



Bangalore Chapter



ASM
INTERNATIONAL

**The Indian Institute of Metals Bengaluru Chapter and
The ASM International Bengaluru Chapter and**

Cordially invite you

For the Technical Lecture on

**“Material Design and Processing of Multiclass Structural
Materials from a Genomic Titanium Alloy System”**

By

**Professor K. S. Ravi Chandran
Metallurgical Engineering, University of Utah**

Date : Friday, December 28, 2018

Time : 4.30 p.m. - 5.30 p.m.

Venue : Lecture Theatre, Department of Materials Engineering,
Indian Institute of Science, Bengaluru-12

Coffee/Tea : 5.30 p.m.

Abstract:

Current materials research paradigms emphasize designing and engineering materials from first principles. Future innovations in materials will likely rely extensively on computational design and development approaches. The last century had witnessed major developments in new materials, for defense, transportation and oil exploration sectors. In the current century, for any new material research to have its greatest impact in any of these fields, an appropriate choice of a platform material system, where multiple design objectives can be posed and met, is important. The National Science Foundation calls this approach as Materials Genome Initiative. This presentation will illustrate our recent materials research efforts based on such approach, in the titanium-boron base alloy system. This system, metallurgically, is a very promising one for the development and application of novel structural materials. A broad overview of our cumulative research efforts funded by ARO, NSF and private industry, for many years, in designing, synthesizing and characterizing new composites, cermets, and ceramics in the titanium-boron system, will be outlined. Specifically, design and processing of titanium and titanium boride based materials will be presented as an example of how new computational approaches, as well as rapid processing using electric-field activated sintering, can be used to develop new materials based on titanium. Possible areas of practical applications are highlighted.

Speaker Biosketch:

K. S. Ravi Chandran is Professor of Metallurgy and Materials Science at the University of Utah. His current research includes physical metallurgy of titanium alloys, development of Li-ion battery electrodes, neutron diffraction investigations and powder metallurgical manufacturing of new materials. He obtained his PhD in Metallurgy and Materials Science from Indian Institute of Science (1989) and ME in 1985. He was a recipient of KP Abraham Medal and AA Krishnan metal, as well as AK Bose medal of the IIM during his ME degree at the department. After his PhD, Ravi was awarded the US National Research Council Fellowship to perform independent research for three years at the Air Force Materials Research Laboratory, at Wright Patterson Air Force Base, OH. He was then appointed as a research scientist (1983-1995), working on titanium alloys, fatigue and fracture mechanics. Since 1995, Ravi is a faculty at the department of metallurgical engineering, University of Utah. Ravi is a recipient of several awards, including the 2006 Champion Mathewson Award of the Metallurgical Society of AIME for outstanding contribution to metallurgy and materials science. He has also won the departmental outstanding teaching award twice and the outstanding researcher award. He has authored about 150 publications and about 100 presentations.