

COLLOQUIUM

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Materials-by-design approach

3-28-24

RECEPTION IMMEDIATELY
FOLLOWING IN THE MATH LIBRARY.

Neckers 156
Time: 3:00pm

Abstract: Traditional materials discovery research has relied on what could be described as Edison-like, where several trials are performed to refine a property or by chance. A more recent approach relies on a guided approach where several potential materials are pre-screened theoretically, and only the most promising materials are attempted experimentally. This is often termed a “materials-by-design” approach to accelerate discovery and commercial deployment. This effort is now a federal government initiative under the DMREF program (Designing Materials to Revolutionize and Engineer our Future). In this talk, I will discuss my experience using such an approach. I will share my collaborative work with theorists in identifying new magnetic materials and efforts to realize them experimentally, the challenges of the present approach, and how machine-learning approaches can help overcome these obstacles.