# Materials Science & Engineering Graduate Seminar

Wednesday, February 5, 2020, 4:10-5:00 PM, FASB 295

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## Computational Design, Rapid Processing, and Characterization of Multi-Class Titanium Materials

Current materials research paradigms emphasize designing and engineering from first principles. Future innovations in materials will likely rely extensively on computational design and development approaches. The last century witnessed major developments in new materials, for defense, transportation, oil exploration etc. Currently, for any new material research to have the greatest impact in these fields, an appropriate choice of a platform material system, where multiple design objectives can be posed and property goals can be met, is important. NSF calls this approach the Materials Genome Initiative. In this paradigm, a new material system should impact many material and application domains (for example alloy, cermet, ceramic), should have a vast property range, and be commercially viable. This presentation will illustrate our materials research based on such approach, in the titanium-boron base alloy system, which is promising for novel structural materials. Our cumulative research in designing, synthesizing and characterizing new composites, cermets and ceramics will be outlined.

Bio: Dr. Chandran - PhD, MSE, Indian Institute of Science, 1989; US National Research Council Fellow at Air Force Research Laboratory, Ohio, 1989-93; Research Scientist, 1993-95. At the University of Utah since 1995. Research in the group includes physical and mechanical metallurgy, alloy design, Li-ion batteries and neutron diffraction. Funded by NSF, AFOSR, APRA-E, DARPA, DOE and industry. Director of State Center of Excellence on Titanium Boride Materials, 2003-2009. 2005 Champion-Mathewson Award of TMS for significant contribution to metallurgical science. Three times outstanding teaching award of the department. Graduated 25+ MS/PhD students. 150+ publications