

## **Anurag Chaturvedi**

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### **Summary**

Highly creative and motivated team player with excellent interpersonal skills. More than eight years of experience in physics of magnetic materials. Research work includes fabrication and characterization of magnetic and semiconductor materials in bulk and thin film form for advanced technological applications. Emphasis on research and development, micromagnetic devices, reliability, and failure analysis. Excellent project planning, and management skills; focus on interdisciplinary environments.

### **Work Experience**

MINT Center, University of Alabama, Tuscaloosa, AL 2013 to Present

#### **Postdoctoral Fellow**

Responsible for synthesis and characterization of high anisotropic magnetic thin film materials. Developed thin film permanent magnets based on exchange bias effect. Characterized magnetocaloric effect in magnetic spinel nanoparticles exhibiting optical and catalytic properties. Other responsibility includes guidance and training to undergraduates and graduate students.

Thayer School of Engineering, Dartmouth College, Hanover, NH 2012 to 2013

#### **Research Associate B**

Developed nanocrystalline bulk permanent magnetic materials. Developed model for the correlation of phase and magnetic properties in permanent magnets. Developed the equal channel angular extrusion system to consolidate metallic and magnetic powders.

### **Education**

University of South Florida, Tampa, FL 2011

Ph.D., Applied Physics

Thesis Title: Novel Magnetic Materials for Sensing and Cooling Applications.

Synthesized and characterized thin films and bulk magnetic dilute semiconductor and composite magnetic materials and reported magnetocaloric effect and phase transition. Developed magnetic sensors based on giant Magnetoimpedance effect in amorphous magnetic materials. Successfully built Magneto-Optic Kerr effect (MOKE) system and studied thin films and soft magnetic ribbons.

Banaras Hindu University, Varanasi, India 2002

M.S., Physics

Developed theory for the phase transitions in liquid crystals and polymers. Synthesized and characterized carbon nanotubes.

### **Additional Skills**

- Fabrication: Fabrication by arc melting, Induction melting and Sputter Technology & Ultra high Vacuum Technology, clean room experience

- Structural Characterization: X-ray Diffraction (XRD), Atomic force microscope (AFM), Scanning Electron microscopy (SEM)
- Magnetometry: Vibrating Sample Magnetometry (VSM), Alternating Gradient Magnetometry (AGM), Torque & SQUID Magnetometry, Magneto Optic Kerr Effect (MOKE), Magneto-Impedance measurements for sensors
- Programming and Software: LabView, MatLab, Origin, MS Office applications.

### **Selected Publications**

- Anurag Chaturvedi, Rumana Yaqub, Ian Baker- A comparison of  $\tau$ -MnAl particulates produced via different routes, *Journal of Physics: Condensed Matter* 2014; 26: 064201.
- A. Chaturvedi, N. Laurita, P. Mukherjee, H. Srikanth, and M.H. Phan- Carbon nanotube-based gas sensors using the magnetoimpedance effect, *Journal of Applied Physics* 2012; 111: 07E507.
- Anurag Chaturvedi, Stevce Stefanoski, Manh-Huong Phan, George S. Nolas, and Hariharan Srikanth- Table-like magnetocaloric effect and enhanced refrigerant capacity in  $\text{Eu}_8\text{Ga}_{16}\text{Ge}_{30}$ -EuO composite materials, *Applied Physics Letters* 2011; 99:162513.
- Manh-Huong Phan, Victorino Franco, Anurag Chaturvedi, Stevce Stefanoski, George S. Nolas, and Hariharan Srikanth- Origin of the magnetic anomaly and tunneling effect of europium on the ferromagnetic ordering in  $\text{Eu}_8\text{Ga}_{16}\text{Ge}_{30}$  type I clathrates, *Physics Review B* 2011; 84:054436.
- Chaturvedi; N. Laurita; A. Leary; M. H. Phan; M. E. McHenry; H. Srikanth - Giant magnetoimpedance and field sensitivity in amorphous and nanocrystalline  $(\text{Co}_{1-x}\text{Fe}_x)_{89}\text{Zr}_7\text{B}_4$  ( $x = 0, 0.025, 0.05, 0.075$  and  $0.1$ ) ribbons, *Journal of Applied Physics* 2011; 109: 07B508.
- Anurag Chaturvedi, Tara P. Dhakal, Sarath Witanachchi, Anh-Tuan Le, Manh-Huong Phan, Hariharan Srikanth - Critical length and giant magnetoimpedance in  $\text{Co}_{69}\text{Fe}_{4.5}\text{Ni}_{1.5}\text{Si}_{10}\text{B}_{15}$  amorphous ribbons", *Materials Science and Engineering B* 2010; 172: 146-150.

### **Affiliations**

Member, IEEE magnetic Society, 2013-Present  
 Member, American physical Society, 2008-Present  
 Member, Materials Research Society, 2010-Present

### **Honors and Awards**

- Fred L & Helen M Tharp Endowed Scholarship Fund Graduate Award, University of South Florida, 2010 and 2011
- Frank Duckwall fellowship-Applied Physics, University of South Florida, 2010
- Chancellor Fellowship, University of Wisconsin-Milwaukee, 2005 to 2007
- University Grant Commission (UGC) fellow in Physics, Banaras Hindu University, 2003 to 2004