. S.; Stefik, M.; Augustyn, V.; Banerjee, S.; Bardeen, C. J.; Bartlett, B. M.; Li, J.; López-Mejías, V.; MacGillivray, L. R.; Morris, A.; **Rodriguez, E. E.**; Samia, A.C. S.; Sun, H.; Sutter P.;

Talham D. R., "Frontiers in hybrid and interfacial materials chemistry research," *Materials Research Bulletin*, **2020**, 45, 951-964. [DOI: [10.1557/mrs.2020.271](https://doi.org/10.1557/mrs.2020.271)]

73. Gnewuch, S.; **Rodriguez, E. E.**, "Distinguishing the intrinsic antiferromagnetism in polycrystalline LiCoPO_4 and LiMnPO_4 Olivines." *Inorganic Chemistry*, **2020**, 59, 5883-5895. [DOI: [10.1021/acs.inorgchem.9b03545](https://doi.org/10.1021/acs.inorgchem.9b03545)]

72. Cooley, J. A.; Bocarsly, J. D.; Schueller, E. C.; Levin, E. E.; **Rodriguez, E. E.**; Huq, A.; Lapidus, S. H.; Wilson, S. D.; Seshadri, R. "Evolution of noncollinear magnetism in magnetocaloric MnPtGa ", *Physical Review Materials*, **2020**, 4, 044405. [DOI: [10.1103/PhysRevMaterials.4.044405](https://doi.org/10.1103/PhysRevMaterials.4.044405)]

71. Zhou, X.; Wang, L.; Fan, X.; Wilfong, B.; Liou, S.-C.; Wang, Y.; Zheng, H.; Feng, Z.; Wang, C.; **Rodriguez, E. E.**, "Isotope Effect between H_2O and D_2O in Hydrothermal Synthesis", *Chemistry of Materials*, **2020**, 32, 765. [DOI: [10.1021/acs.chemmater.9b04121](https://doi.org/10.1021/acs.chemmater.9b04121)]

70. Wilfong, B.; Zhou, X.; Zheng, H.; Babra, N.; Brown, C.; Lynn, J. W.; Taddei, K.; Paglione, J.; **Rodriguez, E. E.**, "Long-range magnetic order in hydroxide-layer-doped $(\text{Li}_{1-x-y}\text{Fe}_x\text{Mn}_y\text{OD})\text{FeSe}$ ", *Physical Review Materials*, **2020**, 4, 034803. [DOI: [10.1103/PhysRevMaterials.4.034803](https://doi.org/10.1103/PhysRevMaterials.4.034803)]

69. DePablo, J. J.; Jackson, N. E.; Webb, M.; Chen, L.-Q.; Moore, J.; **Rodriguez, E. E.** et al. "New frontiers for the materials genome initiative", *NPJ Computational Materials*, **2019**, 5, 41. [DOI: [10.1038/s41524-019-0173-4](https://doi.org/10.1038/s41524-019-0173-4)]

68. Tosado, J.; Chen, W.C.; Gnewuch, S.; Hasaan, T.; Dax, T.; **Rodriguez, E. E.**, "Small-angle neutron polarimetry apparatus (SANPA): Development at the NIST Center for Neutron Research", *Review of Scientific Instruments*, **2019**, 90, 063303. [DOI: [10.1063/1.5091110](https://doi.org/10.1063/1.5091110)]

67. Tosado, J.; Chen, W.C.; **Rodriguez, E. E.**, "A strategy for handling aberration in Spherical Neutron Polarimetry", *Journal of Physics: Conference Series*, **2019**, 1316, 012015. [DOI: [10.1088/1742-6596/1316/1/012015](https://doi.org/10.1088/1742-6596/1316/1/012015)]

66. Virtue, A.; Zhou, X.; Wilfong, B.; Lynn, J. W.; Taddei, K.; Zavalij, P.; Wang, L.; **Rodriguez, E. E.**, "Magnetic order effects on the electronic structure of KMnS_2 ($\text{M}=\text{Cu}, \text{Li}$) with the ThCr_2Si_2 -type structure", *Physical Review Materials*, **2019**, 3, 044411. [DOI: [10.1103/PhysRevMaterials.3.044411](https://doi.org/10.1103/PhysRevMaterials.3.044411)]

65. Li, T.; Jayathilake, R.; Taylor, D. D.; **Rodriguez, E. E.**, "Structural studies of the perovskite series $\text{La}_{1-x}\text{Sr}_x\text{CoO}_{3-d}$ during chemical looping with methane", *Chemical Communications*, **2019**, 55, 4929. [DOI: [10.1039/C8CC09573F](https://doi.org/10.1039/C8CC09573F)]

64. Trainer, C.; Yim, C. M.; Heil, C.; Giustino, F.; Croitoro, D.; Tsurkan, V.; Loidl, A.; **Rodriguez, E. E.**; Stock, C.; Wahl, P., "Manipulating surface magnetic order in iron telluride", *Science Advances*, **2019**, 5, eaav3478. [DOI: [10.1126/sciadv.aav3478](https://doi.org/10.1126/sciadv.aav3478)]

63. Gnewuch, S.; **Rodriguez, E. E.**, "The fourth ferroic order: Current status on ferrotoroidic materials", *Journal of Solid State Chemistry*, **2019**, 271, 175. [DOI: [10.1016/j.jssc.2018.12.035](https://doi.org/10.1016/j.jssc.2018.12.035)]

62. Wang, X.; Jayathilake, R.; Taylor, D. D.; **Rodriguez, E. E.**; Zachariah, M. R. "Study of C/Doped $\delta\text{-Bi}_2\text{O}_3$ Redox Reactions by in Operando Synchrotron X-ray Diffraction: Bond Energy/Oxygen

Vacancy and Reaction Kinetics Relationships” *Journal of Physical Chemistry C*, **2018**, 122(16), 8796. [DOI: [10.1021/acs.jpcc.8b01402](https://doi.org/10.1021/acs.jpcc.8b01402)]

61. Sarte, P. M.; Cowley, R. A.; **Rodriguez, E. E.**; Stock, C.; et al., “Disentangling orbital and spin exchange interactions for Co^{2+} on a rocksalt lattice”, *Physical Review B*, **2018**, 98, 024415. [DOI: [10.1103/PhysRevB.98.024415](https://doi.org/10.1103/PhysRevB.98.024415)]

60. Songvilay, M.; **Rodriguez, E. E.**; Lindsay, R.; Green, M. A.; Walker, H. C.; Rodriguez-Rivera, J. A.; Stock, C., Anharmonic Magnon Excitations in Noncollinear and Charge-Ordered $\text{RbFe}^{2+}\text{Fe}^{3+}\text{F}_6$, *Physical Review Letters*, **2018** [DOI: [10.1103/PhysRevLett.121.087201](https://doi.org/10.1103/PhysRevLett.121.087201)]

59. Zhou, X.; Wilfong, B.; Liou, S.-C.; Hodovanets, H.; Brown C. M. and **Rodriguez, E. E.***, “Proton and ammonia intercalation into layered iron chalcogenides”, *Chemical Communications*, **2018**, Special Issue on Emerging Investigators 2018. [DOI: [10.1039/C8CC02436G](https://doi.org/10.1039/C8CC02436G)]

58. Jayathilake, R.; Levitas, B.; **Rodriguez, E. E.***, “In situ diffraction studies on reversible oxygen uptake and release in $\text{AFe}_2\text{O}_{4+\delta}$ ($\text{A} = \text{Lu}, \text{Yb}, \text{Y}, \text{In}$)”, *Journal of Materials Chemistry A*, **2018**, 6, 4801-4810. [DOI: [10.1039/C7TA09823E](https://doi.org/10.1039/C7TA09823E)]

57. Wilfong, B.; Zhou, X.; Vivanco, H. K.; Campbell, D. J.; Wang, K.; Graf, D.; Paglione, J.; **Rodriguez, E. E.***, “Frustrated magnetism in tetragonal CoSe , analogue to superconducting FeSe ”, *Physical Review B*, **2018**, 97, 104408. [DOI: [10.1103/PhysRevB.97.104408](https://doi.org/10.1103/PhysRevB.97.104408)]

56. Vera Stimpson, L. J.; **Rodriguez, E. E.**; Brown, C. M.; Stenning, G. B. B; Jura, M.; Arnold, D. C. “Magnetic ordering in a frustrated bow-tie lattice”, *Journal of Materials Chemistry C*, **2018**, 6, 4541, [DOI: [10.1039/C7TC05187E](https://doi.org/10.1039/C7TC05187E)]

55. Stanev, V; Oses, C.; Kusne, A. G.; **Rodriguez, E. E.**; Paglione, J.; Curtarolo, S.; Takeuchi, I., “Machine learning modeling of superconducting critical temperature”, *npj Computational Materials*, **2018**, 4, 29, [DOI: [10.1038/s41524-018-0085-8](https://doi.org/10.1038/s41524-018-0085-8)]

54. Stock, C.; **Rodriguez, E. E.**; Lee, N.; Demmel, F.; Fouquet, P.; Laver, M.; Niedermayer, Ch.; Su, Y.; Nemkovski, K; Green, M.A.; Rodriguez-Rivera, J. A.; Kim, J.W.; Zhang, L.; Cheong, S.-W., “Orphan spins in the $S = 5/2$ antiferromagnet CaFe_2O_4 ”, *Physical Review Letters*, **2017**, 119, 257204. [DOI: [10.1103/PhysRevLett.119.257204](https://doi.org/10.1103/PhysRevLett.119.257204)]

53. Zhou, X.; Eckberg, C.; Wilfong, B.; Liou, S.-C.; Vivanco, H. K.; Paglione, J.; **Rodriguez, E. E.***, “Superconductivity and magnetism in iron sulfides intercalated by metal hydroxides”, *Chemical Sciences*, **2017**, 8, 3781. [DOI: [10.1039/C6SC05268A](https://doi.org/10.1039/C6SC05268A)]

52. Larson, A.; Wilfong, B.; Moetakef, P.; Brown, C. M.; Zavalij, P.; **Rodriguez, E. E.***, “Metal-insulator transition tuned by magnetic field in $\text{Bi}_{1.7}\text{V}_8\text{O}_{16}$ hollandite”, *Journal of Materials Chemistry C*, **2017**, 5, 4967. [DOI: [10.1039/C7TC00487G](https://doi.org/10.1039/C7TC00487G)]

51. Zhou, X.; **Rodriguez, E. E.***, “Tetrahedral transition metal chalcogenides as functional inorganic materials”, *Chemistry of Materials*, **2017**, 29, 5737. [DOI: [10.1021/acs.chemmater.7b01561](https://doi.org/10.1021/acs.chemmater.7b01561)] **Paper part of the Up-and-Coming series.**

50. Zhou, X.; Wilfong, B.; Vivanco, H. K.; Paglione, J.; Brown, C. M.; **Rodriguez, E. E.***, “Layered metastable cobalt chalcogenides from topochemical deintercalation”, *Journal of the American Chemical Society*, **2016**, *138*, 16432. [[DOI: 10.1021/jacs.6b10229](https://doi.org/10.1021/jacs.6b10229)]
49. Zhou, X.; Zhou, W.; Udovic, T. J.; Yildirim, T.; Rush, J. J.; **Rodriguez, E. E.**; Wu, H.*, “Development of potential organic-molecule-based hydrogen storage materials: Converting C-N bond-breaking thermolysis of guanidine to N-H bond-breaking dehydrogenation”, *International Journal of Hydrogen Energy*, **2016**, *41*, 18542. [[DOI: 10.1016/j.ijhydene.2016.08.129](https://doi.org/10.1016/j.ijhydene.2016.08.129)]
48. Liu, L.; Taylor, D. D.; **Rodriguez, E. E.**; Zachariah, M. R.*, “Influence of transition metal electronegativity on the oxygen storage capacity of perovskite oxides”, *Chemical Communications*, **2016**, *52*, 10369. [[DOI: 10.1039/C6CC01997H](https://doi.org/10.1039/C6CC01997H)]
47. Wu, H.*; Zhou, X.; **Rodriguez, E. E.**; Zhou, W.; Udovic, T. J.; Yildirim, T.; Rush, J. J., “A new family of metal borohydride guanidinate complexes: Synthesis, structures and hydrogen-storage properties”, *Journal of Solid State Chemistry*, **2016**, *242*, 186. [[DOI: 10.1016/j.jssc.2016.07.013](https://doi.org/10.1016/j.jssc.2016.07.013)]
46. Taylor, Daniel D.; Schreiber, N.; Levitas, B.; Xu, W.; Whitfield, P.; **Rodriguez, E. E.***, “Oxygen storage properties of $\text{La}_{1-x}\text{Sr}_x\text{FeO}_{3-\delta}$ for chemical-looping reactions-an in-situ neutron and synchrotron X-ray study”, *Chemistry of Materials*, **2016**, *28*, 3951. [[DOI: 10.1021/acs.chemmater.6b01274](https://doi.org/10.1021/acs.chemmater.6b01274)]
45. Vivanco, H. K. and **Rodriguez, E. E.***, “The intercalation chemistry of layered iron chalcogenide superconductors”, *Journal of Solid State Chemistry*, **2016**, *242*, 3. [[DOI: 10.1016/j.jssc.2016.04.008](https://doi.org/10.1016/j.jssc.2016.04.008)]
44. Borg, C. K. H.; Zhou, X.; Eckberg, C.; Campbell, D. J.; Saha, S. R.; Paglione, J.; **Rodriguez, E. E.*** “Strong anisotropy in nearly ideal tetrahedral superconducting FeS single crystals”, *Physical Review B*, **2016**, *93*, 094522. [[DOI: 10.1103/PhysRevB.93.094522](https://doi.org/10.1103/PhysRevB.93.094522)] **Selected for the Editor’s Suggestion**
43. Zhou, X.; Borg, C. K. H.; Lynn, J. W.; Saha, S. R.; Paglione, J.; **Rodriguez, E. E.*** “The preparation and phase diagrams of $(\text{Li}_{1-x}\text{Fe}_x\text{OD})\text{FeSe}$ and $(\text{Li}_{1-x}\text{Fe}_x\text{OH})\text{FeSe}$ superconductors”, *Journal of Materials Chemistry C*, **2016**, *4*, 3934. [[DOI: 10.1039/C5TC04041H](https://doi.org/10.1039/C5TC04041H)] **Hot Paper for special issue on Emerging Investigators.**
42. **Rodriguez, E. E.***; Cao, H.; Haiges, R.; Melot, B. C.* “Single crystal magnetic structure and susceptibility of CoSe_2O_5 ”, *Journal of Solid State Chemistry*, **2016**, *236*, 39. [[DOI: 10.1016/j.jssc.2015.09.006](https://doi.org/10.1016/j.jssc.2015.09.006)]
41. Moetakef, P.; Wang, L.; Nunn, A.; Gaskell, K.; Larson, A. M.; Hodges, B. C.; **Rodriguez, E. E.*** “Tuning the electronic band structure of microporous titanates with the hollandite structure”, *Journal of Materials Chemistry A*, **2015**, *3*, 20330. [[DOI: 10.1039/C5TA05288B](https://doi.org/10.1039/C5TA05288B)]
40. Lynn, J. W.*; Zhou, X.; Borg, C. K. H.; Saha, S. R.; Paglione, J.; **Rodriguez, E. E.** “Neutron investigation of the magnetic scattering in an iron-based ferromagnetic superconductor”, *Physical Review B*, **2015**, *92*, 060510. [[DOI: 10.1103/PhysRevB.92.060510](https://doi.org/10.1103/PhysRevB.92.060510)]

39. Stock, C.*; Rodriguez-Rivera, J. A.; Schmalzl, K.; **Rodriguez, E. E.**; Stunault, A.; Petrovic, C. “Single to multiquasiparticle excitations in the itinerant helical magnet CeRhIn₅”, *Physical Review Letters*, **2015**, 114, 247005. [[DOI: 10.1103/PhysRevLett.114.247005](https://doi.org/10.1103/PhysRevLett.114.247005)]
38. Taylor, D. D.; Schreiber, N. J.; Brown, C. M.; Arevalo-Lopez, A.; **Rodriguez, E. E.***, “Stabilization of cubic Sr₂FeMoO₆ through topochemical reduction”, *Chemical Communications*, **2015**, 51, 12201. [[DOI: 10.1039/C5CC04145G](https://doi.org/10.1039/C5CC04145G)]
37. Lennox, R. C.; Taylor, D. D.; Vera Stimpson, L. J.; Stenning, G. B. G; Jura, M.; Price, M. C.; **Rodriguez, E. E.**; Arnold, D. C.* “PZT-like structural phase transitions in the BiFeO₃ - KNbO₃ solid solution”, *Dalton Transactions*, **2015**, 44, 10608. [[DOI: 10.1039/c5dt00140d](https://doi.org/10.1039/c5dt00140d)]
36. Larson, A. M.; Moetakef, P.; Gaskell, K. J.; Brown, C.; King, G.; **Rodriguez, E. E.***; “Inducing ferrimagnetism in insulating hollandite Ba_{1.2}Mn₈O₁₆”, *Chemistry of Materials*, **2015**, 27, 515. [[DOI: 10.1021/cm503801j](https://doi.org/10.1021/cm503801j)]
35. Phelan, D.; **Rodriguez, E. E.**; Bing, Y.; Gao, J.; Ye, Z.; Huang, Q.; Wen, J.; Xu, G.; Stock, C.; Matsuura, M.; Gehring, P. M.* “Phase diagram of the relaxor ferroelectric (1-x) Pb(Mg_{1/3}Nb_{2/3})O₃ + x PbTiO₃: A neutron powder diffraction study of the relaxor skin effect.”, *Phase Transitions* **2015**, 88, 283. [[DOI: 10.1080/01411594.2014.989226](https://doi.org/10.1080/01411594.2014.989226)]
34. Decaroli, C; Arevalo-Lopez, A. M.; Woodall, C. H.; **Rodriguez, E. E.**; Attfield, J. P.; Parker, S. F.; Stock, C.* “[C₄H₁₂N₂][CoCl₄]: tetrahedrally coordinated Co²⁺ without the orbital degeneracy” *Acta Crystallographica B*, **2015**, 71, 20. [[DOI: 10.1107/S2052520614024809](https://doi.org/10.1107/S2052520614024809)]
33. Moetakef, P.; Larson, A. M.; Hodges, B. C.; Zavalij, P. Gaskell, K. J.; Piccoli, P.; **Rodriguez, E. E.***, “Synthesis and crystal chemistry of microporous titanates K_x(Ti,M)₈O₁₆ where M = Sc-Ni.”, *Journal of Solid State Chemistry*, **2014**, 220, 45. [[DOI: 10.1016/j.jssc.2014.08.012](https://doi.org/10.1016/j.jssc.2014.08.012)]
32. Stacey, T. E.; Borg, C. K. H.; Zavalij, P.; **Rodriguez, E. E.***, “Magnetically Stabilized Fe₈(μ₄-S)₆S₈ Clusters in Ba₆Fe₂₅S₂₇”, *Dalton Transactions*, **2014**, 43, 14612. [[DOI: 10.1039/C4DT01182A](https://doi.org/10.1039/C4DT01182A)]
31. McCabe, E. E.; Stock, C.; **Rodriguez, E. E.**; Wills, A. S.; Taylor, J. W.; Evans, J. S. O.*, “Weak spin interactions in Mott insulating La₂O₂Fe₂OSe₂”, *Physical Review B*, **2014**, 89, 100402(R). [[DOI: 10.1103/PhysRevB.89.100402](https://doi.org/10.1103/PhysRevB.89.100402)]
30. Rondinelli, J. M.; Benedek, N. A.; Freedman, D. E.; Kavner, A.; **Rodriguez, E. E.**; Toberer, E. S.; Martin, L. W., “Accelerating functional materials discovery”, *American Ceramic Society Bulletin*, **2013**, 92, 14-2.
29. Gaultois, M. W.*; Barton, P. T.; Birkel, C. S.; Misch, L. M.; Stucky, G. D.; **Rodriguez, E. E.**; Seshadri, R., “Structural disorder, magnetism, electrical and thermoelectric properties of pyrochlore Nd₂Ru₂O₇”, *Journal of Physics: Condensed Matter*, **2013**, 25, 186004. [[DOI: 10.1088/0953-8984/25/18/186004](https://doi.org/10.1088/0953-8984/25/18/186004)]

Published articles before appointment at the University of Maryland

28. Stock, C.; **Rodriguez, E. E.**; Lee, N. Green, M. A.; Demmel, R. A.; Ewings, R. A.; Fouquet, P.; Laver, M.; Niedermayer, Y. S.; Nemkovski, K.; Rodriguez-Rivera, J. A.; Cheong, S.-W., “Solitary

magnons in the $S = 5/2$ antiferromagnet CaFe_2O_4 ", *Physical Review Letters*, **2016**, 117, 017201. [DOI: [10.1103/PhysRevLett.117.017201](https://doi.org/10.1103/PhysRevLett.117.017201)]

27. Stock, C.; **Rodriguez, E. E.**; Sobolev, O.; Rodriguez-Rivera, J. A.; Ewings, R. A.; Taylor, J. W.; Christianson, A. D.; Green, M. A., "Soft striped magnetic fluctuations competing with superconductivity in Fe_{1+x}Te ", *Physical Review B*, **2014**, 90, 121113(R). [DOI: [10.1103/PhysRevB.90.121113](https://doi.org/10.1103/PhysRevB.90.121113)]

26. **Rodriguez, E. E.**; Stock, C.; Sokolov, D. A.; Green, M. A.; Sobolev, O.; Rodriguez-Rivera, J. A.; Cao, H.; Daoud-Aladine, A., "Magnetic and structural properties near the Lifshitz point in Fe_{1+x}Te ", *Physical Review B* **2013**, 88, 165110. [DOI: [10.1103/PhysRevB.88.165110](https://doi.org/10.1103/PhysRevB.88.165110)]

25. Blachowski, A.; Ruebenbauer, K.; Zajdel, P.; **Rodriguez, E. E.**; Green, M. A., "Mossbauer study of the '11' iron-based superconductors parent compound Fe_{1+x}Te ", *Journal of Physics: Condensed Matter*, **2012**, 24, 386006. [DOI: [10.1088/0953-8984/24/38/386006](https://doi.org/10.1088/0953-8984/24/38/386006)]

24. Stock, C.; **Rodriguez, E. E.**; Green, M. A., "Spin fluctuations and superconductivity in powders of $\text{Fe}_{1+x}\text{Te}_{0.7}\text{Se}_{0.3}$ ", *Physical Review B*, **2012**, 85, 094507. [DOI: [10.1103/PhysRevB.85.094507](https://doi.org/10.1103/PhysRevB.85.094507)]

23. Bhatia, V.; **Rodriguez, E. E.**; Butch, N. P.; Paglione, J.; Green, M. A., "Phase separation and superconductivity in $\text{Fe}_{1+x}\text{Te}_{0.5}\text{Se}_{0.5}$ ", *Chemical Communications*, **2011**, 47, 11297. [DOI: [10.1039/C1CC13878B](https://doi.org/10.1039/C1CC13878B)]

22. **Rodriguez, E. E.**; Stock, C.; Hsieh, P.-Y.; Butch, N. P.; Paglione, J.; Green, M. A., "Interstitial iron-controlled superconductivity in $\text{Fe}_{1+x}\text{Te}_{0.7}\text{Se}_{0.3}$ ", *Chemical Science*, **2011**, 2, 1782. [DOI: [10.1039/C1SC00114K](https://doi.org/10.1039/C1SC00114K)]

21. Stock, C.; **Rodriguez, E. E.**; Green, M. A.; Rodriguez-Rivera, J. A., "Gapped spin fluctuations and interstitial iron in the Fe_{1+x}Te parent compound", *Physical Review B*, **2011**, 84, 045124. [DOI: [10.1103/PhysRevB.84.045124](https://doi.org/10.1103/PhysRevB.84.045124)]

20. **Rodriguez, E. E.**; Stock, C.; Zajdel, P.; Krycka, K. L.; Majkrzak, C. F.; Zavalij, P.; Green, M. A., "Magnetic-crystallographic phase diagram of the superconducting parent compound Fe_{1+x}Te ", *Physical Review B*, **2011**, 84, 064403. [DOI: [10.1103/PhysRevB.84.064403](https://doi.org/10.1103/PhysRevB.84.064403)]

19. **Rodriguez, E. E.**; Stock, C.; Krycka, K. L.; Majkrzak, C. F.; Kirshenbaum, K.; Butch, N. P.; Saha, S. R.; Paglione, J.; Green, M. A., "Non-collinear spin-density wave antiferromagnetism in FeAs ", *Physical Review B*, **2011**, 83, 134438. [DOI: [10.1103/PhysRevB.83.134438](https://doi.org/10.1103/PhysRevB.83.134438)]

18. Zajdel, P.; Hsieh, P.-Y.; **Rodriguez, E. E.**; Butch, N. P.; Magill, J. D.; Paglione, J.; Zavalij, P.; Suchomel, M. R.; Green, M. A., "Phase separation and suppression of the structural and magnetic transitions in superconducting doped iron tellurides $\text{Fe}_{1+x}\text{Te}_{1-y}\text{S}_y$ ", *Journal of the American Chemical Society*, **2010**, 132, 13000. [DOI: [10.1021/ja105279p](https://doi.org/10.1021/ja105279p)]

17. **Rodriguez, E. E.**; Zavalij, P.; Hsieh, P.-Y.; Green, M. A., "Iodine as an oxidant in the topotactic deintercalation of Fe_{1+x}Te ", *Journal of the American Chemical Society*, **2010**, 132, 10006. [DOI: [10.1021/ja104004t](https://doi.org/10.1021/ja104004t)]

16. Johnstone, E. V.; Poineau, F.; Starkey, J.; Hartmann, T.; Forster, P.M.; Ma, L.; Hilgar, J.; **Rodriguez, E. E.**; Farmand, R.; Czerwinski, K. R.; Sattelberger, A. P., "Synthetic and coordination chemistry of the heavier trivalent technetium binary halides: Uncovering technetium triiodide", *Inorganic Chemistry*, **2013**, 52, 14309. [DOI: [10.1021/ic402278c](https://doi.org/10.1021/ic402278c)]
15. **Rodriguez, E. E.**; Poineau, F.; Llobet, A.; Kennedy, B. J.; Avdeev, M.; Thorogood, G. J.; Carter, M. L.; Singh, D. J.; Seshadri, R.; Cheetham, A. K., "High temperature magnetic ordering in the 4d perovskite SrTcO₃", *Physical Review Letters*, **2011**, 106, 067201. [DOI: [10.1103/PhysRevLett.106.067201](https://doi.org/10.1103/PhysRevLett.106.067201)]
14. **Rodriguez, E. E.**; Poineau, F.; Llobet, A.; Thompson, J. D.; Seshadri, R.; Cheetham, A. K., "Preparation, magnetism and electronic structures of cadmium technetates", *Journal of Materials Chemistry*, **2011**, 21, 1496. [DOI: [10.1039/c0jm02470h](https://doi.org/10.1039/c0jm02470h)]
13. Melot, B. C.; Darago, L. E.; Seshadri, R.; Goldman, A.; Furman, J. D.; **Rodriguez, E. E.**; "Magnetic ordering and magnetodielectric phenomena in CoSeO₄", *Journal of Physics: Condensed Matter*, **2010**, 22, 506003. [DOI: [10.1088/0953-8984/22/50/506003](https://doi.org/10.1088/0953-8984/22/50/506003)]
12. Weck, P. F.; Kim, E.; Poineau, F.; **Rodriguez, E. E.**; Sattelberger, A. P.; Czerwinski, K. R., "Structural and electronic trends in rare-earth technetates", *Dalton Transactions*, **2010**, 39, 7207. [DOI: [10.1039/c0dt00212g](https://doi.org/10.1039/c0dt00212g)]
11. **Rodriguez, E. E.**; Llobet, A.; Proffen, Th.; Melot, B. C.; Seshadri, R.; Littlewood, P. B.; Cheetham, A. K., "The role of static disorder in negative thermal expansion in ReO₃", *Journal of Applied Physics*, **2009**, 109, 114901. [DOI: [10.1063/1.3120783](https://doi.org/10.1063/1.3120783)]
10. Poineau, F.; **Rodriguez, E. E.**; Forster, P. M.; Sattelberger, A. P.; Cheetham, A. K.; Czerwinski, K. R., "Preparation of the binary technetium bromides: TcBr₃ and TcBr₄", *Journal of the American Chemical Society*, **2009**, 131, 6281. [DOI: [10.1021/ja808597r](https://doi.org/10.1021/ja808597r)]
9. Wilcox, J. D.; **Rodriguez, E. E.**; Doeff, M. M., "The impact of aluminum and iron substitution on the structure and electrochemistry of Li(Ni_{0.4}Co_{0.2-γ}M_γMn_{0.4})O₂ materials", *Journal of the Electrochemical Society*, **2009**, 156, A1011. [DOI: [10.1149/1.3237100](https://doi.org/10.1149/1.3237100)]
8. Shoemaker, D.; **Rodriguez, E. E.**; Abumohor, I. S.; Proffen, Th.; Seshadri, R.; "Intrinsic exchange bias in Zn_xMn_{3-x}O₄ solid solutions", *Physical Review B* **2009**, 80, 144422. [DOI: [10.1103/PhysRevB.80.144422](https://doi.org/10.1103/PhysRevB.80.144422)]
7. Weck, P. F.; Kim, E.; Poineau, F.; **Rodriguez, E. E.**; Sattelberger, A. P.; Czerwinski, K. R., "Technetium (IV) halides predicted by first-principles", *Inorganic Chemistry*, **2009**, 48, 6555. [DOI: [10.1021/ic900476m](https://doi.org/10.1021/ic900476m)]
6. **Rodriguez, E. E.**; Poineau, F.; Llobet, A.; Czerwinski, K. R.; Seshadri, R.; and Cheetham, A. K., "Preparation and crystal structures of bismuth technetates: a new metal oxide system", *Inorganic Chemistry*, **2008**, 47, 6281. [DOI: [10.1021/ic8003273](https://doi.org/10.1021/ic8003273)]
5. **Rodriguez, E. E.**; Poineau, F.; Llobet, A.; Sattelberger, A. P.; Bhattacharjee, J.; Waghmare, U. V.; Hartmann, T.; Cheetham, A. K., "Structural studies of TcO₂ by neutron powder diffraction and first- principles calculations", *Journal of the American Chemical Society*, **2007**, 129, 10244. [DOI: [10.1021/ja0727363](https://doi.org/10.1021/ja0727363)]

4. Melot, B.; **Rodriguez, E.**; Proffen, Th.; Hayward, M. A.; Seshadri, R., “Displacive disorder in three high-*k* bismuth oxide pyrochlores”, *Materials Research Bulletin*, **2006**, 41, 961. [[DOI: 10.1016/j.materresbull.2006.02.004](https://doi.org/10.1016/j.materresbull.2006.02.004)]
3. **Rodriguez, E. E.**; Proffen, Th.; Llobet, A.; Mitchell, J. F.; Rhyne, J. J., “Neutron diffraction study of the average and local structure of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ ”, *Physical Review B* **2005**, 71, 104430. [[DOI: 10.1103/PhysRevB.71.104430](https://doi.org/10.1103/PhysRevB.71.104430)]
2. Ross, C.A.; Castano, T.; **Rodriguez, E.**; Haratani, S.; Vogeli, B.; Smith, H. I., “Size-dependent switching of multilayer magnetic elements”, *Journal of Applied Physics*, **2005**, 97, 053902. [[DOI: 10.1063/1.1850998](https://doi.org/10.1063/1.1850998)]
1. Marioni, M.; Bono, D.; Banful, A.B.; del Rosario, M.; **Rodriguez, E.**; Peterson, B.; Allen, S.M.; O’Handley, R.C., “Pulsed field actuation of Ni-Mn-Ga ferromagnetic shape memory alloy single crystal”, *Journal de Physique IV (Paris)* **2003**, 112, 1001. [[DOI: 10.1051/jp4:20031050](https://doi.org/10.1051/jp4:20031050)]

Conferences, Workshops, and Talks

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

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

“2D Magnetism & Magnetoelectricity in Transition Metal Phosphates & Thiophosphates”

Gordon Research Conference on Neutron Scattering 2023 Ventura, CA

“Site occupancy and disorder effects on $Mg_{1-x}Co_xPS_3$ obtained through metal ion exchange metathesis”

American Crystallographic Association 2023 Baltimore, MD

“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
North American Solid State Chemistry Conference	2023 Calgary, Canada
Seminar at University of Kyoto	2023 Kyoto, Japan
Seminar, Technische Universität München	2022, Munich, Germany
Seminar, University of Münster	2022, Münster, Germany
Seminar, ETH	2022, Zurich, Switzerland
Seminar, University of Zurich	2022, Zurich, Switzerland
Seminar, Paul Scherrer Institute	2022, Villigen, Switzerland
Seminar, George Mason University	2022, Fairfax, VA
Seminar, University of Maryland Baltimore County	2022, Baltimore, MD
Seminar, Northwestern University	2021, Evanston, IL

Solid state reactions on the beamline, what we gain by peering into the “black box”

Pittsburgh Diffraction Society Conference 2022, Lemont, IL

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“Designing New Quantum Materials through Intercalation Chemistry”

Dept. of Materials Science and Engineering seminar 2020, virtual meeting

University of Florida, Gainesville

“Past and future workshops on magnetic structure determination”

Annual Meeting of the American Crystallographic Association 2020, virtual meeting

“Hydrogen Bonding in Quantum Materials”

NSF Center for Sustainable Nanotechnology 2020, virtual meeting

“Hydrogen Bonding in Layered Superconductors and Magnetic Materials”

Denver X-ray Meeting 2020, virtual meeting

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American Chemical Society National Meeting 2019, San Diego, CA

"Getting over the Tenure Activation Barrier"
American Chemical Society National Meeting 2019, Orlando, FL

"Functional Inorganic Materials at the University of Maryland"
Seoul National University 2018, Seoul, South Korea

"The Fourth Ferroic: Ferrotoroidicity and Spherical Neutron Polarimetry"
American Crystallography Association National Meeting 2018, Toronto, Canada

"In situ Powder Diffraction of Metal Oxides under Chemical Looping Conditions"
Deutsches Elektronen-Synchrotron (DESY) Workshop 2018, Hamburg, Germany
Pittsburgh Diffraction Society Annual Conference 2017, Indiana, PA

"Advanced Powder Diffraction of Oxygen Storage Materials"
Winter School on "Frontiers in Materials Science"
Jawaharlal Nehru Centre for Advanced Scientific Research 2017, Bangalore, India

"Beam Line Science for Materials Discovery and Design"
Physics Next Workshop: Materials Design and Discovery 2017, Long Island, NY

"Tetrahedral Transition Metal Chalcogenides as Functional Inorganic Materials"
Muhlenberg College, Chemistry Department 2019, Allentown, PA
University of Missouri, Dept. of Physics and Astronomy 2019, Columbia, MO
Columbia University, Materials Research & Science Center 2018, NYC, NY
Technische Universität Darmstadt 2018, Darmstadt, Germany
Johns Hopkins University, Dept. of Chemistry 2018, Baltimore, MD
University California Berkeley, Dept. of Chemistry 2017, Berkeley, CA
Rutgers University, LSM/IAMD inter-departmental seminars 2017, Piscataway, NJ
Georgia Institute of Technology, Dept. of Chem. & Biochemistry 2017, Atlanta, GA
Florida State University, Dept. of Chemistry 2017, Tallahassee, FL
Northwestern University, MRSEC 2017, Chicago, IL
Wayne State University, Dept. of Chemistry 2017, Detroit, MI
University of Michigan, Dept. of Materials Science & Engineering 2017, Ann Arbor, MI
University of Houston, Dept. of Chemistry 2017, Houston, TX
University of Texas Dallas, Dept. of Chemistry 2017, Dallas, TX
Texas A&M University, Dept. of Chemistry 2017, College Stn, TX
Colorado State University, Dept. of Chemistry 2017, Ft. Collins, CO
University of Central Florida, Dept. of Chemistry 2017, Orlando, FL
University of California Davis, Dept. of Chemistry 2016, Davis, CA
University of Southern California, Dept. of Chemistry 2016, Los Angeles, CA
University of Connecticut, Dept. of Chemistry 2016, Wilmington, DE
Duquesne University, Dept. of Chemistry 2016, Pittsburgh, PA

"Magnetism, Superconductivity, and Hund's Rule in Metallic Oxides and Chalcogenides"
Symposium in Honor of Prof. Anthony K. Cheetham 2016, Cambridge, U.K.

"Superconductors of Tomorrow. Where do we go from iron-based materials?"

Gordon Research Conference on Solid State Chemistry	2016, New London, NH
<i>"Superconductivity and Magnetism in Layered Metal Chalcogenides"</i>	
Center for Computational Materials Sciences 2016 Fall Meeting	2016, Stony Brook, NY
Center for Nanophysics and Advanced Materials (UMD)	2016, CP, MD
Oak Ridge National Laboratory, Neutron Sciences Division	2016, Oak Ridge, TN
<i>"Complex Magnetism and Metal-Insulator Transition in Microporous Metal Oxides"</i>	
International Materials Research Congress	2016, Cancun, Mexico
<i>"Transition Metal Oxides for Chemical Looping Reactions"</i>	
Chemical and Biomolecular Engineering (UMD)	2016, College Park, MD
<i>"Magnetic Structure and Dynamics in Iron-based Superconductors"</i>	
NIST Center for Neutron Research Summer School	2015, Gaithersburg, MD
<i>"Exploring New Magnetic Phenomena in Hund's Metals"</i>	
North American Conference on Solid State Chemistry	2015, Tallahassee, FL
<i>"Hollandite Oxides as a Route to Magnetic Insulators"</i>	
Chemical Society of Canada National Conference	2015, Ottawa, Canada
<i>"Magnetic and bonding trends in djefisherite-type $Ba_6M_{25}S_{27}$ and mackinawite FeS"</i>	
American Chemical Society National Meeting	2014, San Francisco, CA
<i>"Mixed-Valence Microporous Oxides for Magnetic Properties"</i>	
American Conference on Neutron Scattering	2014, Knoxville, TN
<i>"Magnetic ordering and metal-insulator transitions in hollandite-type oxides"</i>	
American Crystallography Association National Meeting	2015, Philadelphia, PA
<i>"Local Structural Effects on the Magnetism of Doped $Ba_xMn_8O_{16}$ Hollandites"</i>	
<i>"The Crystal Chemistry of Technetium Oxides and Halides"</i>	
American Crystallography Association National Meeting	2014, Albuquerque, NM
<i>"Magnetism and Superconductivity in Tetrahedral Iron Chalcogenides"</i>	
University of Delaware, Dept. of Chemistry	2015, Wilmington, DE
<i>"Exploring the Structural, Magnetic, and Chemical Degrees of Freedom in Transition Metal Compounds"</i>	
Kyoto University, Dept. of Energy and Hydrocarbon Chemistry	2013, Kyoto, Japan
<i>"Chemical, Structural, and Magnetic Trends in Iron Chalcogenides"</i>	
Drexel University, Dept. of Materials Science and Eng.	2013, Philadelphia, PA
University of Edinburgh, School of Physics and Astronomy	2013, Edinburgh, UK
University of Glasgow, School of Chemistry	2013, Glasgow, UK
University of Kent, School of Physical Sciences	2013, Kent, UK
<i>"Interstitial Iron Effects on Magnetic Excitations in $Fe_{1+x}Te$"</i>	
American Physical Society March Meetings	2012, Boston, MA

“Local structure effects in magnetoresistance materials”
 American Crystallography Association National Meeting 2010, Chicago, IL

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

American Conference on Neutron Scattering
 Co-chair of scientific program (est. 400 attendees) 2018, College Park, MD

Symposium on *Emergent Phenomena in the Solid State*
 American Chemical Society National Meeting 2017, San Francisco, CA

Symposium on *Magnetochemistry in Molecules and Extended Solids*
 American Chemical Society National Meeting 2015, Boston, MA

Symposium on *Materials Discovery and Crystal Growth*
 American Crystallography Association National Meeting 2015, Philadelphia, PA

“Neutron Day”
 Full day symposium on collaborations between UMCP and NIST 2015, College Park, MD

Symposium on *Materials Characterization with Neutrons*
 XXII International Materials Research Congress 2013, Cancun, Mexico

Workshops:

“Interaction of X-rays and Neutrons with Matter”
 National School on X-ray and Neutron Scattering
 2025 Oak Ridge, TN
 2024 Argonne, IL
 2023 Oak Ridge, TN
 2022 virtual
 2021 virtual
 2019 Oak Ridge, TN

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

School on Representational Analysis and Magnetic Structures, co-organizer
 4-day school on solving magnetic structures with neutron data 2021, College Park, MD
 2018, College Park, MD
 2015, College Park, MD

Workshop: Role of the new Second Target State on Materials Discovery

ORNL, discussion leader and co-author of final report 2019, Oak Ridge, TN

Workshop: Solid State and Materials Chemistry Hybrids and Interfaces
 NSF, discussion leader and co-author of final report 2019 Alexandria, VA

Workshop: Quantum Materials Young Investigators
 ORNL, invited speaker and participant 2019, Oak Ridge, TN

Workshop: Advancing and Accelerating Materials Innovation
 NSF, discussion leader and co-author of final report 2017, Ballston, VA

Basic Research Needs Report on Synthesis Science for Energy Related Technologies
 DOE, Office of Sciences, participant and co-author of report 2016, Rockville, MD

Workshop: The Materials Genome Initiative in Ceramics, Geosciences, & Solid-State Chem.
 NSF, participant and co-author on final report. 2013, Ballston, VA

Teaching, Extension, Mentoring, and Advising

Courses Taught (for past 8 years only)

Semester	Course	Enrollment
Spring 2018	CHEM401: Inorganic Chemistry	54
Spring 2019	CHEM401: Inorganic Chemistry	51
Spring 2016	CHEM602: Advanced Inorganic Chemistry II	7
Spring 2020	CHEM602: Advanced Inorganic Chemistry II	7
Spring 2021	CHEM602: Advanced Inorganic Chemistry II	10
Spring 2023	CHEM608E: Crystallography of the Solid State	15
Fall 2017	CHEM146: General Principles of Chemistry for Majors	37
Fall 2019	CHEM271: General Chemistry and Energetics	81
Fall 2020	*CHEM271: General Chemistry and Energetics	313
Fall 2021	CHEM271: General Chemistry and Energetics	173
Fall 2021	CHEM271: General Chemistry and Energetics	173
Fall 2022	CHEM146: General Principles of Chemistry for Majors	58
Fall 2023	CHEM146: General Principles of Chemistry for Majors	45
Spring 2024	CHEM498E: Chemistry for Energy and Sustainability	22
Spring 2025	CHEM498E: Chemistry for Energy and Sustainability	29
Fall 2018	CHEM611: Professional Skills for Graduate Students	19
Fall 2019	CHEM611: Professional Skills for Graduate Students	21
Fall 2020	CHEM611: Professional Skills for Graduate Students	24
Fall 2025	CHEM611: Professional Skills for Graduate Students	19
Winter 2019	CHEM612: Scientific Presentations for Graduate Students	19
Winter 2020	CHEM612: Scientific Presentations for Graduate Students	20
Winter 2021	CHEM612: Scientific Presentations for Graduate Students	22

Fall 2019	CHEM889: Seminar	10
Spring 2023	CHEM889: Inorganic/Organic Seminar	12

* This course was co-taught virtually with Prof. Christopher Jarzynski due to COVID-restrictions

CHEM399: Introduction to Chemical Research (undergraduate), 10 students total

CHEM899: Doctoral Dissertation Research, 12 students total

Grants

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

External single-PI grants (all dollar amounts listed are total costs)

National Science Foundation, Division of Materials Research, DMR-2403985

“Exploring the Role of Copper Sulfides in LK-99 Room Temperature Superconductor”

\$250,000

12/01/2023 to 11/31/2025

Department of Energy, Basic Energy Sciences, DESC-0016434

“Exploring Two-dimensional Magnetism in van der Waals Materials with Polarized Neutron Scattering”

\$730,000

08/01/2022 to 7/31/2025

National Science Foundation, Division of Materials Research, DMR-2113682

“Non-centrosymmetric Quantum Materials through Metal-amine Complexes”

\$375,000

05/01/2021 to 04/30/2024

Department of Energy, Basic Energy Sciences, DESC-0016434

“Discovering Toroidal Materials with Spherical Neutron Polarimetry”

\$653,000

08/01/2019 to 7/31/2022

Department of Energy, Basic Energy Sciences, DESC-0016434

“The Next Ferroic Order: Synthesis and Neutron Scattering of Ferrotoroidic Materials”

\$538,854

08/01/2016 to 7/31/2019

National Science Foundation, Division of Materials Research, DMR-1455118

“CAREER: Designing Hund's Metals from Transition Metal Sulfides”

\$625,000

4/01/2015 to 3/31/2020

External multi-PI grants

Department of Defense, Defense Threat Reduction Agency, HDTRA1-24-1-0015

“Designing Multiferroic Composites from Layered Ferroelectric Chalcogenides and van der Waals Ferromagnets for Integration with SWaP Microsensors”

\$1,500,000
02/15/2024 to 02/14/2027
PI Efrain E. Rodriguez and co-PIs: Ichiro Takeuchi (MSE), Cheng Gong (EECE), and Joseph Bennett (UM Baltimore County)

National Science Foundation, Division of Materials Research, DMR2523217
“DMREF: NSF-NSERC: High Entropy Quantum Materials”
\$2,000,000
10/01/2025 to 09/30/2029
PI Johnpierre Paglione (Physics), co-PIs: Efrain E. Rodriguez, Ichiro Takeuchi (MSE),

National Science Foundation Engineering Research Center, 316474-00006
NSF Engineering Research Center for Environmentally Applied Refrigerant Technology Hub
\$4,800,000
09/01/2024 to 08/31/2029
PI Damena Agofer, co-PIs: Efrain E. Rodriguez, Ichiro Takeuchi, Gianna Valentino, Brent Goldfarb

National Science Foundation, Division of Materials Research, OISE-2330509
“Global Centers Track 2: Developing Solutions to Decarbonize Emissions and Fuels”
\$250,000
10/01/2023 to 09/30/2026
PI Efrain E. Rodriguez and co-PIs: Ichiro Takeuchi (MSE), Akua Asa-Awuku (Chem. Biomolec. Eng.)

Department of Commerce, 70NANB23H226
“UMD / NCNR Center for the Applications of Neutron Scattering and Spectroscopy”
\$14,689,238
09/01/2023 to 08/31/2028
PI Robert Briber (MSE) and co-PIs: Johnpierre Paglione (Physics), Efrain E. Rodriguez (Chem & Biochem), and Ichiro Takeuchi (MSE)

Department of Defense, Defense Threat Reduction Agency, HDTRA1-19-1-0001
“Bifunctional Materials for CWA Defeat: Integrating Catalysts in High-Capacity Mesoporous Metal Oxide Absorbents”
\$1,323,508
10/04/2018 to 10/03/2023
Rodriguez’s portion \$631,986 total
PI Efrain E. Rodriguez and co-PIs: Maija Kukla (UMD Engineering, NSF), Monica McEntee and Erin Durke (U. S. Army ECBC), and Michael Zachariah (Univ. California Riverside)

Department of Commerce, 70NANB15H261
“UMD / NCNR Joint Program for the Adv. of Neutron Scattering”
\$14,390,455
09/01/2015 to 08/31/2021
PI Robert Briber (MSE) and co-PIs: Johnpierre Paglione (Physics), Efrain E. Rodriguez (Chem & Biochem), and Ichiro Takeuchi (MSE) and

Air Force Office of Science Research, FA-95501410332
“Exploration and Development of Advanced Superconducting Materials”
\$1,200,000
08/01/2014 to 09/14/2019

PI Johnpierre Paglione (Physics) and co-PIs: Richard L. Greene (Physics), Efrain E. Rodriguez (Chem & Biochem), and Ichiro Takeuchi (MSE)

Defense University Research Instrumentation Program

“Instrumentation for the Materials Genome Approach to the Search for Superconductivity”

\$600,000

2016

PI Johnpierre Paglione (Physics) and co-PIs: Richard L. Greene (Physics), Efrain E. Rodriguez (Chem & Biochem), and Ichiro Takeuchi (MSE)

Internal grants

UMD New Directions Grant 2023

“Novel Means to Read and Write with Light: Exploring the Optical Properties of Magnetoelectric Materials”

\$50,000

Co-PIs: John Fourkas (Chem and Biochem) and E. E. Rodriguez (Chem & Biochem)

Maryland Instrumentation Fund 2021

“Leading the Structural Sciences through New Single Crystal X-ray Instrumentation”

\$793,093

Co-PIs: Peter Y. Zavalij (Chem and Biochem) and E. E. Rodriguez (Chem & Biochem)

Advising: Research

Undergraduate

1. Dana Wadsley (Summer 2025-present)
2. Joe Pichney (Spring 2025-present)
3. Abigail Nayzette Serrano (Fall 2024-present)
4. Nathan Warren-Faricy (Fall 2024-present)
2. Diallo Barnes (Fall 2023-present)
3. Anahita Javadi (Fall 2023-present)
4. Cherub Seifu (Summer 2023-Spring 2024), LSAMP student
5. Vince Wendekind (Spring 2020-2022), currently graduate student at University of Maryland CP
6. Kaitlyn Dold (Spring 2020- 2022), currently graduate student at University of California Irvine
7. Noah Katz (Summer 2019-2022), currently research intern in Tokyo, Japan
8. Sarah Joyce (Summer 2019 – Spring 2020)
9. Hadas Elazar-Mittelman (Summer 2017-Spring 2018), currently graduate student at Northwestern University
10. Navneeth Babra, (Summer 2017-Fall 2017)
11. Sarah Bender (Spring 2017-Spring 2018), currently graduate student at University of Illinois-Urbana Champaign
12. Ben Levitas (Spring 2015 – Spring 2017), currently graduate student at Boston University
13. Hector Vivanco, (Spring 2015-Spring 2017), currently graduate student at Johns Hopkins University
14. Natalia Schoch-Lopez, Spring 2015-Fall 2016), currently research associate at AstraZeneca

15. Brenna Hodges (Spring 2014-Fall 2015), Beckman Scholar while at UMD and NSF Graduate Fellow at Yale University
16. Nathaniel Schreiber (Fall 2012-Spring 2015), ASPIRE student while at UMD and NSF Graduate Fellow at Cornell University
17. Binyamin Katz (Fall 2012-Spring 2014)

Master's students

Tyler Romig, Air Force Academy (Fall 2023-Spring 2025)
Justin Yu, American Chemical Society (Fall 2017-Spring 2019)
Christopher K. H. Borg, Citrine Informatics (Fall 2013-Fall 2015)

Doctoral students

Huafei Zheng, PhD in 2025, Dissertation: "Asymmetric Intercalation of Transition Metal Chalcogenides"

Stephanie Gnewuch, PhD in 2024, Dissertation: "Magnetic and Toroidal Symmetry of Lithium Transition Metal Orthophosphates"

Lahari Balisetty, PhD in 2024, Dissertation: "Crystallographic Studies of Intercalated Transition Metal Chalcogenides"

Matthew Leonard, PhD in 2023, Dissertation: "Breath of Fresh Air: Study of Reactive Porous Metal Oxides for Chemical Warfare Agent and Simulant Defeat", Scientific Staff at Chemical Biological Laboratory in Aberdeen, MD

Timothy Diethrich, PhD in 2022, Dissertation: "Tuning Crystallographic and Magnetic Symmetry in Lithium Transition Metal Phosphates and Thiophosphates" Research Staff Scientist at Specialty Granules, Frederick, MD

Tianyu Li, PhD in 2022, Dissertation: "Correlating Chemical Activity and Structures in Mesoporous Metal Oxides for Nerve Agent Decomposition" Faculty at Louisiana Tech University.

Brandon Wilfong, PhD in 2020, Dissertation: "Magnetism and Superconductivity in Topotactically Modified Transition metal Chalcogenides." Faculty at University of Southern Maryland.

Marcus Carter, PhD in 2019, Dissertation: "Polymer Assisted Assembly of Inorganic Materials for Next Generation Batteries." Currently Post-doctoral researcher at University of Utah.

Rishvi Jayathilake, PhD in 2019, Dissertation: "Oxygen Storage Properties of Ternary Metal Oxide Systems for Chemical Looping Reactions." Currently Research Scientist at Intel Corp. in Portland, OR.

Austin Virtue, PhD in 2019, Dissertation: "Structure and Properties of Alloyed Chalcogenides with the ThCr_2Si_2 -type Structure."

Xiuquan Zhou, PhD in 2018, Dissertation: “Intercalation Chemistry of Tetrahedral Transition Metal Chalcogenides.” Currently faculty at Georgetown University.

Daniel D. Taylor, PhD in 2017, Dissertation: “Structural and Chemical Factors Governing Anion Reactivity in Perovskite Oxides.” Currently Data Scientist at Ford Motor Company, Detroit, MI.

Amber M. Larson, PhD in 2017, Dissertation: “Frustrated Magnetism and Electronic Properties of Hollandite Oxide Materials.”

Current PhD students

Mario Lopez (started Fall 2019)
Hector Cein Mandujano (started Fall 2021)
Stephanie Hong (started Fall 2021)
Qinyang Fu (started Spring 2024)
Keke Lu (started Fall 2024)
Michael McHale (started Fall 2024)
Cecilia Machiko Wheeler (started Fall 2024)
Christopher Joy Stephen (started Fall 2024)

PhD defense committee member for following students

1. Aiysha Ashfaq (Al-Sheikhly group, Materials Science and Engineering)
2. Jarryd Horn (Paglione group, Physics)
3. Aniq Anjum (Wachsman group, Materials Science and Engineering)
4. Jou-Tsen Ou (Taylor group)
5. Esther Atinuke Olonimoyo (Asa-awuku group, Chemical Engineering)
6. Yuchen Niu (Reutt-Robey group)
7. Jiayue Sun (Woehl group, Chemical Engineering)
8. Karla A. Nunez (Geology)
9. Abhishek S. Kalpattu (Fourkas group)
10. Mona Abostate (Fourkas group)
11. Edgar Perez (Losert group, Physics)
12. Kyle Webb (Fourkas group)
13. Samuel A. Lascio (Mignerey group)
14. Michael Hitt (Vedernikov group)
15. Morgan Kramer (Vedernikov group)
16. Charlotte Wentz (Sita group)
17. Wen-Chen Lin (Physics, Paglione group)
18. Lu Liu (Zachariah group)
19. Andrew J. Keane (Sita group)
20. Cathryn Gail Blakely (Sita group)
21. Jeffrey B. Delisio (Zachariah group)
22. Aaron Geller (Eichhorn group)
23. Kaitlyn E. Crawford (Sita group)
24. Samantha DeCarlo (Eichhorn group)
25. Ashley Lidie Ruth (Wachsman group, Materials Science and Engineering)
26. Tyler Drye (Paglione group, Physics)
27. Maria Teresa Perez-Cardenas (Nie group)
28. Richard Thompson (Sita group)

29. Shaoyi Zhang (Nie group)
30. Kim Lien Thi Huynh (Eichhorn group)
31. Yang Wang (S.-B. Lee group)
32. Christopher Eckberg (Paglione Physics)
33. Marcus Carter (Nie & Rodriguez groups)
34. Scott Holdren (Zachariah group)
35. Lauren Stevens (Eichhorn group)
36. Daniel J. Campbell (Paglione group, Physics)
37. Lin Liu (Paglione group, Physics)
38. Tao Wu (Zachariah group)
39. Luning Wang (Eichhorn group)
40. Wei Wu (D. Liu group, Chemical and Biomolecular Engineering)
41. Katchen Lachmeyer (Sita group)
42. Austin Gion (Geology)
43. Xiaoying Lin (Fourkas group)
44. Xiyuan Cheng (Y. Wang group)
45. Junyan Zhang (D. Liu group, Chemical and Biomolecular Engineering)
46. Miles Rewholdt (Zachariah group, Chemical Physics)
47. Jiaheng Ruan (Vedernikov group)

Postdoctoral research associates

Dr. Jacob Tosado, PhD from University of Maryland, January 2017 to May 2021,
Currently at Oak Ridge National Laboratory as Research Associate

Dr. Timothy E. Stacey, PhD from University of Wisconsin Madison, July 2013 to May 2014,
Currently Data Scientist at RAND Corporation, Washington D.C.

Dr. Pouya Moetakef, PhD from University of California Santa Barbara, July 2013 to May 2015,
Currently Detector Engineer at NASA Goddard Space Center, Greenbelt, MD

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

Undergraduate

Faculty advisor of the *American Chemical Society UMD Student Affiliates*, undergraduate club for hosting seminars and performing outreach from Fall 2012 to 2018

Doctoral

Faculty advisor to the Dept. of Chemistry and Biochemistry's *Graduate Student Organization* from Fall 2016 to 2019

Other Advising Activities

Faculty co-advisor of the Society of Chicanos/Hispanics and Native Americans in Science (SACNAS) UMD chapter.

Service and Outreach

Editorships, Editorial Boards, and Reviewing Activities

Reviewing Activities for Journals and Presses

<i>Journal of American Chemical Society</i>	<i>Chemistry of Materials</i>
<i>Inorganic Chemistry</i>	<i>Journal of Solid State Chemistry</i>
<i>Journal of Materials Chemistry A and C</i>	<i>Nature Communications</i>
<i>Nature Chemistry</i>	<i>Journal of Alloys and Compounds</i>
<i>Chemical Communications</i>	<i>Physical Review Letters</i>
<i>Physical Review B</i>	<i>Physical Review Materials</i>
<i>Journal of Physics: Condensed Matter</i>	

Reviewing Activities for Agencies and Foundations

On-site reviewer for funding of research programs Argonne National Laboratories	2017, 2020, and 2023
Reviewer, ad hoc and panelist for National Science Foundation grant proposals Division of Materials Research	2015, 2016, 2019, 2022—2025
Reviewer for Department of Energy, Basic Energy Sciences Neutron Scattering Program, Materials Chemistry programs	

Committees, Professional & Campus Service

Campus Service – Department

Facilities, Space, and Resources Committee	2018-2020, 2024-present
Graduate Admissions Committee	2013-2015, 2018-2020
Graduate Admissions Committee, chair	2025-present
Faculty Search Committee for 3 hires, chair	2023-2024
Faculty Advisory Committee	2022-2023
Committee for Diversity, Equity, and Climate (CDEC)	2022-2024
Tobin J. Marks Lecture on Chemical Discovery, chair	2019-present
Faculty Task Force Committee	2020
<i>Ad hoc</i> committee for the new Chemistry Building	2016-present
Chemistry Faculty Search Committee	2019-2020
Curriculum Committee	2017-2019

Graduate Awards Committee	2018-2019
NSF GAANN Review Committee	2017
Merit Pay and Awards Committee	2016-2017
Faculty Advisory Committee	2014-2016
	2022-2024

Campus Service – University

Provost's Academic Planning Advisory Committee.	Spring 2024-present
Distinguished Scholar Teacher Committee	Spring 2024
President's Advisory Committee on Conflict of Interest	2022-2025
Senate Programs, Curricula, and Courses Committee	2018-2020
Materials Science and Engineering Faculty Search Committee	2019-2020
Aberration Corrected Electron Microscope Committee	2019-present
Interview Selection for Banneker-Key University Scholarships	2018, 2019
Search Committee for Nanocenter Director	2017

Community & Other Service

Instructor for U.S. National Chemistry Olympiad, sponsored by the American Chemical Society. June 2020, 2021, 2023, and 2024

Panelist for UMD's SACNAS (Society for Advancement of Chicanos/Hispanics and Native Americans in Science) Chapter with the Tiger Woods Foundation (TGR) to facilitate a conversation around the importance of elevating BIPOC and first-generation voices in the sciences. March 2021

Alliance for Diversity in Science and Engineering, Young Researchers Conference. Gave a presentation on diversity and my own research. September 2017

Johns Hopkins Center for Talented Youth, Five 45-minute presentations for their Science and Technology Series consisting of demonstrations and lectures. Spring 2017 & 2015.

Panelist and participant for bilingual event titled *Sábado de Ciencias* at nearby Nicholas Orem Middle School, Spring 2015

Panelist for bilingual workshop *Paving the Way: Event for Latino High School Parents and Students* on campus for students at nearby Northwestern High School, Fall 2014.

Organizer and panelist Workshop *STEM Expo for Parents* sponsored by the Office for Minorities in Science and Engineering, 2014.