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EDUCATION

- 2010 **Doctor of Philosophy**, Mechanical and Aerospace Engineering
University of California, Irvine
Dissertation: The role of slender beam motion on fluid mixing in a microchannel
Supervisor: Professor Roger H. Rangel
- 2002 **Master of Science**, Mechanical and Aerospace Engineering
University of California, Irvine
Thesis: Solidification of a supercooled liquid: stagnation-point flow and interface instability
Supervisor: Professor Roger H. Rangel
- 1998 **Bachelor of Science**, Environmental Engineering (Magna cum Laude)
California Polytechnic State University, San Luis Obispo

AWARDS

- 2004 Zonta International Amelia Earhart Fellowship
2004-2005 Department of Education Fellowship
2006-2006

RESEARCH INTERESTS

- Particle flows with non-spherical and deformable particles
- Suspension dynamics of swimming microorganisms in films and marine environments
- Multiphase flow through porous media
- Fluid and thin elastic structure interactions
- Numerical methods for resolving fluid and solid interactions

RESEARCH EXPERIENCE

- 2013- **Postdoctoral Researcher**, Civil and Environmental Engineering
University of California, Berkeley
- Modified an existing numerical code to study multiphase flow through porous media
 - Conducted an analytical study of interactions between oil droplets and suspended particles with applications to oil spills in marine environments
- 2011-2012 **Postdoctoral Researcher**, Mechanics Department
Royal Technical Institute, Stockholm, Sweden
- Conducted a numerical study of swimming microorganisms in suspension using the Immersed Boundary Method
 - Attended two International conferences and participated in departmental seminars
 - Collaborated research efforts with a Professor from TU-Delft

2002-2010 **Graduate Student Researcher**, Mechanical and Aerospace Engineering

University of California, Irvine

- Developed a numerical model of actuated elastic flaps using the fictitious domain method to evaluate fluid flow in a microchannel
- Collaborated with researchers from the Indian Institute of Technology as both a host and a visiting scholar
- Coordinated numerical research efforts with an experimental researcher in the same department

2007 **Visiting Scholar**, Mechanical Engineering Department

Indian Institute of Technology, Kharagpur

TEACHING INTERESTS

- Introduction to Fluid Mechanics, Viscous/Compressible Flows
- Thermodynamics
- Heat Transfer
- Numerical Methods in Fluid Dynamics

TEACHING EXPERIENCE

2009 **Teaching Associate**, Mechanical and Aerospace Engineering

University of California, Irvine

Heat Transfer (MAE 120)

- Developed course lecture material, homework assignments and exams
- Maintained a course website and led discussion sections

2003-2009 **Teaching Assistant**, Mechanical and Aerospace Engineering

University of California, Irvine

Thermodynamics MAE 91

2003, 2004

Introduction to Fluid Dynamics MAE 130A

2005, 2008, 2009

Viscous/Compressible Flows MAE 130B

2006, 2009

- Conducted discussion sections; graded homework assignments and exams; advised students during office hours

PUBLICATIONS

Submitted Journal Articles

R.A. Lambert, E.A. Variano, "Collision of oil droplets with marine aggregates: effect of droplet size", submitted for publication to **Ocean Modelling**, August 2013.

R.A. Lambert, F. Picano, W.-P. Breugem, L. Brandt, "Nutrient uptake and swimming particle motion in an active suspension", accepted for publication in **Journal of Fluid Mechanics**, August 2013.

Published Journal Articles

R.A. Lambert and R.H. Rangel, "The role of elastic flap deformation on fluid mixing in a microchannel", **Physics of Fluids** 22 (2010) 052003.

X. Casadevall i Solvas, **R.A. Lambert**, L. Kulinski, R.H. Rangel, M.J. Madou, "Au/PPy actuators for active micromixing and mass transport enhancement", **Micro and Nanosystems** 1 (2009) 2-11.

R.A. Lambert, S. Das, M.J. Madou, S. Chakraborty, R.H. Rangel, "Rapid macromolecular synthesis in a microfluidic channel with an oscillating flap", **Int. J. Heat Mass Transfer** 51 (2008) 4811-4819.

C.F.M. Coimbra, D. L'Esperance, **R.A. Lambert**, J.D. Trolinger, R.H. Rangel, "An experimental study on stationary history effects in high-frequency Stokes' flows", **Journal of Fluid Mechanics** 504 (2004) 353-363.

R.A. Lambert and R.H. Rangel, "Solidification of a supercooled liquid in stagnation point flow", **Int. J. Heat Mass Transfer** 46 (2003) 4013-4021.

R.A. Lambert and R.H. Rangel, "Linear stability analysis of the solidification of a supercooled liquid in a half-space", **Int. J. Heat Mass Transfer** 45 (2002) 4577-4587.

Non-Refereed Publications

R.A. Lambert and R.H. Rangel, "Motion of a circular particle in wall driven flow at low Reynolds numbers", 44th AIAA Aerospace Sciences Meeting, Reno, NV, January 2006.

CONFERENCES

Proceedings

R.A. Lambert and R.H. Rangel, "Micro-mixing and the role of multiple rotating and bending flaps", Proceedings of Interdisciplinary Transport Phenomena VI, Volterra, Italy, October 2009.

Presentations

R.A. Lambert, F. Picano, W.-P. Breugem, L. Brandt, "Mass flux and particle motion in an active suspension", Euro Mech, 9th European Fluid Mechanics Conference, University of Rome, Italy, September 9-13, 2012.

R.A. Lambert and L. Brandt, "Numerical study of free moving ciliar microorganisms at low Reynolds numbers", Euro Mech Colloquium 251, ETH Zurich, Switzerland, August 2011.

R.A. Lambert, S. Chakraborty, M.J. Madou, R.H. Rangel, "Moving flap model for fast DNA hybridization in microchannel flow", Special Session, 32nd International Conference on Micro- and Nano- Engineering, Barcelona, Spain, September 2007.

PROFESSIONAL EXPERIENCE

1999-2001 **Air Quality Engineer**, Camp Dresser & McKee, Irvine, CA

- Ran air dispersion models; conducted risk and air quality analysis; prepared air quality permits for various projects in the Southern California area

MEMBERSHIPS

2013 - **Member**, American Geophysical Union

2006-2007 **Student Member**, American Institute of Aeronautics and Astronautics

ADMINISTRATIVE EXPERIENCE

2005-2009 **Club Secretary**, Zonta Club of Irvine, Service Organization

2009-2011 **Club Treasurer**, Zonta Club of Irvine, Service Organization

LANGUAGES

- Fluent in Spanish