

Hong Sun

The George W. Woodruff School of Mechanical Engineering
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Objectives

To seek a research and development position, to contribute and collaborate in a multidisciplinary environment. Research interests include experimental methods of micro-scale flow visualization, bio-fluid dynamics /thermodynamics, and characteristics of somatic cells under flow-induced shear stress; and the numerical simulation of micro-scale flow fields.

Education

- The Georgia Institute of Technology, Atlanta, Georgia August 2003-Present
Doctor in Philosophy, Mechanical Engineering (expected graduation date: December 2008)
Advisor: Cyrus K. Aidun
Thesis title: The Effect of Hydrodynamic Stress on Plant Embryo Development
- Pennsylvania State University, State College, Pennsylvania August 2002-August 2003
Master of Science in Mechanical Engineering
Advisor: Gita Talmage
Thesis title: Numerical simulation of a compressible flow in infinitely wide slider bearings
- Tsinghua University, Beijing, China September 1994-July 2002
Master of Engineering in Thermal Power Engineering (July 2002)
Advisor: Shangming Liu
Thesis title: Evaluation of economic performance of energy systems based on thermodynamic properties
Bachelor of Engineering in Power Machinery and Engineering (1999)
Thesis title: Fault Model Development of Gas Turbine Power Plant Simulation Training Station

Research Experiences

- Studies of shear stress effects on somatic embryos development. (August 2007-current)
- Cellulose morphology study with atomic force microscopy (AFM) (August 2005-November 2006)
- Studies of shear stress applied on living endothelial cells (September 2005-October 2006)
- Velocimetry techniques (micro-scale particle imaging velocimetry) investigation and applications, such as velocity profile of micro-scale channel flow, shear stress variation in stagnation point flow or disturbed flow (May 2004-current)
- Inkjet coating of paper with nanocrystal cellulose for cell culture applications (September 2005-June 2006)
- Thermal effects on compressible flow in infinitely wide slider bearings (November 2002-August 2003)
- Economic performance assessment of energy systems, and analysis of system thermodynamic properties (August 2001- May 2002)
- Research on fault model of Gas Turbine Power Plant Simulation Training Station (August 1998-July 1999)

Teaching Experiences

- Teaching practicum of course ME3340 Fluid Mechanics, working with Dr. Minami Yoda at Georgia Institute of Technology (spring semester of 2008)
 - Gave lectures, held recitation session every week and review sessions before exams, and communicated with students about course materials in web forum.
- Teaching assistant for course ChE 410 Chemical Engineering Lab, working with Dr. John McLaughlin and Dr. McCluskey from Clarkson University and Dr. Cyrus K. Aidun from Georgia Institute of Technology (fall semester of 2006)
 - Held video and audio conference weekly to remotely communicate with students, prepared lab procedures and samples, run experiments and taught students to get the raw data then process them.
- Teaching assistant for course ME 412 Heat Transfer, working with Dr. Fan-Bill Cheung and Dr. Stephen R. Turns at Pennsylvania State University (fall semester of 2002 and spring semester of 2003)
 - Held weekly office hours, prepared homework solutions and graded homework and exams.

Professional Affiliations

- Student member of American Physics Society since 2005
- Student member of TAPPI/PIMA Student Chapter, IPST @ Georgia Tech 2003

Computer/technical Skills

- Programming Languages: Visual BASIC, FORTRAN, C++, Matlab.
- Operating System: Windows 9x/2000/XP, Windows NT.
- Tools: Gambit, Fluent, AutoCAD, Windows Office.
- Experience in morphology analysis: atomic force microscopy (AFM).

Extra-curricula activities

- Volunteer in graduate students' orientation, Georgia Institute of Technology
- Minister of Student Union of Thermal Engineering Department, Tsinghua University, China (1997-1998)
- Chief member of Student Association of Science & Technology, Tsinghua University, China (1996-1997)
- Chief member of the Student Association of Marketing, Tsinghua University, China (1994-1995)

References are available upon request.