Center for Computational Sciences (CCS)/Center for Advanced Vehicular Systems (CAVS), Mississippi State University

Joint Forum on Materials Science

(Academic year '06 - '07)

CCS and CAVS will host a joint forum on materials science throughout the academic year '06-'07. In the fall of 2006, biweekly lectures by mathematicians, physicists, and engineers will be organized. In Spring 2007, we will host a colloquium series in materials science.

Developing Physics Based Material Models: An Overview

Dr. Reza Yassar

Center for Advanced Vehicular Systems
Mississippi State University

Date: Monday, January 29, 2007
Time: 3:30 - 4:30 p.m.
Location: CAVS SEMINAR ROOM

Abstract. Industrial materials processes often involve non-isothermal heat treatments, and/or complex thermomechanical treatments. Such materials experience a broad range of strain, strain rate, and temperatures, which in turn affect the internal metallurgical properties. Only a model that includes all of these pertinent factors is capable of predicting complex stress state in material behavior. Most of the existing models focus on simplified situations, and in many systems, these simplifying assumptions appear somewhat unrealistic. This presentation describes a general framework to the physical modeling of the processing and engineering properties of materials. Particular attention will be given to the modeling of microstructure evolution in metal forming at elevated temperatures.

There will be a refreshment between 3:15 - 3:30 p.m. in the CAVS SEMINAR ROOM.

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