



The Alabama Collaborative for
Materials Exploration (ACME)

Research Seminar Series

Professor Taylor D. Sparks

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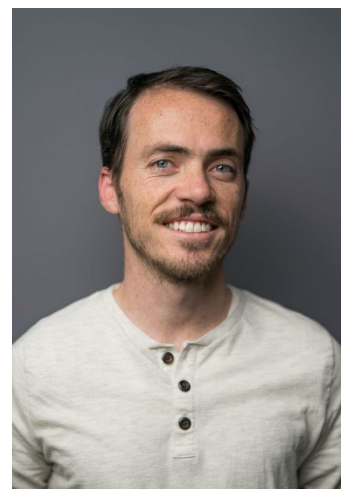
Website: <http://www.eng.utah.edu/~sparks/>

Tuesday, February 22nd, 2022
10:00 AM CST

Materials informatics: Moving beyond screening via generative machine learning models

Abstract: The materials available to mankind have always been the defining factor in dictating technological advances. As we enter the 21st century, we will face unique challenges that can only be addressed through the discovery of new advanced materials. In this talk, I will provide an overview of how materials have been discovered historically and how materials informatics is providing a radical new approach to materials discovery that can dramatically reduce the cost and time associated with materials discovery. The talk will go beyond describing data science approaches for screening from among known materials to also include generative machine learning approaches for finding entirely new materials. Specifically, we describe our approach to generate new periodic crystalline materials.

Biography: Dr. Sparks is an Associate Professor of the Materials Science and Engineering Department at the University of Utah. He is originally from Utah and an alumnus of the department he now teaches in. Before graduate school he worked at Ceramtec Inc. He did his MS in Materials at UCSB and his PhD in Applied Physics at Harvard University and then did a postdoc in the Materials Research Laboratory at UCSB. He is currently the Director of the ReUSE REU at the University of Utah and teaches classes on ceramics, materials science, characterization, and technology commercialization. His current research centers on the discovery, synthesis, characterization, and properties of new materials for energy applications. He is a pioneer in the emerging field of materials informatics whereby big data, data mining, and machine learning are leveraged to solve challenges in materials science. He was a recipient of the NSF CAREER Award and a speaker for TEDxSaltLakeCity. When he's not in the lab you can find him running his podcast "Materialism" or canyoneering with his 4 kids in southern Utah.



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