Craig A. Snoeyink

Contact Information

Department of Mechanical Engineering
Texas Tech University
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Education

Purdue University, West Lafayette, IN

Ph.D., Mechanical Engineering, August 2012

- Dissertation Topic: *Interference Microscopy: Super-resolution Particle Tracking and Velocimetry*
- Advisors: Steven T. Wereley, Ph.D

Case Western Reserve University, Cleveland, OH

M.S., Mechanical Engineering, May 2005

- Thesis Topic: *Thermoelectric Measurements of Shark Gel and Polyelectrolytes in Salt Solutions*
- Advisor: Alexis Abramson, Ph.D

B.S.E., Mechanical Engineering, May 2004

Research Experience

Postdoctoral Research Scientist — August 2012 to present
Department of Mechanical Engineering,
Texas Tech University
Supervisor: Jordan Berg, Ph.D

Invited Researcher — Summer 2011
Institut fur Stromungsmechanik und Aerodynamik
Bundeswehr Universitat der Munchen
Supervisors: Prof. Dr. Christian Kahler,

Research Assistant — Aug 2005 to Aug 2010
Department of Mechanical Engineering,
Purdue University
Supervisors: Steven T. Wereley, Ph.D

Refereed Journal Publications

1. **Snoeyink, C.** "Imaging performance of Bessel beam microscopy." *Optics Letters*, 38(14):2550, 2013.
2. **Snoeyink C.**, Wereley S. "Single Image Far Field Sub-diffraction Limit Imaging with Axicon" *Optics Letters*, 38(5):625, 2013.
   (Selected for inclusion in *Virtual Journal for Biomedical Optics* 8(4) 2013)
3. **Snoeyink C.**, Wereley S. "A Novel 3D3C Particle Tracking Method Suitable for Microfluidic Flow Measurements" *Experiments in Fluids*, 54(1):1453, 2013.
4. **Snoeyink C.**, Wereley S. "Three Dimensional Locating of Paraxial Point Source with Axicon" *Optics Letters*, 37(11):2058, 2012.

Submitted Journal Publications

1. **Snoeyink, C.**, Zhang Y., Khor J. W., Wereley S. "Practical Super-Resolution in Telescopes" 2013. Submitted to *Journal of the Optical Socity of America - A*.
2. **Snoeyink, C.**, Wereley, S. "Nano-scale 3D particle tracking velocimetry with Bessel Beam Microscopy" *Invited submission to special issue of Measurement Science Technology on Particle Image Velocimetry* (

Papers in Preparation

1. Christopher, G., Barman, S., **Snoeyink, C.** "Three dimensional single view particle tracking with enhanced axial resolution."
2. Barman, S., **Snoeyink, C.**, Christopher, G. "Three dimensional structure and dynamics of particle mono-layers at liquid-liquid interfaces."
3. Sennoune S., **Snoeyink, C.**, Martinez-Zaguilan R., "Intracellular Ca2+ Oscillations and Tumor Cell Metastatic Potential Cellular Microbiology"

Edited Volume Entries

1. **Snoeyink, C.**, Wereley, S., "Micro-nanoscale Flow Characterization", *Encyclopedia of Nanotechnology* Bhushan, Bharat (Ed.), 1st Edition., Springer Inc. (2012)

Conference Papers

1. **Snoeyink, C.**, Wereley, S., "Bessel Beam Microscopy: Three Dimensional Particle Tracking with Super-Resolution", *10TH International Symposium on Particle Image Velocimetry PIV13* (2013)
2. **Snoeyink, C.**, Christopher, G., Barman, S., Wereley, S., "Sub-diffraction Limit Three Dimensional Particle Tracking Velocimetry", *ASME 2013 International Mechanical Engineering Congress and Exposition IMECE 2013* (2013)

Intellectual Property

1. **Snoeyink, C.**, Wereley, S., "SINGLE IMAGE SUPER-RESOLUTION MICROSCOPY AND TELESCOPE SYSTEMS " U.S. Application Serial No. 14/101,107, filed 12/6/2013, Patent Pending.

Pending Support

Principle Investigator - "IDBR A: Development of Accessible and Fast Super-resolution Microscopy for Cellular and Molecular Analysis."
Co-Investigators: Dr. Junkyu Kim and Dr. Raul Martinez-Zaguilan
NSF ($1,076,820)

Postdoctoral Researcher - "Characterizing the relationship between particle surface concentration, interfacial rheology, and pickering drop deformation"
Primary Investigator: Dr. Gordon Christopher
NSF ($325,000) (Share: $72,000)

Awards

Ward A. Lambert Graduate Teaching Fellowship *Mentored by Prof. Carl Wassgren*
Summer Research Grant in support of dissertation research

Presentations

- **Snoeyink, C.**, Wereley, S., "3D3C Measurements of electrothermal vortex using Interference Particle Tracking Velocimetry." *64th Annual Meeting of the APS Division of Fluid Dynamics*
- **Snoeyink, C.**, Wereley, S., "3D3C micro-PIV with Self-Interfering Wavefronts." *63th Annual Meeting of the APS Division of Fluid Dynamics*

Teaching Experience

Texas Tech University Fall 2012 to Current
Design I (senior capstone course, first semester) (ME 4370)
Instructor *Fall 2013*
Fluid Dynamics (ME 3370)
Instructor *Fall 2012, Spring 2013*
Statics (ME 2301)
Instructor *Fall 2012, Spring 2013*
Purdue University Spring 2010 to Spring 2012
Fluid Mechanics (ME 309)

Instructor *Spring 2011, Fall 2011*

Introduction to Mechanical Engineering Design, Innovation, and Entrepreneurship (ME 203)

Lead Teaching Assistant *Spring 2012*

Fluid Mechanics (ME 309)

Lead Teaching Assistant *Spring 2010, Fall 2010*

Service

Reviewer for Scholarly Journals: *Optics Letters 2012- , IMECE 2013, JoSA A 2013-*

Hardware and Software Skills

Programming Languages: MATLAB, Python/SciPy/PyLab, Java, C++, LabView, LaTeX

Software: Linux, ImageJ, SolidWorks, Subversion, Microsoft Office Suite, LibreOffice, MySql