



Student Night Presentations – March 9, 2004

Social Hour Sponsor
Micro-Tech Optical
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Contact: [Mark Specht](#)

Speaker: Hong Luo

Advisor: Dr. Leon Shaw

Bio: Working toward MS, Ph.D. in Dept. of Metallurgy and Materials Engineering

Topic:

Microstructure, Properties and Deformation Mechanisms of Nanostructured Al₉₃Fe₃Ti₂Cr₂ alloys

Abstract:

Nanostructured Al₉₃Fe₃Ti₂Cr₂ alloys were prepared via mechanical alloying and extrusion. Its microstructure, thermal stability and mechanical properties were studied. The MA-processed Al₉₃Fe₃Cr₂Ti₂ alloy is a promising material for high temperature structural applications. Further studies will be focused on the TEM observation and in-situ FESEM study to deduce the micro-mechanisms that control the deformation process of the nc-Al₉₃Fe₃Ti₂Cr₂ alloy.

Speaker: Dafei Kang

Advisor: Dr. Mark Aindow

Bio: Having obtained his MS degree at the Dept. of Metallurgy and Materials Engineering at UConn under the guidance of Prof. Mark Aindow, Dafei Kang stays in Prof. Aindow's group and is currently a Ph.D. candidate working on the characterization of heterogeneous supported catalysts using transmission electron microscopy (TEM) and related techniques.

Topic: High-Resolution TEM Characterization of Metal-Loaded Carbon Aerogels

Abstract:

This is a study by transmission electron microscopy (TEM) of carbon aerogels in both pure form and with metal (ruthenium) loadings. Synthesized via a novel supercritical carbon dioxide assisted sol-gel process, these carbon aerogels are characterized with high porosity and surface area and therefore considered excellent support for catalytic metal particles. In this study, the morphology of both the tortuous carbon and the finely dispersed ruthenium nanoparticles will be examined. Also discussed is an interesting transition of carbon aerogel from disordered network to a more organized "onion-like" structure.

Speaker: Jessica Shen

Advisor: Dr. Eric Jordan

Bio: Working toward MS in Dept. of Metallurgy and Materials Engineering

Topic: Thermal Barrier Coatings and Metallic Coatings with improved Durability

Abstract:

Advanced industrial gas turbine engines require the use of reliable and highly durable thermal barrier coatings (TBCs) and metallic coatings to meet the most demanding high-temperature environment. In this program, the salient bond coat composition and processing features were systematically investigated in order to demonstrate the optimum combination of features that would provide the improvement of durability and reliability. This study has demonstrated that the composition distribution of the bond coat has a great impact on spallation lifetime.

We are welcoming Mike Speciale, as representative of the New England Air Museum, to this meeting to present to the Museum VHS and DVD copies of "*The Life and Death of the USS Hornet*," a 16 mm film of B-29's taking off from the USS Hornet for WWII bombing raids in the Pacific. ASM Hartford is donating these copies to the New England Air Museum, for use with their B-29 display, as a thank you gift for opening the Museum for our April 8, 2003 Materials Week event there.