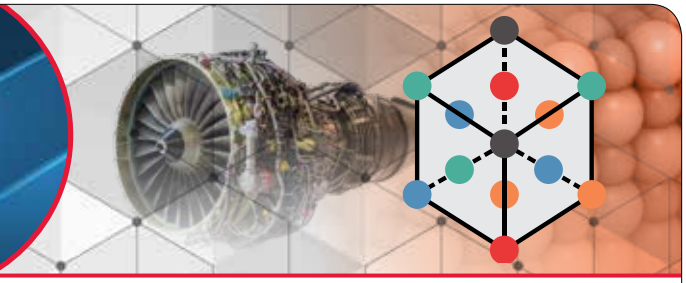
TMS | ONLINE COURSE

HIGH ENTROPY ALLOYS

Fundamentals, Alloy Design, Properties, and Potential Applications



November 8-10, 2022

This course will include six, half-day, virtual modules. On-demand access through December 12.

Learn the fundamentals of developing high entropy alloys (HEAs) and gain insights into potential pathways to commercialization in this online course taught by some of the leading experts in this emerging field. Since their discovery less than 20 years ago, HEAs hold tremendous promise for enabling novel material properties that could address materials barriers and challenges in a variety of industries. Fast-track your exploration of this groundbreaking technology by attending this course and making connections with our world class instructors. This also offers an excellent opportunity to prepare for participation in the upcoming 3rd World Congress on High Entropy Alloys (HEA 2023).

WHAT YOU WILL LEARN

History, Overview, and Fundamentals of HEAs
Introduce HEAs and develop a foundation for subsequent modules.

Classes of HEAs and Alloy Design
Examine connections between steels and HEAs, focusing specifically on future opportunities for both metals classes.

Processing HEAs
Discuss processing issues related to HEAs.

Properties
Explore the most common materials properties studied in HEAs: mechanical properties, functional properties, electro-chemical properties, and high temperature oxidation.

Fundamental Theory and Computational Modelling
Gain an overview of machine learning approaches to HEAs, alongside a detailed tutorial for applying data science to HEA systems.

Application Domains
Review case studies on industry-guided approaches to application-focused alloy design and gain insights to the pathways to commercial viability.

LEARN FROM THE EXPERTS

Pictured left to right: **Daniel B. Miracle** (Lead Instructor), Air Force Research Laboratory; **Amy Clarke**, Colorado School of Mines; **Kester Clarke**, Colorado School of Mines; **Francisco Coury**, Federal University of São Carlos; **Kevin Laws**, The University of New South Wales; **John Lewandowski**, Case Western Reserve University; **Elizabeth Opila**, University of Virginia; **Noah Philips**, ATI Specialty Alloys and Components; **John R. Scully**, University of Virginia; **Taylor Sparks**, University of Utah; **Mitra Taheri**, Johns Hopkins University; **C. Cem Tesan**, Massachusetts Institute of Technology; **Mike Titus**, Purdue University; **John "Hunter" Martin**, HRL Laboratories (not pictured); **John Sharon**, Raytheon Technologies (not pictured); **Celine Varvenne**, Marseille University (not pictured).

Learn more about the curriculum and the team of expert instructors and register:
www.tms.org/HEACourse2022