

MATRL 289G - Special Topics in Structural Materials: Phase Stability and Microstructure Evolution

Fall Quarter, 2008

Description:

Phase diagrams for binary, ternary and higher order systems: thermodynamic foundation, construction and applications. Metastability upon synthesis and processing far from equilibrium: approaches, thermodynamic and kinetic principles, phase selection, solubility extension. Stability and evolution of metastable phases and microstructures.

Target audience:

This course is designed for graduate students in Materials and other related disciplines who are interested in deeper understanding of phase diagrams in multi-component systems, their implications to microstructure evolution and their extension to understand the origin and stability of metastable structures evolving during synthesis, processing and subsequent application of Materials. Emphasis is on inorganic systems.

Prerequisites: Matrl 200A and 200C or consent of instructor.

Instructor: Carlos G. Levi (levic@engineering.ucsb.edu)