

Eve M. Mozur

evemozur@mines.edu ♦ (303) 384-2337 ♦ <http://people.mines.edu/evemozur>

Research Vision

My research investigates how the time- and stimulus-dependent structure dictates material properties functional materials. The goal is to develop generalizable structure-function design rules that can be used to optimize materials for a given application. My research group has expertise in materials for energy harvesting and storage and magnetism.

Employment

Assistant Professor Department of Metallurgical and Materials Engineering Colorado School of Mines	2022 - present
Post-Doctoral Researcher Materials Research Laboratory University of California Santa Barbara <i>Advisor: Ram Seshadri</i>	2020 - 2022

Education

Ph.D. – Materials Chemistry Colorado State University, Fort Collins, CO. <i>Advisor: James R. Neilson, Ph.D.</i>	2015 - 2020
B.A. – Chemistry Reed College, Portland OR	2011 - 2015

Group/Mentoring

Undergraduate Students
Emily Stec (2022 – present); Claire Vozel (2022 – present)

Publications

- [11] **E. M. Mozur**, R. Seshadri. “Best Practices for Magnetic Measurements of Extended Solids”. *Submitted, Chem. Mater.*
- [10] V. Wu, R. Giovine, E. Foley, J. Finzel, M. Balasubramanian, E. Sebti, **E. M. Mozur**, A. Kwon, R. Clément. "Unlocking new redox activity in alluaudite cathodes through compositional design". *Chem. Mater.* **2022**, 34 (9), 4088–4103. DOI: [10.1021/acs.chemmater.2c00324](https://doi.org/10.1021/acs.chemmater.2c00324)
- [9] R. C. Vincent, Y. Luo, J. L. Andrews, A. Zohar, Y. Zhou, Q. Yan, **E. M. Mozur**, M. B. Preefer, J. N. Weker, A. K. Cheetham, L. J. Luo, Pilon, B. C. Melot, B. Dunn, R. Seshadri. “High-Rate Lithium Cycling and Structure Evolution in Mo₄O₁₁”. *Chem Mater.* **2022**, 34 (9), 4122–4133. DOI: [10.1021/acs.chemmater.2c00420](https://doi.org/10.1021/acs.chemmater.2c00420)
- [8] A. A. Koegel **E. M. Mozur**, I. W. H. Oswald, N. H. Jalarvo, T. R. Prisk, M. Tyagi, and J. R. Neilson. "Correlating Broadband Photoluminescence with Structural Dynamics in Layered Hybrid Halide Perovskites". *JACS.* **2022**, 144 (3) 1313–1322. DOI: [10.1021/jacs.1c11217](https://doi.org/10.1021/jacs.1c11217)
- [7] I. Spanopoulos, I. Hadar, W. Ke, P. Guo, **E. M. Mozur**, E. Morgan, S. Wang, D. Zheng, S. Padgaonkar, G. N. M. Reddy, E. A. Weiss, M. C. Hersam, R. Seshadri, R. D. Schaller, M. G. Kanatzidis. "Tunable Broad Light Emission from 3D “Hollow” Bromide Perovskites through Defect Engineering". *JACS* **2021** 143 (18), 7069-7080. DOI: [10.1021/jacs.1c01727](https://doi.org/10.1021/jacs.1c01727)
- [6] **E. M. Mozur**, J. R. Neilson. "Cation Dynamics in Hybrid Halide Perovskites" *Ann. Rev. Mat.* **2021**, 51 (1) 269-291. DOI: [10.1146/annurev-matsci-080819-012808](https://doi.org/10.1146/annurev-matsci-080819-012808)
- [5] **E. M. Mozur**, A. E. Maughan, A. Candia, J. R. Neilson. "Ferroelastic Phase Transition in Formamidinium Tin(IV) Iodide Driven by Organic-Inorganic Coupling" *Inorg. Chem.* **2020**, 59 (19) 14399-

14406. DOI: [10.1021/acs.inorgchem.0c02158](https://doi.org/10.1021/acs.inorgchem.0c02158)
- [4] **E. M. Mozur**, M. A. Hope, J. C. Trowbridge, D. M. Halat, L. L. Daemen, T. R. Prisk, C. P. Grey, J. R. Neilson. “Cesium Substitution Disrupts Concerted Cation Dynamics in Formamidinium Hybrid Perovskites” *Chem. Mater.* **2020**, *32* (14) 6266–6277. DOI: [10.1021/acs.chemmater.0c01862](https://doi.org/10.1021/acs.chemmater.0c01862)
- [3] **E. M. Mozur**, J. C. Trowbridge, A. E. Maughan, M. J. Gorman, C. M. Brown, T. R. Prisk, J. R. Neilson, “Dynamical Phase Transitions and Cation Orientation-Dependent Photoconductivity in $\text{CH}(\text{NH}_2)_2\text{PbBr}_3$ ” *ACS Mater. Lett.* **2019**, *1* (2), 260–264. DOI: [10.1021/acsmaterialslett.9b00209](https://doi.org/10.1021/acsmaterialslett.9b00209).
- [2] I. Oswald, **E. M. Mozur**, I. Moseley, H. Ahn, J. R. Neilson; “Hybrid Charge-Transfer Semiconductors: $(\text{C}_7\text{H}_7)\text{SbI}_4$, $(\text{C}_7\text{H}_7)\text{BiI}_4$, and Their Halide Congeners” *Inorg. Chem.*, **2019**, *58* (9), 5818–5826. DOI: [10.1021/acs.inorgchem.9b00170](https://doi.org/10.1021/acs.inorgchem.9b00170).
- [1] **E. M. Mozur**, A. E. Maughan, Y. Cheng, A. Huq, N. Jalarvo, L. L. Daemen, J. R. Neilson; “Orientational Glass Formation in Substituted Hybrid Perovskites” *Chem. Mater.*, **2017**, *29*(23), 10168–10177. DOI: [10.1021/acs.chemmater.7b04017](https://doi.org/10.1021/acs.chemmater.7b04017).
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Awards

Best Poster, Runner-Up Materials Research Society Fall Meeting	2021
Best Presentation, Runner-Up National Solid State Chemistry Conference	2019
Graduate Outreach Award Department of Chemistry, Colorado State University Awarded by the department to a chemistry graduate student in recognition of service to the department	2019
Researcher of the Month Graduate Student Council, Colorado State University Presented to graduate student researchers who contribute to scholarship, mentorship, and service to the university	2019
Outstanding Oral Presentation Programs of Research and Scholarly Excellence – Advanced Magnetism Office of the Vice President for Research, Colorado State University	2018

Selected Presentations

- [11] *Magnetism By Design: Validating Computational Predictions of Heusler Skyrmion Hosts*. Oral Presentation. Rocky Mountain Solid State Conference, Boulder CO. January 10th 2023.
- [10] *Materials By Design: Developing structure-property relationships in inorganic solids*. Oral Presentation. Annual Colorado Center for Advanced Ceramics Conference, Golden CO. August 16th 2022.
- [9] *The impact of the organic amine on the structure-properties relationships in hybrid halide perovskites*. Oral Presentation. Northwestern University-Materials Science and Engineering Future Leaders Seminar. April 21, 2022.
- [8] *Neutron Scattering Studies of Organic Cation Dynamics in Hybrid Halide Perovskites*. Poster Presentation. Materials Research Society Fall Meeting. December 2, 2021.
Best Poster, Runner-Up
- [7] *Advancing Solar Technology By Understanding Atomic Motions*. Poster Presentation. Graduate Student Showcase, Colorado State University, Fort Collins CO. November 12, 2019.
Top Scholar Award, College of Natural Sciences
- [6] *Lattice Strain in Hybrid Perovskites: the photocurrent dependent, orientational phase transitions of $\text{CH}(\text{NH}_2)_2\text{PbBr}_3$* . Oral Presentation. North American Solid State Chemistry Conference, Colorado School of Mines, Golden CO. July 2019.
Best Graduate Presentation, Runner-Up
- [5] *Advancing Solar Technology By Understanding Atomic Motions in Semiconductors*. Oral Presentation. CSU Speaks: Where Science Meets Community. Fort Collins, CO. April 27, 2019.

- [4] *Redefining how we think about semiconductors for photovoltaics: the implications of dynamics in hybrid perovskites*. Poster Presentation. Clean Energy Education and Empowerment Symposium. Stanford University, Palo Alto CA. December 2018.
- [3] *Oriental Glass Formation in Substituted Hybrid Perovskites*. Poster Presentation. Solid State Chemistry Gordon Conference. Colby-Sawyer College, New London N.H. July 2018.
- [2] *Glassy Behavior in a Crystalline Lattice: Substituted Hybrid Perovskites*. Oral Presentation. Programs of Research and Scholarly Excellence: Advanced Magnetics, Office of the Vice President for Research, Colorado State University. May 2018.
Best Presentation Award
- [1] *Glassy Behavior in a Crystalline Lattice: Substituted Hybrid Perovskites*. Oral Presentation. American Physical Society Four Corners Meeting. October 2017.
Outstanding Oral Presentation Award
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Selected Service

Organizing Committee Rocky Mountain Solid State Conference Colorado School of Mines and the University of Colorado Boulder.	Winter 2023
Session Chair Front Range Advanced Magnetics Symposium University of Wyoming	Aug 2022
Conference Organizer HPATOM2 online conference, Nanoge <ul style="list-style-type: none"> Invited advanced scattering experts to present their recent work on hybrid halide perovskites Chaired sessions and lead discussions on topics related to the presentations 	Winter 2021
Outreach Volunteer Materials Department, University of California Santa Barbara <ul style="list-style-type: none"> Led small groups of fourth grade students in workshops designed to introduce materials science, including making their own solar panel powered cars and buckyball models 	Fall 2020 – Spring 2022
President of the Chemistry Graduate Student Organization Department of Chemistry, Colorado State University, Fort Collins, CO <ul style="list-style-type: none"> Established a Gender in Academia workshop designed to promote gender inclusivity, with plans to expand the event in coming years Won a \$1500 grant from the Graduate School to fund professional development events, including a career panel with industry representatives Pioneered fundraising events designed to fund several professional development events, social events, mentoring activities, and seminars to great success 	Fall 2018 – Fall 2019
Participant: Clean Energy Education and Empowerment Conference C3E Initiative, Stanford University, Palo Alto, CA <ul style="list-style-type: none"> Participated in sessions focused on empowering women scientists and public servants, and celebrated the achievements of several mid-career women 	Dec. 2018
