FALL 2023

MSE 690 SEMINAR SERIES

FRIDAY, OCTOBER 27TH | 3:30 REFRESHMENTS | 3:45PM SEMINAR | ARMS 1010

SUVEEN MATHAUDHU

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Colorado School of Mines

"Rocks, Metal, Scissors — Plasticity Mechanisms and Non-Equilibrium Microstructures During Intense Shear Deformation"

Abstract: All around us, things are constantly plastically deforming, whether it be at nanoscale atomic level in metallic alloys to the km-scale during geological flow in earth's lithosphere. Cross-cutting theories on the nature of intense pressure and shear-driven structural evolution in metals and geological materials will be presented. Novel solid-phase material deformation methods and in-situ beamline studies will reveal metallic deformation pathways that will be directly compared to the current earth science literature on ductile deformation and far-from-equilibrium microstructural evolution in rocks. The findings forecast the ability to use laboratory-scale tools and simulant materials to extend our understanding of how the world has moved underneath us and how it may deform in other parts of the universe.

Biography: Suveen Mathaudhu (he/him) is a professor in the Metallurgical and Materials Engineering Department at the Colorado School of Mines. Mathaudhu's career trajectory has spanned diverse roles, with his primary areas of interest centering around powder and deformation processing of metallic alloys and composite materials with foci on nanocrystalline materials, lightweight alloys and refractory metals, materials science education and outreach, and advocacy for diversity and inclusion in STEM. Prior to Colorado School of Mines, Mathaudhu was a professor and chair of the MSE Program at the University of California, Riverside (2014–2021); a program manager at the U.S. Army Research Office and a postdoc and then materials engineer at the U.S. Army Research Laboratory. Some recognitions Mathaudhu has earned include the 2015 American Association of Engineering Societies Norm Augustine Award for Outstanding Achievement in Engineering Communication; 2015 ASM Fellow; 2016 National Science Foundation CAREER Grant; 2019 Presidential Early Career Award for Scientists and Engineers; and 2021 TMS Brimacombe Medal. Mathaudhu received his B.S.E. from Walla Walla University, and his M.S. and Ph.D. degrees from Texas A&M University, all in mechanical engineering.

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