

## HIMANSHU JAYANT SANT

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### Academic Experience

Doctor of Philosophy  
Mechanical Engineering  
University of Utah  
Salt Lake City, UT 84112

Jan 2002 to Present  
Major Course Work: Protein at  
Interfaces, Bioprocess Engineering,  
Integrated Optics, Material Science.

Master of Science  
Biomedical Engineering  
Louisiana Tech University,  
Ruston, LA 71272

August 1999 to December 2001  
Major Course Work: Biomaterials,  
Bioinstrumentation, BioMEMS,  
Analytical Biosensors, Nanotechnology,  
Photo lithography, Chemical MEMS.

Bachelor of Science  
Chemical Engineering  
Maharaja Sayajirao University,  
Baroda, India 390001

August 1995 to May 1999  
Major Course Work: Fluid Mechanics,  
Heat Transfer, Mass Transfer,  
Thermodynamics, Reaction Engineering,  
Transport Phenomena

### Academic Honors

- Jan 2002 to Present, Graduate Resarech Assistantship, Mechanical Engineering, University of Utah.
- August 2000 to December 2001, NSF Research Fellowship, Research Assistantship, Louisiana Tech University.
- March 2000 to August 2000, Graduate Research Assistantship, College of Engineering and Sciences, Louisiana Tech University.
- November 1999 to May 1999, Graduate Teaching Assistantship, College of Engineering and Science, Louisiana Tech University.

### Research Projects

- Identify and develop assays for biological and environmental applications for field flow fractionation based microfluidic modules
- Development and characterization of thermo-electric field flow fractionation systems.
- Study of geometrical scaling effects on the performance of micro field flow fractionation systems
- Study of entrance effects in microfluidic channel and improvement in sample injection scheme for micro field flow fractionation systems
- Study of shear activation of platelet in microchannels
- Development of integrated optical waveguide detection scheme for microfluidic systems
- Development of rapid prototyping methods for the manufacturing of microfluidic and related systems

## **Teaching Experience**

- Teaching Assistant: Fundamentals of Microsystems Principles Class, Conducted lab sessions, prepared lab assignments, assisted in individual and group projects, and supervised final project poster session
- Guest Lecture: Fundamentals of Microsystems Principles Class for 2 sessions.
- Teaching Assistant: Chemistry, Conducted lab sessions and related theory classes, prepared lab assignments and exams

## **Thesis**

- Tentative Title: *Microscale Instrumentation for Bio-defense*, University of Utah
- *Improved Geometrical Scaling Models for Field Flow Fractionation Systems*, Louisiana Tech University

## **Scholarly Activities and Publications**

### ***Journal Publications***

Himanshu J. Sant and Bruce K. Gale, "Flexible Packaging of an Optical Detector for Microanalysis Systems," *Lab-on-a-chip*, submitted.

Danny Blanchard, Himanshu J. Sant, Phil Ligrani, and Bruce K. Gale, "Microfluidic Photolaminates," *J.Micro.Mech. Engg.*, submitted.

Himanshu J. Sant and Bruce K. Gale, "Improved Models of Geometric Scaling Effects in Field Flow Fractionation," *Journal of Separation Science*, accepted.

### ***Reviewed Conference Papers***

Himanshu J. Sant and Bruce K. Gale, "Flexible Coupling of an Optical Detector to Microscale Field Flow Fractionation Systems," in Proc. of SPIE 2004, San Jose, January 24-29, 2004

Himanshu J. Sant and Bruce K. Gale, "An Integrated Optical Detector for Electric Field Flow Fractionation System," in Proc. of MicroTAS 2003, Squaw Valley, CA, October 5-9, 2003

Jung Woo Kim, Himanshu J. Sant and Bruce K. Gale, "Reduction of End Effects in Micro Field Flow Fractionation Systems," in Proc. of MicroTAS 2003, Squaw Valley, CA, October 5-9, 2003

Himanshu J. Sant and Bruce K. Gale, "A Microfabricated Thermal Electric Field Flow Fractionation System," in Proc. of MicroTAS 2001, Monterrey, CA, October 21-25, 2001, pp. 563-564

### ***Conference Abstracts***

Himanshu J. Sant and Bruce K. Gale, "Characterization of Microfabricated EI-FFF System Using an Integrated Optical Detector," in Proc. Of the 11th International Symposium on Field Flow Fractionation, Cleveland, OH, Oct 7-10, 2003.

Himanshu J. Sant and Bruce K. Gale, "A Microfabricated Thermal Electric Field Flow Fractionation System," in Proc. Of the 10th International Symposium on Field Flow Fractionation, Amsterdam, Netherlands, July 2-5, 2002.

Sreenivas Rao, Himanshu Sant, and Bruce K. Gale, "Minimization of End Effects in Field Flow Fractionation," in Proc. Of the 10th International Symposium on Field Flow Fractionation, Amsterdam, Netherlands, July 2-5, 2002.

Ameya Kantak, Himanshu Sant, Bruce K. Gale, David K. Mills, Yuri Lvov, and Steve Jones, "A Microfabricated Platelet Analyzer," in Proc. of Smalltalk 2001, San Diego, CA, August 27-31, 2001.

Himanshu J. Sant and Bruce K. Gale, "Improved Scaling Models for Electrical and General Field Flow Fractionation Systems," in Proc. Of the 9th International Symposium on Field- Flow Fractionation, Boulder, CO, June 26-29, 2001.

**Professional Affiliation**

- Student Member of Biomedical Engineering Society
- Student Member of All India Institute of Chemical Engineering Society