

**Vikas Behrani**  
vikas.behrani@gatech.edu  
404-232-5519

**School**  
500 10<sup>th</sup> Street NW  
Atlanta GA 30318  
Phone: 404-385-7142

**Home**  
461 Luckie Street NW  
Atlanta GA 30313  
Phone: 404-232-5519

---

## OBJECTIVE

To Obtain a Research and Development Position with Emphasis on Failure Analysis and Alloy Design.

## EDUCATION

**Georgia Institute of Technology**, Atlanta GA, August-2007; GPA: 4.0/4.0

Doctor of Philosophy in Materials Science and Engineering

Minor: Chemical and Biomolecular Engineering

*Dissertation:* Surface Modifications of Steels to Improve Corrosion Resistance in Sulfidizing-Oxidizing Environments

**Iowa State University**, Ames IA, 2004; GPA: 3.47/4.0

Master of Science in Materials Science and Engineering

Thesis: Oxidation Behavior and Chlorination Treatment to Improve Oxidation Resistance of Nb-Mo-Si-B Intermetallic Alloys

**Institute of Technology-Banaras Hindu University**, Varanasi, India, 2001; GPA: 8.65/10.0

Bachelor of Technology in Ceramic Engineering

## EXPERIENCE

**General Electric – Global Research Center, Niskayuna, NY**, Research Intern, **Summer-2005**

- Characterizing Coal Gasifier Slag-Refractory Interactions

**Georgia Institute of Technology, Atlanta, GA**, Graduate Research Assistant, **2004-present**

- Sulfidation Behavior of Fe-Cr-Al and Reactive Element (Y, Hf, Zr) Modified Fe-(Pt)-Cr-Al coatings in High Temperature Gasifier Atmospheres
- Residual Stresses in Scales using Photoluminescence Piezospectroscopy

**Iowa State University, Ames, IA**, Graduate Research Assistant, **2001-04**

- Microstructure and Oxidation Behavior of Nb-Mo-Si-B Intermetallic Alloys

- Chlorination Treatment to Improve Oxidation Resistance of Nb-Mo-Si-B Intermetallics
- Effect of Wet Air and Synthetic Combustion Gases on Oxidation Behavior of Mo-Si-B Intermetallic Alloys
- Cyclic Oxidation Behavior of Nickel Based Superalloys in Wet Atmosphere (Fall-2002)

**Bhabha Atomic Research Center, Bombay, Undergraduate Research Intern, Summer-2000**

- Co-precipitation Synthesis and Characterization of Ceria Stabilized Tetragonal Zirconia

**Indian Institute of Technology, Bombay, Undergraduate Research Intern, Summer-1999**

- Sol-Gel Synthesis and Characterization of Ytria Stabilized Zirconia

## **PUBLICATIONS**

### **REFEREED**

- ***“Corrosion Behavior of Aluminized and Chromized Carbon Steel in Fluctuating Oxidizing-Sulfidizing Environments”***, Proceedings, Corrosion-07, Paper # 07209
- ***“Mid Furnace Corrosion in Kraft Recovery Boilers and Its Control”***, Proceedings, Corrosion-06, Paper # 06238
- ***“Fireside Corrosion of Carbon Steel in Kraft Recovery Boiler Mid-Furnace”***, Proceedings, Corrosion-05, Paper # 05197
- ***“Microstructure and Oxidation Behavior of Nb-Mo-Si-B Alloys”***, *Intermetallics*, Vol. 14, 1, 24-31.
- ***“Chlorination Treatment for Improving Oxidation Resistance of Nb-Mo-Si-B Alloys”***, *Metallurgical and Materials Transactions A*, Vol. 3, 36A, 609-616.
- ***“Oxidation Behavior of Mo-Si-B Alloys in Wet Air”***, *Materials Science and Engineering A*, Vol. 371, 1-2, 25, 335-342.

### **NON-REFEREED**

- ***“Phase Stability and Oxidation Resistance of Nb-Mo-Si-B Intermetallics”***, ASM Materials Solutions Conference and Exposition, 2002.
- ***“Mo-Si-B Alloys for Improved Efficiency in Power Systems”***, NETL Publications, 2003 Conference Proceedings, 18th Annual Conference on Fossil Energy Materials.
- ***“Effects of Wet Air and Synthetic Combustion Gas Atmospheres on the Oxidation Behavior of Mo-Si-B Alloys”***, NETL Publications, 2002 Conference Proceedings, 17th Annual Conference on Fossil Energy Materials.
- ***“Oxidation Behavior of Mo-Si-B Alloys in Wet Air”***, NETL Publications, 2001 Conference Proceedings, 16th Annual Conference on Fossil Energy Materials.

## UNDER PREPARATION

- “Fluctuating Sulfidizing-Oxidizing Environments and Its Effect of Stability of Protective Scales”
- “Corrosion Behavior of Aluminized and Chromized Carbon Steel in Fluctuating Oxidizing-Sulfidizing Environments”
- “High Temperature Corrosion Behavior of Reactive Element (Hf, Zr, and Y) Modified Fe-Al Coatings in Cyclic Oxidizing-Sulfidizing Environments”
- “Piezospectroscopic Photoluminescence Studies on Effect of Reactive Elements (Hf, Y, Zr) on Residual Growth Stresses of Iron Aluminide Coatings under Fluctuating Sulfidizing-Oxidizing Environments”

## TECHNICAL EXPERTISE

- **Materials Processing:** Pack Cementation Coatings, Ceramic Powder Processing Techniques (Sol-Gel, Co-precipitation, Tape Casting), Arc melting, Microwave Sintering.
- **Characterization:** Failure Analysis, Scanning Electron Microscopy with Energy Dispersive Spectrometer (SEM/EDS) and EBSD (Electron Back Scatter Diffraction), X-Ray Diffraction (XRD) Phase Analysis and Stress Measurements, Differential Thermal Analysis/Thermo Gravimetric Analysis (DTA/TGA), Transmission Electron Microscopy (TEM), Auger Microscopy, Atomic Force Microscopy (AFM), Raman Spectroscopy, Piezospectroscopic Photoluminescence Stress Measurements, GSAS (General Structural Analysis System) and RIETICA for Rietveld refinement of XRD data.

## AWARDS AND HONORS

- Otto Kress Scholarship, Institute of Paper Science and Technology
- Winner, ASM Poster Contest, 2006 at Georgia Institute of Technology
- Member, Graduate Student Advisory Group, Materials Science and Engineering at Georgia Institute of Technology
- Member, Gamma Beta Phi Honor Society

## AFFILIATION

Gamma Beta Phi Honor Society, American Ceramic Society, ASM/TMS, MRS, NACE, AIST

References available upon request