

The Department of Mechanical Engineering
Presents
Faculty Recruitment Candidate

Suveen Mathaudhu, Ph.D.

Program Officer — U.S. Army Research Office
Adjunct Assistant Professor, Department of Materials
Science & Engineering, North Carolina State University



Friday, Feb. 21, 2014
11:10 AM — 12:30 PM*
Winston Chung Hall 205/206

**There's Plenty of Room at the Bottom...
for Magnesium Alloys**

Abstract:

Mg-alloys are becoming increasingly important based on the technological advantages given their low density compared to current structural metals such as Al- and Fe-based alloys. However, unlike their fcc and bcc counterparts, little has been done to investigate the processing, underlying deformation mechanisms and properties of nanocrystalline/nanostructured hcp Mg-based alloys. This presentation will present innovative processing approaches to the nanostructuring of Mg-alloys via "bottom-up" powder processing and "top-down" severe plastic deformation methods, and highlight the support of computational tools for each endeavor. Thoughts and correlations on the linkages between the fundamental deformation mechanisms and resultant mechanical properties will be given along with the benefits and limitations of each processing approach. The initial experimental outcomes point to unprecedented increases in strength, control of texture and anisotropy, and increased formability at low temperatures. These results forecast promising tactics for the design of Mg-alloys with superior strength and ductility for advanced structural and transportation applications.

About the Speaker:

Suveen N. Mathaudhu is the Program Manager for Synthesis and Processing of Materials in the Materials Division of the U.S. Army Research Office. Dr. Mathaudhu joined ARO in 2010 after serving first as an ORISE postdoctoral fellow, and subsequently as a Materials Engineer at the Weapons and Materials Research Directorate in the U.S. Army Research Laboratory. In his current role, he manages programs that focus on the use of innovative scientific approaches for the synthesis and processing of high performance structural materials. He also has held an Adjunct Assistant Professor position with the Materials Science and Engineering Department of North Carolina State University since 2009, where his research interests have focused on advanced structural metallurgy in the areas of ultrafine-grained and nanocrystalline materials by severe plastic deformation, processing of metastable particulate materials, processing-microstructure-property-performance relationships of lightweight and refractory alloys, and thermally stable nanocrystalline metals. Dr. Mathaudhu received his B.S.E. in Mechanical Engineering from Walla Walla University in 1998, and Ph.D. in Mechanical Engineering from Texas A&M University in 2006.

***Faculty only 12:00 — 12:30 PM (Non-ME Faculty are welcome)**

