

# Distinguished Seminar Series



**Ji-Cheng "JC" Zhao**

**Professor and Department Head**

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**Friday, Sept. 30**

**11 a.m. -12 p.m.**

**HEC, Room 101**

**Zoom: <https://bit.ly/3e4WFiR>**

## **"High-Throughput Experimentation and Holistic Integration with Computational Data for Accelerated Alloy Design"**

Experimental techniques for rapid collections of materials data and holistic approaches to integrate experimental and computational data will be described with examples. Localized property measurements on composition gradients created in diffusion multiples allow high-throughput collection of several materials properties as a function of composition, in addition to phase diagrams and diffusion coefficients. A novel approach was developed to establish reliable diffusion coefficient (atomic mobility) databases by holistically integrating both experimental and computational data. This approach together with much simplified models for diffusion coefficient will enable more reliable diffusion databases to be established rapidly for various simulations of materials processes. An approach that iteratively and holistically integrate experimental results with model predictions can be very effective in both establishing materials databases and accelerating alloy design.

Zhao has been a Minta Martin Professor and chair of the MSE department at the University of Maryland since July 2019. He was a program director at DOE ARPA-E from 2014 to 2017 and was a professor at Ohio State from 2008 to 2014 and also from 2017-2019. Before academia, Zhao was a materials scientist at GE Research Center for 12 years .