

# PEDRAM HASSANZADEH

---

CONTACT INFORMATION	Department of Mechanical Engineering University of California at Berkeley CFD Lab., 6116 Etcheverry Hall Berkeley, CA 94720	Phone: (510) 289 9002 phz@berkeley.edu www.me.berkeley.edu/~pedram
CITIZENSHIP	Iran, Canada (permanent resident)	
EDUCATION	University of California, Berkeley, USA PhD Candidate, Mechanical Engineering (2008-present) <ul style="list-style-type: none"><li>• Adviser: Professor Philip Marcus</li><li>• Major: Fluid Mechanics</li><li>• Minors: Applied Mathematics, Computational Sciences</li><li>• GPA: 4.0/4.0</li></ul> University of Waterloo, Canada MAsc., Mechanical Engineering (2005-2007) <ul style="list-style-type: none"><li>• Adviser: Professor George Raithby</li><li>• Thesis: <i>An Efficient Computational Method for Thermal Radiation in Participating Media</i></li><li>• GPA: 94/100</li></ul> University of Tehran, Iran BSc., Mechanical Engineering (2001-2005) <ul style="list-style-type: none"><li>• Adviser: Professor Vahid Esfahanian</li><li>• Thesis: <i>Numerical Simulation of Electrokinetic Flows in Microchannels</i></li><li>• GPA: 16.97/20</li></ul>	
AWARDS	Geophysical Fluid Dynamics Fellow, Woods Hole Oceanographic Institution, 2012 Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship (NSERC PGS-D), 2009-2010 Outstanding Preliminary Examination Award, UC Berkeley, Spring 2009 Jonathan Laitone Memorial Scholarship, UC Berkeley ME Department, Spring 2009 Eiffel Scholarship, French Ministry of Foreign and European Affairs, 2005 ( <i>Declined</i> ) International Graduate Student Award, University of Waterloo, 2005-2007	
RESEARCH EXPERIENCE	Graduate Research Student (2008-present) Computational Fluid Dynamics Lab., UC Berkeley Supervisor: Prof. Philip Marcus Research: Theoretical and numerical study of vortices in rotating, stratified, shearing flows (supported by NSF and NASA): 3D structure, aspect ratio, stability, decay and longevity, and cyclone-anticyclone asymmetry of geophysical and astrophysical vortices  Research Associate (2007-2008) Department of Mechanical Engineering, University of Waterloo Supervisor: Prof. George Raithby Research: Experimental study of downward two-phase flows in large-diameter pipes (supported by NSERC)	

Graduate Research Assistant (2005-2007)  
Department of Mechanical Engineering, University of Waterloo  
Supervisor: Prof. George Raithby  
Research: Computational radiation heat transfer in participating media (supported by Natural Resources Canada and NSERC)

Undergraduate Research Assistant (2002-2005)  
Vehicle, Fuel, and Environment Research Institute, University of Tehran  
Supervisor: Prof. Vahid Esfahanian

REFEREED  
PAPERS

Hassanzadeh P., Marcs P. S., and Le Gal P., The Universal Aspect Ratio of Vortices in Rotating Stratified Flows: Theory and Simulation , *Accepted for publication in the J. Fluid Mechanics*, 2012

Hassanzadeh P., and Raithby G. D., Efficient Iterative Solution of the P1 Equation, *ASME J. Heat Transfer*, vol. 131 (1), 2009

Hassanzadeh P., Raithby G. D., and Chui E. H., The Efficient Calculation of Radiation Heat Transfer in Anisotropically Scattering Media using the QL Method, *J. Computational Thermal Science*, vol. 1 (2), 2009, pp. 189-206  
Also presented at the *Advances in Computational Heat Transfer Conference (CHT-08)*, May 2008, Marrakech, Morocco

Hassanzadeh P., Raithby G. D., and Chui E. H., The Efficient Calculation of Radiation Heat Transfer in Participating Media, *AIAA J. Thermophysics and Heat Transfer*, vol. 22 (2), 2008, pp. 129-139  
Also presented as paper AIAA-2008-4244 at the *40th AIAA Thermophysics Conference*, June 2008, Seattle

Hassanzadeh P., and Raithby G. D., Application of the Finite Volume Method to the Second-Order Radiative Transfer Equation: Accuracy and Solution Cost, *J. Numerical Heat Transfer-B*, vol. 53 (4), 2008, pp. 374-382

NON-REFEREED  
PAPERS

Hassanzadeh P., Marcus P. S., Aubert O., Le Bars M., Le Gal P., 3D Structure and Internal Circulation of Pancake Vortices in Rotating Stratified Flows, 64th Annual Meeting of the APS Division of Fluid Dynamics, 2011

Marcus P. S., and Hassanzadeh P., 3D Vortices in Stratified, Rotating Flows - Secondary Circulations and Changes in Aspect Ratio Due to Dissipation, 64th Annual Meeting of the APS Division of Fluid Dynamics, 2011

Hassanzadeh P., Pei S., and Marcus P. S., How Do 3D Vortices Spin Down, or Do They?, 63rd Annual Meeting of the APS Division of Fluid Dynamics, 2010

Pei S., Hassanzadeh P., and Marcus P. S., Secondary Flows Within 3D Vortices, 63rd Annual Meeting of the APS Division of Fluid Dynamics, 2010

PAPERS IN  
PROGRESS

Numerical and Experimental Study of Cyclones Produced by Local Suction in Rotating Stratified Flows, with Philip Marcus and Patrice Le Gal

Asymmetry in the Stability of Cyclones and Anticyclones in Rotating Stratified Flows, with Philip Marcus

GRADUATE COURSES

At UC Berkeley: Advanced Fluid Mechanics ME 260A (A+), Advanced Fluid Mechanics ME 260B (A+), Introduction to Continuum Mechanics ME 185 (A), Thermodynamics ME 254 (A), Advanced Dynamics PHYS 205 (Audit), Numerical Solution of PDEs MATH 228A (A), Applied Methods in Mathematics MATH 224 (A), Numerical Solution of PDEs MATH 228B (A+), Topics in Applied Mathematics MATH 275 (A), Spectral Method for CFD E 266B (A), Vortex Dynamics ME 290C (A), Methods of Applied Mathematics E230 (A), Hydrodynamic Stability and Instability ME 262 (A), Asymptotic Analysis in Applied Mathematics MATH 203 (Audit)

At the University of Waterloo: Radiation Heat Transfer ME 665 (96/100), Computational Fluid Dynamics ME 663 (95/100), CFD for Engineering Design ME 533 (95/100), Convective Heat Transfer ME 652 (90/100), Compressible Flow ME 765 (Audit)

TEACHING EXPERIENCE

At UC Berkeley: Advanced Fluid Mechanics (ME 260A), Fluid Mechanics (ME 106)

At the University of Waterloo: CFD for Engineering Design (ME 533), Heat Transfer I (ME 353), Ordinary Differential Equations (ME 203), Advanced Engineering Mathematics (ME 303)

At the University of Tehran: Mechanics of Materials II, FORTRAN Programming Tutor

COMPUTER SKILLS

Programming: FORTAN, C/C++, Matlab, MPI

Engineering: CFX, Tecplot, FLUENT, Maple, MathCad, Mechanical Desktop

REFERENCES

Phillip S. Marcus  
Professor of Mechanical Engineering  
Director of the CFD Lab.  
UC Berkeley  
Tel: +1 (510) 642 5942  
Email: pmarcus@me.berkeley.edu

Patrice Le Gal  
Professor  
IRPHE, CNRS  
Universits d'Aix-Marseille  
Tel: 33 04 9613 9779  
Email: legal@irphe.univ-mrs.fr

Ömer Savas  
Professor of Mechanical Engineering  
UC Berkeley  
Tel: +1 (510) 642 5705  
Email: savas@me.berkeley.edu

George D. Raithby  
Distinguished Professor of Mechanical Engineering  
University of Waterloo  
Tel: +1 (519) 888 4066  
Email: graith@mecheng1.uwaterloo.ca