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Engineering & Scientific Consulting

Emily Morgan

Associate | Materials and Corrosion Engineering
Menlo Park
+1-650-688-7134 | emorgan@exponent.com

Professional Profile

Dr. Morgan is a materials engineer with experience in materials characterization and failure analysis in batteries and consumer electronics. She currently applies this expertise in assisting clients in product failure analysis, intellectual property litigation and battery design and safety evaluations. She is knowledgeable in structural characterization using microscopy and X-ray diffraction, as well as chemical analysis using FTIR, Raman, and XPS. Prior to joining Exponent, Dr. Morgan received her Ph.D. in Materials from UC Santa Barbara under the supervision of Professor Ram Seshadri. During her time at UCSB, her research was supported by an NSF Graduate Research Fellowship Program award and focused on the synthesis and characterization of functional inorganic materials, with a focus on perovskite-derived structures. In particular, she used spectroscopy, diffraction, and computational tools to evaluate the structure-property relationships in materials for battery, solar cell, and electronics applications.

Academic Credentials & Professional Honors

Ph.D., Materials, University of California, Santa Barbara, 2023

NSF Graduate Research Fellowship Program (2021)

ACS Undergraduate Award in Inorganic Chemistry (2019)

Publications

Morgan EE, Zohar A, Lipkin S, Monserrat B, Vaidyanathan S, Loeffler D, Zhang R, Schierle-Arndt K, Cheetham AK, Seshadri R. Screening Aluminum-Based Compounds as Low-κ Dielectrics for High-Frequency Applications. Chemistry of Materials 2024; 36: 1228-1237.

Kent GT, Zhuang J, Albanese KR, Zohar A, Morgan EE, Kallistova A, Kautzsch L, Mikhailovsky AA, Vishnoi P, Seshadri R, Cheetham AK. Hybrid Iodide Perovskites of Divalent Alkaline Earth and Lanthanide Elements. Journal of the American Chemical Society 2023; 145: 27850-27856.

Morgan EE, Kent GT, Zohar A, O'Dea A, Wu G, Cheetham AK, Seshadri R. Hybrid and Inorganic Vacancy-Ordered Double Perovskites A2WCl6. Chemistry of Materials 2023; 35: 7032-703.

Kent GT, Morgan EE, Albanese KR, Kallistova A, Brumberg A, Kautzsch L, Wu G, Vishnoi P, Seshadri R, Cheetham AK. Elusive Double Perovskite Iodides: Structural, Optical, and Magnetic Properties. Angewandte Chemie 2023; 135: e202306000.

Kennard RM, Dahlman CJ, Morgan EE, Chung J, Cotts BL, Kincaid JRA, DeCrescent RA, Stone KH,

Panuganti S, Mohtashami Y, Mao L, Schaller RD, Salleo A, Kanatzidis MG, Schuller JA, Seshadri R, Chabinyc ML. Enhancing and Extinguishing the Different Emission Features of 2D (EA1−xFAx)4Pb3Br10 Perovskite Films. Advanced Optical Materials 2022; 10: 2200547.

Mao L, Morgan EE, Li A, Kennard RM, Hong MJ, Liu Y, Dahlman CJ, Labram JG, Chabinyc ML, Seshadri R. Layered Hybrid Lead Iodide Perovskites with Short Interlayer Distances. ACS Energy Letters 2022; 7: 2801-2806.

Morgan EE, Evans HA, Pilar K, Brown CM, Clément RJ, Maezono R, Seshadri R, Monserrat B, Cheetham AK. Lattice Dynamics in the NASICON NaZr2(PO4)3 Solid Electrolyte from Temperature-Dependent Neutron Diffraction, NMR, and Ab Initio Computational Studies. Chemistry of Materials 2022; 34: 4029-4038.

Wang S, Morgan EE, Panuganti S, Mao L, Vishnoi P, Wu G, Liu Q, Kanatzidis MG, Schaller RD, Seshadri R. Ligand Control of Structural Diversity in Luminescent Hybrid Copper (I) Iodides. Chemistry of Materials 2022; 34: 3206-3216.

Chen C, Morgan EE, Liu Y, Chen J, Seshadri R, Mao L. “Breathing” organic cation to stabilize multiple structures in low-dimensional Ge-, Sn-, and Pb-based hybrid iodide perovskites. Inorganic Chemistry Frontiers 2022; 9: 4892-4898.

Spanopoulos I, Hadar I, Ke W, Guo P, Mozur EM, Morgan EE, Wang S, Zheng D, Padgaonkar S, Reddy GNM, Weiss EA, Hersam MC, Seshadri R, Schaller RD, Kanatzidis MG. Tunable broad light emission from 3D “hollow” bromide perovskites through defect engineering. Journal of the American Chemical Society 2021; 143: 7069-7080.

Wang S, Morgan EE, Vishnoi P, Mao L, Teicher SML, Wu G, Liu Q, Cheetham AK, Seshadri R. Tunable luminescence in hybrid Cu (I) and Ag (I) iodides. Inorganic Chemistry 2020; 59: 15487-15494.

Morgan EE, Mao L, Teicher SML, Wu G, Seshadri R. Tunable Perovskite-Derived Bismuth Halides: Cs3Bi2(Cl1–xIx)9. Inorganic Chemistry 2020; 59:3387-3393.

Presentations

Morgan EE, Kent GT, Zohar A, O’Dea A, Wu G, Cheetham AK, Seshadri R. Hybrid and Inorganic Vacancy-Ordered Double Perovskites A2WCl6. Oral presentation, International Workshop on Advanced Materials, Ras al Khaimah, UAE, 2023.

Morgan EE, Evans HA, Pilar K, Brown CM, Clément RJ, Maezono R, Seshadri R, Monserrat B, Cheetham AK. Lattice Dynamics in the NASICON NaZr2(PO4)3 Solid Electrolyte from Temperature-Dependent Neutron Diffraction, NMR, and Ab Initio Computational Studies. Poster presentation, Gordon Research Conference on Solid State Chemistry, New London, NH, 2022.

Morgan EE, Evans HA, Pilar K, Brown CM, Clément RJ, Maezono R, Seshadri R, Monserrat B, Cheetham AK. Lattice Dynamics in the NASICON NaZr2(PO4)3 Solid Electrolyte from Temperature-Dependent Neutron Diffraction, NMR, and Ab Initio Computational Studies. Oral presentation, Materials Research Society Spring Meeting, Honolulu, HI, 2022.

Morgan EE, Kent GT, Vishnoi P, Cheetham AK, Seshadri R. Magnetism and optical properties in oxyhalide solid solutions A2MoOxX6-x. Oral presentation, American Chemical Society Spring Meeting, San Diego, CA, 2022.

Peer Reviews

Chemistry of Materials