

# Hassan Masoud

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CONTACT INFORMATION	Department of Mechanical Engineering-Engineering Mechanics 930 R. L. Smith Building Michigan Technological University Houghton, MI 49931	<i>Phone:</i> (906) 487-3025 <i>E-mail:</i> hmasoud@mtu.edu <i>Website:</i> <a href="http://masoud-lab.academy">http://masoud-lab.academy</a>
EDUCATION	Ph.D. Mechanical Engineering Georgia Institute of Technology, Atlanta, GA Advisor: Alexander Alexeev Dissertation Committee: R. F. Salant, P. M. Goldbart, A. Fernandez-Nieves, and D. L. Hu	May 2009 – July 2012
	M.S. Mechanical Engineering State University of New York at Buffalo, Buffalo, NY Advisor: James D. Felske Thesis Committee: G. F. Dargush and C. S. Liu	August 2007 – April 2009
	B.S. Aerospace Engineering (Summa Cum Laude) Sharif University of Technology, Tehran, Iran	September 2002 – July 2006
EMPLOYMENT	Assistant Professor Department of Mechanical Engineering-Engineering Mechanics & Computational Science and Engineering Interdisciplinary Ph.D. Program Affiliated Assistant Professor Department of Mathematical Sciences Michigan Technological University, Houghton, MI	July 2017 – present  August 2018 – present
	Visiting Scientist Harvard-MIT Division of Health Sciences and Technology and Brigham and Women's Hospital Harvard Medical School, Boston, MA	May 2016 – August 2016
	Assistant Professor Department of Mechanical Engineering University of Nevada, Reno, NV	July 2015 – June 2017
	Lecturer Department of Mechanical and Aerospace Engineering Princeton University, Princeton, NJ	February 2015 – June 2015
	Post-doctoral Fellow Applied Mathematics Laboratory Courant Institute of Mathematical Sciences, New York, NY Advisor: Michael J. Shelley	September 2012 – June 2015
	Department of Mechanical and Aerospace Engineering Princeton University, Princeton, NJ Advisor: Howard A. Stone	
AWARDS & HONORS	Travel Fellowship, U.S. National Committee for Theoretical and Applied Mechanics Finalist, Society in Science – The Branco Weiss Fellowship Postdoctoral Fellowship, Institute for Complex Adaptive Matter TechSTAR Award, Georgia Institute of Technology GTRIC Fellowship, Georgia Institute of Technology	2016 2014 2012 2012 2012

Graduate Student Silver Award, Materials Research Society 2011  
 Finalist, Frank J. Padden, Jr. Award for Excellence in Polymer Physics Research, American Physical Society Division of Polymer Physics 2011  
 Elected to Who's Who Among Students in American Universities and Colleges 2011  
 Elected Full Member, SIGMA XI, The Scientific Research Society 2010  
 Engineering Graduate School Ambassador Award, State University of New York at Buffalo 2009  
 Elected Member, Iranian National Elite Foundation 2008  
 Outstanding Student Award, Sharif University of Technology and Iranian Aerospace Society 2007

UNIVERSITY &  
 PROFESSIONAL  
 SERVICE

Symposium Organizer and Session Chair, 56<sup>th</sup> Annual Technical Meeting of the Society of Engineering Science, St. Louis, MO 2019  
 Non-Voting Member, MEEM Faculty Development Committee, Michigan Tech Fall 2018 – present  
 Leading Scholar Faculty Host, Michigan Tech Fall 2018  
 Ad-hoc Proposal Reviewer, Swiss National Supercomputing Center 2018 – present  
 Proposal Reviewer, Michigan Tech Research Excellence Fund 2018  
 Faculty Host, STEM Internship Program at Michigan Tech for Under-represented High School Students Summer 2018  
 Member, External Affairs Committee, APS Division of Fluid Dynamics 2018 – present  
 Symposium Organizer and Session Chair, U.S. National Congress on Theoretical & Applied Mechanics, Chicago, IL 2018  
 Faculty Advisor, Tau Beta Pi, Michigan Beta Chapter 2017 – 2019  
 Session Chair, APS Division of Fluid Dynamics Annual Meeting, Denver, CO 2017  
 Associate Editor, European Journal of Computational Mechanics 2017 – present  
 Editorial Board Member and Guest Editor of “Fluid Flows with Interactive Boundaries” Special Issue, European Journal of Computational Mechanics 2016 – 2017  
 Member, MEEM Seminar Committee, Michigan Tech 2017 – 2019  
 Proposal Panelist, National Science Foundation 2016 & 2019  
 Symposium Organizer, 53<sup>rd</sup> Annual Technical Meeting of the Society of Engineering Science, College Park, MD 2016  
 Organizer, ME Poster Competition, University of Nevada, Reno 2016  
 Chair, ME Seminar Committee, University of Nevada, Reno 2015 – 2016  
 Member, Thermal Science Search Committee, University of Nevada, Reno 2015 – 2016  
 Symposium Organizer and Session Chair, 51<sup>st</sup> Annual Technical Meeting of the Society of Engineering Science, West Lafayette, IN 2014  
 Minisymposium Organizer, U.S. National Congress on Theoretical & Applied Mechanics, East Lansing, MI 2014  
 Session Chair, APS Division of Fluid Dynamics Annual Meeting, Pittsburgh, PA 2013  
 Organizer, Bi-weekly Applied Math Lab Seminar and Monthly Chalk Talk Series, Courant Institute of Mathematical Sciences 2013 – 2015  
 Session Chair, SES-ASME Annual Technical Meeting, Providence, RI 2013  
 Symposium Assistant, Materials Research Society Fall Meeting & Exhibit, Boston, MA 2011  
 Session Chair, Canadian-American-Mexican Graduate Student Physics Conference, Washington, DC 2011  
 Member-at-large, APS Forum on Graduate Student Affairs Executive Committee 2011 – 2012  
 Member-at-large, Sharif University of Technology Aerospace Engineering Student Association 2005 – 2006

Reviewer for:

Nature Communications, Advanced Functional Materials, Physical Review Letters, Scientific Reports, Physical Chemistry Chemical Physics, Soft Matter, Journal of the Royal Society Interface, PLoS One, New Journal of Physics, Applied Physics Letters, Journal of Physical Chemistry, Non-linear Dynamics, Physical Review E, Journal of Fluid Mechanics, Physical Review Fluids, Physics of Fluids, Chemical Engineering Science, AIP Advances, International Journal of Heat and Mass Transfer, International Journal of Multiphase Flow, Journal of Fluids and Structures, Computers and Fluids, Polymer, Journal of Fluids Engineering, Journal of Thermophysics and Heat Transfer, European Journal of Computational Mechanics, Journal of Applied Fluid Mechanics, CRC Press

## PUBLICATIONS

(Advisees' names are underlined)

(Superscript \* denotes authors of equal contribution)

24. The reciprocal theorem in fluid dynamics and transport phenomena  
**H. Masoud** and H. A. Stone, *Journal of Fluid Mechanics*, Accepted (2019)  
(Invited "Perspective" article)
23. Optimal viscous damping of vibrating porous cylinders  
S. Jafari Kang, E. Dehdashti, V. Vandadi, and **H. Masoud**, *Journal of Fluid Mechanics* 874, 339–358 (2019)
22. Conduction heat transfer from oblate spheroids and bispheres  
S. Jafari Kang, E. Dehdashti, and **H. Masoud**, *International Journal of Heat and Mass Transfer* 139, 115–120 (2019)
21. Editorial: Fluid flows with interactive boundaries  
**H. Masoud** and A. M. Ardekani, *European Journal of Computational Mechanics* 26, 1–3 (2017)
20. Reverse Marangoni surfing  
V. Vandadi, S. Jafari Kang, and **H. Masoud**, *Journal of Fluid Mechanics* 811, 612–621 (2017)
19. Alternative mechanism for coffee-ring deposition based on active role of free surface  
S. Jafari Kang, V. Vandadi, J. D. Felske, and **H. Masoud**, *Physical Review E* 94, 063104 (2016)  
(Highlighted in *Materials Today*, *Nevada Today*, *Phys.org*, *Science Daily*, and *Membrane Quarterly*)
18. Reciprocal theorem for convective heat and mass transfer from a particle in Stokes and potential flows  
V. Vandadi, S. Jafari Kang, and **H. Masoud**, *Physical Review Fluids (Rapid Communications)* 1, 022001(R) (2016)
17. Oscillatory Marangoni flows with inertia  
O. Shardt, **H. Masoud**, and H. A. Stone, *Journal of Fluid Mechanics* 803, 94–118 (2016)
16. Drag and diffusion coefficients of a spherical particle attached to a fluid-fluid interface  
A. Dörr, S. Hardt, **H. Masoud**, and H. A. Stone, *Journal of Fluid Mechanics* 790, 607–618 (2016)
15. Hydrodynamic schooling of flapping swimmers  
A. Becker\*, **H. Masoud\***, J. Newbolt, M. J. Shelley, and L. Ristroph, *Nature Communications* 6, 8514 (2015)  
(Highlighted in *National Science Foundation News*, *APS Physics Central Podcast*, *Science Daily*, and *Futurity*)
14. Mobility of membrane-trapped particles  
H. A. Stone and **H. Masoud**, *Journal of Fluid Mechanics* 781, 494–505 (2015)
13. Collective surfing of chemically active particles  
**H. Masoud** and M. J. Shelley, *Physical Review Letters* 112, 128304 (2014)  
(Highlighted as PRL Editors' Suggestion)
12. A reciprocal theorem for Marangoni propulsion  
**H. Masoud** and H. A. Stone, *Journal of Fluid Mechanics (Rapids)* 741, R4 (2014)
11. On the rotation of porous ellipsoids in simple shear flows  
**H. Masoud**, H. A. Stone, and M. J. Shelley, *Journal of Fluid Mechanics (Rapids)* 733, R6 (2013)

10. Designing maneuverable micro-swimmers actuated by responsive gel  
**H. Masoud**, B. I. Bingham, and A. Alexeev, *Soft Matter* 8, 8944 (2012)  
(Highlighted in *IEEE Computer Society News*, *Science Daily*, *Phys.Org*, *MedGadget*, *ASME Nanotechnology Institute News*, *Soft Matter World*, *Communications of the ACM*, *Futurity Magazine*, *Georgia Tech's Homepage*, etc.)
9. Efficient flapping flight using flexible wings oscillating at resonance  
**H. Masoud** and A. Alexeev, In *Natural Locomotion in Fluids and on Surfaces*, Edited by S. Childress, A. E. Hosoi, W. W. Schultz, and Z. J. Wang, pp. 235-245, Springer, New York (2012)
8. Controlled release of nanoparticles and macromolecules from responsive microgel capsules  
**H. Masoud** and A. Alexeev, *ACS Nano* 6, 212 (2012)
7. Harnessing synthetic cilia to regulate motion of microparticles  
**H. Masoud** and A. Alexeev, *Soft Matter* 7, 8702 (2011)  
(Invited "Highlight" article)
6. Selective control of surface properties using hydrodynamic interactions  
**H. Masoud** and A. Alexeev, *Chemical Communications* 47, 472 (2011)  
(Highlighted in the *Virtual Journal of Nanoscale Science & Technology* 22, 25, 2010)  
(Invited article for Emerging Investigators themed issue)
5. Permeability and diffusion through mechanically deformed random polymer networks  
**H. Masoud** and A. Alexeev, *Macromolecules* 43, 10117 (2010)
4. Resonance of flexible flapping wings at low Reynolds number  
**H. Masoud** and A. Alexeev, *Physical Review E* 81, 056304 (2010)  
(Featured in the spring 2011 issue of Georgia Tech Research Horizons Magazine)  
(Highlighted in *National Science Foundation News*, *U.S. News & World Report*, *Innovations Report*, *ScienceMagNews*, *Georgia Tech's Homepage*, etc.)
3. Modeling magnetic microcapsules that crawl in microchannels  
**H. Masoud** and A. Alexeev, *Soft Matter* 6, 794 (2010)  
(Highlighted in the *Virtual Journal of Nanoscale Science & Technology* 21, 9, 2010)  
(Invited article for Emerging Themes in Soft Matter: Responsive and Active Soft Materials issue)
2. Analytical solution for Stokes flow inside an evaporating sessile drop: Spherical and cylindrical cap shapes  
**H. Masoud**, J. D. Felske, *Physics of Fluids* 21, 042102 (2009)
1. Analytical solution for inviscid flow inside an evaporating sessile drop  
**H. Masoud**, J. D. Felske, *Physical Review E* 79, 016301 (2009)

CONFERENCE  
ABSTRACTS

(Advisees' names  
are underlined)

52. Forward, halted, and reverse motion of an active particle atop a finite liquid layer  
S. Jafari Kang, J. P. Rothstein, and **H. Masoud**, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23–26, 2019
51. Reverse Marangoni propulsion of disks and hemispheres at finite Reynolds numbers  
S. Sur, **H. Masoud**, and J. P. Rothstein, 72<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Seattle, WA, November 23–26, 2019
50. Collective hydrodynamics of robotic fish  
R. S. Pandhare, M. L. Timm, and **H. Masoud**, 56<sup>th</sup> Annual Technical Meeting of Society of Engineering Science, St. Louis, MO, October 13–15, 2019
49. Marangoni-driven motion of particles at liquid-gas interfaces  
S. Jafari Kang, E. Dehdashti, and **H. Masoud**, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 19–23, 2019
48. Forced convection heat transfer from a particle at small and large Peclet numbers

E. Dehdashti and **H. Masoud**, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18–20, 2018

47. Inertial Marangoni propulsion: simulation

S. Jafari Kang, E. Dehdashti, J. P. Rothstein, and **H. Masoud**, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18–20, 2018

46. Inertial Marangoni propulsion: experiments

S. Sur, **H. Masoud**, and J. P. Rothstein, 71<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, November 18–20, 2018

45. Coffee-ring effect revisited

S. Jafari Kang, V. Vandadi, J. D. Felske, and **H. Masoud**, 18<sup>th</sup> U.S. National Congress for Theoretical and Applied Mechanics, Chicago, IL, June 5–9, 2018

44. Stability of a chemically active floating disk

V. Vandadi, S. Jafari Kang, J. P. Rothstein, and **H. Masoud**, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19–21, 2017

43. Optimal viscous damping of vibrating porous cylinders

S. Jafari Kang and **H. Masoud**, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19–21, 2017

42. Evaporation of a sessile droplet on a slope

A. Jarrahi Darban, S. Jafari Kang, and **H. Masoud**, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19–21, 2017

41. Heat transfer from a particle in creeping flow of a variable-conductivity fluid

E. Dehdashti, M. Razizadeh, and **H. Masoud**, 70<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Denver, CO, November 19–21, 2017

40. Interfacial transport alone accounts for coffee-ring deposition

V. Vandadi, S. Jafari Kang, J. D. Felske, and **H. Masoud**, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20–22, 2016

39. Towards designing miniature surfing robots\*

S. Jafari Kang, V. Vandadi, and **H. Masoud**, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20–22, 2016

\*Also presented at the American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November 13–18, 2016 and at 53<sup>rd</sup> Annual Technical Meeting of the Society of Engineering Science, College Park, MD, October 4–7, 2016

38. A reciprocal theorem for convective heat and mass transfer in Stokes and potential flows\*

**H. Masoud**, V. Vandadi, and S. Jafari Kang, 69<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR, November 20–22, 2016

\*Also presented at the American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November 13–18, 2016 and at 24<sup>th</sup> International Congress of Theoretical and Applied Mechanics, Montreal, Canada, August 21–26, 2016

37. Mobility of membrane-trapped particles

**H. Masoud** and H. A. Stone, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22–24, 2015

36. Marangoni-driven flow oscillations during the dissolution of surfactant powders\*

O. Shardt, H. Kim, **H. Masoud**, and H. A. Stone, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22–24, 2015

\*Also presented at the American Institute of Chemical Engineers Annual Meeting, Salt Lake City, UT, November 8–13, 2015 and at the 65<sup>th</sup> Canadian Chemical Engineering Conference, Calgary, AB, October 4–7, 2015

35. Drag and diffusion coefficient of a spherical particle attached to a fluid interface  
A. Dörr, S. Hardt, **H. Masoud**, and H. A. Stone, 68<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22–24, 2015
34. Schooling of flapping wings: Simulations  
**H. Masoud**, A. Becker, L. Ristroph, and M. J. Shelley, 67<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA, November 23–25, 2014
33. Schooling of flapping wings: Experiments  
L. Ristroph, A. Becker, **H. Masoud**, J. Newbolt, and M. J. Shelley, 67<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA, November 23–25, 2014
32. Chemical surfing of active particles and connection to chemotaxis of slime mold colonies  
**H. Masoud**, H. A. Stone, and M. J. Shelley, The Society of Rheology 86<sup>th</sup> Annual Meeting, Philadelphia, PA, October 5–9, 2014
- 31 Individual and collective surfing of chemically active particles\*  
**H. Masoud**, M. J. Shelley, and H. A. Stone, Aspen Center for Physics Winter Conference, Aspen, CO, January 27–February 1, 2014  
\*Also presented at the U.S. National Congress on Theoretical & Applied Mechanics, East Lansing, MI, June 2014
- 30 Rotation of porous ellipsoids in simple shear flows  
**H. Masoud**, H. A. Stone, and M. J. Shelley, 66<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, November 24–26, 2013
29. Marangoni-driven chemotaxis, chemotactic collapse, and the Keller-Segel equation  
M. J. Shelley and **H. Masoud**, 66<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, November 24–26, 2013
- 28 Rotational behavior of porous elliptical cylinders in a simple shear flow  
**H. Masoud**, H. A. Stone, and M. J. Shelley, SES 50<sup>th</sup> Annual Technical Meeting and ASME-AMD Annual Summer Meeting, Providence, RI, July 28–31, 2013
27. Friction of elastomers on directional surfaces  
**H. Masoud** and A. Alexeev, Materials Research Society Fall Meeting & Exhibit, Boston, MA, November 25–30, 2012
26. Swimming micro-robot powered by stimuli-sensitive gel  
**H. Masoud** and A. Alexeev, 65<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, San Diego, CA, November 18–20, 2012
25. Harnessing responsive gels to design synthetic microswimmers  
**H. Masoud** and A. Alexeev, 49<sup>th</sup> Annual Technical Meeting of Society of Engineering Science, Atlanta, GA, October 10–12, 2012
24. Harnessing polymer gels to regulate friction between sliding surfaces  
**H. Masoud** and A. Alexeev, American Physical Society, APS March Meeting, Boston, MA, February 27–March 2, 2012
23. Modeling controlled release from responsive microgel capsules  
A. Alexeev and **H. Masoud**, American Physical Society, APS March Meeting, Boston, MA, February 27–March 2, 2012
22. Modeling nanoparticle release from responsive microcapsules  
**H. Masoud** and A. Alexeev, Materials Research Society Fall Meeting & Exhibit, Boston, MA, November 28–December 2, 2011
21. Regulating solute transport using nano-structured surfaces  
**H. Masoud** and A. Alexeev, Materials Research Society Fall Meeting & Exhibit, Boston, MA, November 28–December 2, 2011

20. A novel release mechanism from responsive microgel capsules  
**H. Masoud** and A. Alexeev, American Physical Society, 64<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Baltimore, MD, November 20–22, 2011
19. Designing self-propelling micro-swimmers using responsive gels  
 B. I. Bingham, **H. Masoud**, and A. Alexeev, American Physical Society, 64<sup>th</sup> Annual Meeting of the APS Division of Fluid Dynamics, Baltimore, MD, November 20–22, 2011
18. Polymer networks: modeling and emerging applications  
**H. Masoud**, American Institute of Chemical Engineers Annual Meeting, Minneapolis, MN, October 16–21, 2011
17. Mesoscale modeling of transport through polymer gels  
**H. Masoud**, 5<sup>th</sup> Canadian-American-Mexican Graduate Student Physics Conference, Washington, DC, September 29–October 1, 2011
16. Fast release of nanoparticles from microgel capsules  
**H. Masoud**, 5<sup>th</sup> South–East Workshop on Soft Materials and Interfaces, Atlanta, GA, May 25, 2011
15. Transport properties of mechanically deformed polymer networks  
**H. Masoud** and A. Alexeev, American Physical Society, APS March Meeting, Dallas, TX, March 21–25, 2011
14. Designing self-propelling micro-swimmer that navigates in microfluidic channels  
 B. Bingham, **H. Masoud**, and A. Alexeev, American Physical Society, APS March Meeting, Dallas, TX, March 21–25, 2011
13. Designing patterned microchannels to separate colloid-polymer suspensions  
**H. Masoud** and A. Alexeev, American Physical Society, 63<sup>rd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Long Beach, CA, November 21–23, 2010
12. Efficient flapping flight using flexible wings oscillating at resonance  
 A. Alexeev and **H. Masoud**, American Physical Society, 63<sup>rd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Long Beach, CA, November 21–23, 2010
11. Transport through random biological networks in tension  
**H. Masoud**, From Computational Biophysics to Systems Biology Workshop, Traverse City, MI, June 6–8, 2010
10. Low Reynolds number aerodynamics of flexible flapping wings at resonance  
**H. Masoud** and A. Alexeev, IMA Workshop on Natural Locomotion in Fluids and on Surfaces: Swimming, Flying, and Sliding, Minneapolis, MN, June 1–5, 2010
9. Transport through random polymer networks in tension  
**H. Masoud**, 4<sup>th</sup> South-East Workshop on Soft Materials and Interfaces, Atlanta, GA, May 13, 2010
8. Effective diffusion rate through a random polymer network in tension  
**H. Masoud** and A. Alexeev, American Physical Society, APS March Meeting, Portland, OR, March 15–19, 2010
7. Modeling flexible flapping wings oscillating at resonance  
 A. Alexeev and **H. Masoud**, American Physical Society, APS March Meeting, Portland, OR, March 15–19, 2010
6. Regulating motion of magnetic capsules in microfluidic systems  
**H. Masoud**, A. Kilimnik, and A. Alexeev, ASME First Global Congress on NanoEngineering for Medicine and Biology, Houston, TX, February 7–10, 2010
5. Modeling magnetically driven synthetic microcapsules  
**H. Masoud** and A. Alexeev, American Physical Society, 62<sup>nd</sup> Annual Meeting of the APS Division

of Fluid Dynamics, Minneapolis, MN, November 22–24, 2009

4. Particle deposition in evaporating colloidal sessile drops

J. D. Felske and **H. Masoud**, American Physical Society, 62<sup>nd</sup> Annual Meeting of the APS Division of Fluid Dynamics, Minneapolis, MN, November 22–24, 2009

3. Flow in an evaporating sessile drop

**H. Masoud** and J. D. Felske, American Physical Society, 61<sup>st</sup> Annual Meeting of the APS Division of Fluid Dynamics, San Antonio, TX, November 23–25, 2008

2. Analytical solution for stress field in problem of contact between symmetrical wedge and a half space

D. Naderi, S. Adibnazari, A. Abedian, and **H. Masoud**, 6<sup>th</sup> Conference of Iranian Aerospace Society, Tehran, Iran, February 24–26, 2007

1. Non-symmetrical plane contact

D. Naderi, **H. Masoud**, S. Adibnazari, and A. Abedian, International Conference of Solid Mechanics, Crakow, Poland, September 4–8, 2006

SEMINARS  
& INVITED  
PRESENTATIONS

29. American Mathematical Society, Fall Central Sectional Meeting, University of Michigan, Ann Arbor, MI, October, 2018

28. Workshop on Dynamic Contact Lines: Progress and Opportunities, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, March 28, 2018

27. Department of Mathematical Sciences, Michigan Tech, Houghton, MI, November 3, 2017

26. Department of Mechanical Engineering, University of Delaware, Newark, DE, February 27, 2017

25. Department of Mechanical Engineering–Engineering Mechanics, Michigan Tech, Houghton, MI, January 30, 2017

24. Department of Mechanical Engineering, University of Houston, Houston, TX, January 19, 2017

23. Biomaterials Innovation Research Center, Harvard-MIT Division of Health Sciences and Technology, Boston, MA, June 10, 2016

22. Meet Future Collaborators – Lightning Talks, University of Nevada, Reno, NV, April 5, 2016

21. Fluid Mechanics Seminar Series, Department of Mechanical and Process Engineering, ETH Zurich, Switzerland, May 18, 2015

20. Department of Mechanical Engineering, University of Nevada, Reno, NV, March 6, 2015

19. Department of Biomedical Engineering and Mechanics, Virginia Tech, Blacksburg, VA, February 23, 2015

18. Department of Chemical Engineering, Virginia Tech, Blacksburg, VA, February 2, 2015

17. Applied Mathematics Colloquium, Department of Engineering Sciences and Applied Mathematics, Northwestern University, Evanston, IL, January 12, 2015

16. Applied Math Lab Seminar, Courant Institute of Mathematical Sciences, New York University, New York, NY, September 11, 2014

15. Annual ICAM–I2CAM Conference, Davis, CA, May 19, 2014

14. Benjamin Levich Institute for Physico–Chemical Hydrodynamics, City University of New York, New York, NY, March 25, 2014

13. Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, March 17, 2014

12. Department of Mechanical Engineering, Rice University, Houston, TX, March 10, 2014



11. School of Mechanical Engineering, Purdue University, West Lafayette, IN, February 13, 2014
10. The Fourth Collaborative Workshop Initiative, Mathematical Institute, Oxford University, Oxford, UK, January 2014
9. Fluid Mechanics Seminar, Department of Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ, February 25, 2013
8. Applied Math Lab Seminar, Courant Institute of Mathematical Sciences, New York University, New York, NY, September 20, 2012
7. Department of Mechanical & Industrial Engineering, University of Toronto, Toronto, ON, January 18, 2012
6. Department of Mechanical Engineering, Iowa State University, Ames, IA, January 13, 2012
5. Squishy Physics Seminar Series, School of Engineering and Applied Sciences and Department of Physics, Harvard University, Cambridge, MA, November 30, 2011
4. Department of Polymer Engineering, The University of Akron, Akron, OH, November 14, 2011
3. GaP Seminar Series, Parker H. Petit Institute of Bioengineering and Biosciences, Georgia Institute of Technology, Atlanta, GA, September 7, 2011
2. Gordon-Kenan Research Seminar on Soft Condensed Matter Physics, New London, NH, August 14, 2011
1. Colloid & Soft Matter Seminar Series, Georgia Institute of Technology, Atlanta, GA, June 28, 2011

TEACHING  
EXPERIENCE

Michigan Technological University	
Mechanical Engineering Practice III – Model Based Design (MEEM 3901)	Fall 2019
Advanced Heat Transfer (MEEM 5230)	Spring 2018 – present
Special Topics: Hydrodynamics of Interacting Vortices (MEEM 5990)	Spring 2018
University of Nevada, Reno	
Convection Heat Transfer (ME 761)	Spring 2016 and 2017
Intermediate Heat Transfer (ME 414/614)	Fall 2015 and 2016
Princeton University	
Mathematics in Engineering II (MAE 306/MAT 302)	Spring 2015

GRADUATE  
STUDENTS &  
POST-DOCTORAL  
ADVISEES

Paras Ghumare, M.S. Student (Course Work Option)	January 2018 – December 2018
Mitchel L. Timm, M.S. Student (Thesis Option)	December 2017 – December 2018
Recipient of Dean’s Award for Outstanding Scholarship (2018)	
Muhammad Usman, Ph.D. Student	August 2019 – present
Mitchel L. Timm, Ph.D. Student	January 2019 – present
Fady Ghabrial, Ph.D. Student	September 2018 – present
Rohit S. Pandhare, Ph.D. Student	September 2017 – present
Recipient of Dean’s Award for Outstanding Graduate Student Teaching (2018)	
Esmaeil Dehdashti, Ph.D. Student	August 2016 – present
Saeed Jafari Kang, Ph.D. Student	August 2015 – present

Recipient of Distinguished Doctoral Teaching Fellowship (2019)  
Recipient of Doctoral Finishing Fellowship (2018)  
Recipient of Outstanding International Graduate Student Scholarship (2017)  
Recipient of American Physical Society Division of Fluid Dynamics Travel Award (2016)

Dr. Vahid Vandadi, Post-doctoral Fellow September 2015 – August 2017  
Recipient of Postdoctoral Award for Professional Development (2016)  
Current position: Aero-Thermal Engineer at Polaris Industries Inc.

UNDERGRADUATE  
STUDENTS

Kristen Shutt

Spring 2017