SARAH HORMOZI
CURRICULUM VITAE

CONTACT INFORMATION

Address: Ohio University,
Russ College of Engineering and Technology,
Department of Mechanical Engineering,
251 Stocker Center,
Athens, OH, 45701-2979, USA.
Telephone: +1 740 597 3304
E-mail: hormozi@ohio.edu
Website: http://hormozilab.com

PERSONAL DATA

Citizenship: Iranian & Canadian Citizen.
Permanent Resident of USA.

EDUCATION

2007-2012	Ph.D. Mechanical Engineering, The University of British Columbia (UBC) Thesis: Multi-layer flows with yield stress fluids. Advisor: Prof. Ian A. Frigaard M.Sc. Mathematics, UBC Thesis: Dispersion of solids in visco-plastic fluids.
2004-2006	M.Sc. Mechanical Engineering, Sharif University of Technology Thesis: Numerical simulation of 3D particle laden underflows.
2000-2004	B.Sc. Mechanical Engineering, Shiraz University

PROFESSIONAL EXPERIENCE

2014-Present	Assistant Professor, Mechanical Engineering, Ohio University
2014	Postdoctoral Research Fellow, IUSTI Laboratory, Aix Marseille University
2013-2014	Postdoctoral Research Fellow, Navier Laboratory, Ecole des Pont Paris Tech
2012-2013	Postdoctoral Research Fellow, UBC
2011-2012	Research Assistant, Mathematics Department, UBC
2007-2013	Research Assistant and Manager of Complex & Non-Newtonian Fluid Laboratory, UBC

FELLOWSHIPS, HONORS AND AWARDS

2017	OHIO Faculty News Makers
2016	NSF CAREER Award
2016	The Marvin E. and Ann D. White Research Award, Ohio University
2016	Women's Mentoring Program Service Award, Ohio University
2015	American Chemical Society Petroleum Research Fund, DNI Award
2015	Cover of the Journal of Rheology, Volume 59, Issue 6
2013	NSERC Post-Doctoral Fellowship
2013	Best Poster Presentation Award, Society of Rheology
2012	NSERC-Industrial R&D Post-Doctoral Fellowship
2011	Best Poster Presentation Award, Canadian Applied and Industrial Mathematics
2011	Nominated for the Governor General's Gold Medal & CAGS/UMI Dissertation Awards, UBC
2010	Best Poster Presentation Award, 5th Pacific Rim Conference on Rheology
2004-2006	Honors Scholar, Sharif University of Technology
2000-2004	Honors Scholar, Shiraz University

EXTERNAL AND INTERNAL FUNDING

2017 PI: Wachs, A. (UBC, Canada), Co-PIs: Derksen, J. (University of Aberdeen, UK), Subramanium, S. (ISU, USA), **Hormozi, S. (Ohio University, USA)** , Hrenya, C. (University of Colorado, USA) & Pannala, S. (SABIC, USA). Enabling Process Innovation through Computation (2018), Workshop supported by BIRS Canada, BIRS Proposal 18w5139 Accepted in CMO-BIRS.

2016 **PI: Hormozi, S.,** Suspensions of non colloidal particles in yield stress fluids: fluid mechanics, rheology and microstructure (selected fall 2015), National Science Foundation CAREER. Total funding: $505,000

2016 **PI: Hormozi, S.,** Suspensions of non colloidal particles in yield stress fluids: fluid mechanics, rheology and microstructure (2016), National Science Foundation, European Research Funding. A request for supplementary funding from NSF-ERC to initiate research with Professor Luca Brandt at KTH, Sweden. Total funding: $12,000 from NSF and about the same amount from ERC.

2016 **PI: Hormozi, S.,** Stocker Faculty Enrichment Fund, Ohio University: $2000

2015 **PI: Hormozi, S.,** The fluid mechanics of channel fracturing technique, ACS Petroleum Research Fund, Doctoral New Investigator Award, $110,000

2015 **PIs: Hormozi, S., Ovarlez, G.** International Centre for Mechanical Sciences, Course/Workshop Support, Udine.

2015 **PIs: Hormozi, S., Ovarlez, G.** University of Bordeaux, France, Joint Ph.D. Student Support (2 years of PhD student salary and access to high-tech experimental facilities).

2015 **PI: Hormozi, S.,** Stocker Faculty Enrichment Fund, Ohio University: $2000

2013 **Hormozi, S.** NSERC Post-Doctoral Fellowship, $80,000 CAD.

2012 **Hormozi, S.** NSERC-Industrial R&D Post-Doctoral Fellowship, $60,000 CAD, Declined.

TEACHING ACTIVITIES

- Teaching, Ohio University and UBC
  - ME 3022, Heat and Fluid Transport I (Ohio University Undergraduate Course, redesigned by S.H.).
  - ME 5470, Viscous Flow Theory (Ohio University Graduate Elective, new course designed by S.H.).
  - ME 6900, Special Topics in Mechanical Engineering (Ohio University Graduate Elective, new course designed by S.H.).
  - ME 6930, Advanced Engineering Mathematics (Ohio University Graduate Elective, new course designed by S.H.).
  - MATH 307, Applied Linear Algebra (UBC Undergraduate Course).
- Teaching Assistant, UBC
  - MATH 265, Linear Differential Equations.
  - MATH 307, Applied Linear Algebra.
  - MATH 217, Multivariable and Vector Calculus.
  - MECH 380, Fluid Dynamics.
  - MECH 385, Mechanical Engineering Laboratory.
  - MECH 386, Industrial Fluid Dynamics.
  - MECH 479, Computational Fluid Dynamics.

JOURNAL PUBLICATION

1. **Hormozi, S.,** & Frigaard, I.A. (2017) Dispersion of solids in fracturing flows of yield stress fluids. J. Fluid Mech. 830, 93-137.
2. Balmforth, N.J., Craster, R.V., Hewitt, D.R. **Hormozi, S.,** & Maleki, A. (2017) Viscoplastic boundary layers. J. Fluid Mech. 813, 929-954.
3. **Hormozi, S.** & Ward, M.J. (2017) A hybrid asymptotic-Numerical method for calculating drag coefficients in 2D low Reynolds number flows. J. Eng. Math, special issue (invited paper), 102, 1, 3-33.
4. Madraki, F., **Hormozi, S.,** Ovarlez, G., Guazzelli, E. & Pouliquen, O. (2017) Enhancing Shear Thickening. Phys. Rev. Fluids 2, 033301.
5. Sarmadi, P., **Hormozi, S.,** & Frigaard, I.A. (2017) Triple-layer configuration for stable high-speed lubricated pipeline transport. Phys. Rev. Fluids 2, 044302.
6. Maleki, A. & **Hormozi, S.** (2017) Submerged jet mixing flows of municipal sludge mixtures. J. Non-Newtonian Fluid Mech. In press.
7. Gholami, M., Lenoir, N., Hautemayou, D., Ovarlez, G., & **Hormozi, S.** (2017) Time-resolved 2D concentration maps in flowing suspensions using X-ray. Journal of Rheology, under review.
8. Alghalibi, D., Lashgari, I., Brandt, L. & **Hormozi, S.** (2017) Interface-resolved simulations of particle suspensions in shear thinning and shear thickening carrier fluids. J. Fluid Mech, under review.
9. Firouznia, M., Metzger, M., Ovarlez, G. & **Hormozi, S.,** (2017) The interaction of two spherical particles in simple-shear flows of yield stress fluids. J. Non-Newtonian Fluid Mech, under review.
10. Sarabian, M., Firouznia, Metzger, B. & **Hormozi, S.,** (2017) Dispersion of solid particles in cylindrical Couette flows. Phys. Rev. Fluids, under review.
11. Liu, Y., Balmforth, N.J., **Hormozi, S.,** & Hewitt, D.R. (2016) Two-dimensional viscoplastic dambreaks. J. Non-Newtonian Fluid Mech. 238, 65-79.
12. Ovarlez, G., Mahaut, F., Deboeuf, F., Lenoir, N., **Hormozi, S.,** & Chateau, X. (2015) Flows of suspensions of particles in yield stress fluids. Journal of Rheology. 59, 1449-1486.
13. Dagois-Bohy, S., **Hormozi, S.**, Guazzelli, E. & Pouliquen, O. (2015) Rheology of dense suspensions of non-colloidal spheres in yield-stress fluids. J. Fluid Mech, 776, R2.
14. Maleki, A., **Hormozi, S.** Roustaei, A. & Frigaard, I.A. (2015) Macro-size drop encapsulation. J. Fluid Mech. 769, 482-521.
15. **Hormozi, S.,** Dunbrack, G. & Frigaard, I.A. (2014) Vico-plastic sculpting. Phys. Fluids., 26, 093101-20.
16. **Hormozi, S.** & Frigaard, I.A. (2012) Nonlinear stability of a visco-plastically lubricated viscoelastic fluid flow. J. Non-Newtonian Fluid Mech, 169-170, 61-73.
17. **Hormozi, S.,** Wielage-Burchard, K. & Frigaard, I.A. (2011) Entry and start up effects in visco-plastically lubricated viscous shear flow in pipe. J. Fluid Mech. 673, 432-467.
18. **Hormozi, S.,** Martinez, D.M. & Frigaard, I.A. (2011) Stable core-annular flows of viscoelastic fluids using the visco-plastic lubrication technique. J. Non-Newtonian Fluid Mech. 166, 1356-1368.

19. **Hormozi, S.,** Wielage-Burchard, K. & Frigaard, I.A. (2011) Multi-layer channel flows with yield stress fluids. J. Non-Newtonian Fluid Mech Mech. 166, 262-278.
20. **Hormozi, S.,** Firoozabadi, B. & Jahromi, HG (2008) Characteristic Variables and Entrainment in 3-D Density Currents. Scientia Iranica. 15 (5), 575-583.

ARTICLES IN PREPRATION

1. **Hormozi, S.,** Eskin, E. & Frigaard, I.A. Transport and dispersion of particles in turbulent flows of visco-plastic fluids. In preparation for J. Eng. Math, special issue (invited paper).
2. Rashedi, F., Ovarlez, G. & **Hormozi, S.,** Optically engineered emulsions: structure to rheology. In preparation for Journal of Rheology.
3. Gholami, M., Rashedi, F., Lenoir, N., Ovarlez, G. & **Hormozi, S.,** Shear induced migration of particles in a yield stress fluid. In preparation for J. Fluid Mech.
4. Madraki, F., Ovarlez, G & **Hormozi, S.,** On the continuos to discontinuous transition in bidisperse shear thickening suspensions. In preparation for Phys. Rev. Letter.
5. Francesco, D., Izbassarov, D., Rosti, M., **Hormozi, S.,** Tammisola, O. & Brandt, L. Dynamics of elasto-viscoplastic flows in porous media. In preparation for J. Non-Newtonian Fluid Mech.
6. Izbassarov, D., Rosti, M., Niazi Ardekani, M., Sarabian, M., **Hormozi, S.,** Tammisola, O. & Brandt, L. Interface-resolved simulations of particle suspensions in elasto-viscoplastic carrier fluids. In preparation for Journal of Computational Physics.
7. Liu, Y., Balmforth, N.J., & **Hormozi, S.** Axisymmetric Viscoplastic Slump. In preparation for J. Non-Newtonian Fluid Mech.
8. Sarmadi, P., **Hormozi, S.,** & Frigaard, I.A. A Novel Method for Heavy Oil Transport. In preparation for J. Non-Newtonian Fluid Mech.

BOOK IN PREPRATION

Hormozi, S. & Ovarlez, G. " Introduction to visco-plastic fluid mechanics " (Springer).

CONTRIBUTIONS TO REFEREED CONFERENCE PROCEEDINGS

1. **Hormozi, S.,**, Dagois-Bohy, S., Guazzelli, E., Pouliquen, O. Rheology of dense Newtonian and visco-plastic suspensions. ICR (2016), August7- August13, Kyoto, Japan.
2. **Hormozi, S.,** & Frigaard, I.A. Dispersion of solids in fracturing flows of yield stress fluids. ICTAM (2016), August 21-August 28, Montreal, Canada.
3. Sarmadi, P., Frigaard, I.A. & **Hormozi, S.,** A novel visco-plastically lubricated method for core-annular pipeline flow, ICMF-2016, 9th International Conference on Multiphase Flow, Firenze, Italy.
4. **Hormozi, S.,** Dunbrack, G., Maleki Zamenjani, A., Rostai, A., & Frigaard, Visco-plastic fluid flows in cleaning and forming (2014), April 1-2, Cambridge, UK.
5. **Hormozi, S.,** Dunbrack, G. & Frigaard, I.A. Extending the visco-plastic lubrication concept to near net shape products and encapsulation . Annual Transactions of the Nordic Rheology Society (2012).
6. **Hormozi, S.,** Wielage-Burchard, K. & Frigaard, I.A. Visco-plastic lubrication flow in channel geometry. CANCAM (2011), June 5-9, Vancouver, Canada.
7. **Hormozi, S.,** Wielage-Burchard, K., Frigaard, I.A, Martinez, D.M. & Grecov, D. Numerical approach to nonlinear temporal stability of visco-plastic lubrication. ASME (2010), November 12-18, Vancouver, Canada.

8. **Hormozi, S.,** Martinez, D.M., Frigaard, I.A. & Grecov, D. Experimental studies of viscoelastic flow using visco-plastic lubricant. ASME (2010), November 12-18, Vancouver, Canada.
9. **Hormozi, S.,** Wielage-Burchard, K., Frigaard, I.A, Martinez, D.M. & Grecov, D. Entry and start-up flows in visco-plastic lubrication. CSME (2010), June 6-9, Victoria, Canada.

INVITED LECTURES

1. Department of Mechanical Engineering, Fluids seminar, Brown University, Providence, Rhode Island, USA (2017).
2. 18th International Workshop on Numerical Methods for Non-Newtonian Flows (2017), June 12- June 16, Department of Mathematics, UBC, Vancouver, Canada.
3. Department of Mechanical Engineering, Fluids seminar, UBC, Vancouver, Canada (2017).
4. Department of Physics & Astronomy, Physics seminar, Ohio University, Athens, OH, USA (2017).
5. Department of Mathematics, Technical University of Dortmund (2016), June 6- June 10, Dortmund , Germany.
6. International Centre for Mechanical Sciences (CISM) Summer School: Visco-plastic fluids: from theory to application (2016), May 30- June 3, Udine, Italy.
7. Workshop on " Rheology of dense particulate suspensions", (2016), June 16- June 17, Georgetown University, Washington DC, USA.
8. Laboratory of Future, University of Bordeaux (2015), Bordeaux, France.
9. Department of Mathematics, Technical University of Dortmund (2015), Dortmund , Germany.
10. Banff International Research Center (2015), October 25-30, Alberta, Canada.
11. Multi-phase Continuum Modelling of Particulate Flows (2015), University of Florida, Gainesville (2015), December 9-11, Florida, USA.
12. Banff International Research Center (2014), VPL, Alberta, Canada.
13. Banff International Research Center (2014), FRG, Alberta, Canada.
14. Department of Applied Mathematics and Theoretical Physics (2014), Cambridge University, UK.
15. Institut Jean Le Rond dAlembert, University Pierre et Marie Curie (2014), Paris, France.
16. Laboratory FAST, University Pierre et Marie Curie (2014), Orsay Cedex , France.
17. IUSTI, Polytech Marseille (2013), Marseille, France.
18. Navier Laboratory, Ecole des Pont Paris Tech (2013), Champs-sur-Marne, France.
19. Department of Mechanical Engineering, University of Delaware (2013), Newark, USA.
20. Department of Mechanical Engineering, Ohio University (2013), Athens, USA.
21. Department of Mathematics, University of Brasilia (2011), Brasilia, Brazil.
22. Department of Mathematics, Hokkaido University (2010), Sapporo, Japan.

GRADUATE STUDENTS SUPERVISED

1. Ahmadreza Rashedi, PhD. Mechanical Engineering, Ohio University. Thesis: Suspensions of Yield Stress Fluids (Advisor: Sarah Hormozi, in progress).
2. Fatemeh Madraki, PhD. Mechanical Engineering, Ohio University. Thesis: Noncolloidal suspensions of complex fluids (Advisor: Sarah Hormozi, in progress).
3. Mohammad Sarabian, PhD. Mechanical Engineering, Ohio University. Thesis: The fluid mechanics of channel fracturing technique (Advisor: Sarah Hormozi, in progress).
4. Mohammad Hossein Firouznia, PhD. Mechanical Engineering, Ohio University. Thesis: Polydisperse suspensions (Advisor: Sarah Hormozi, in progress).
5. Ye Liu, PhD. Mathematics, UBC. Thesis: The Propagation of the gravity current of Bingham fluid a numerical investigation (Advisor: Neil Balmforth, Co-advisor: Sarah Hormozi, in progress).
6. Parisa Sarmasi, PhD. Mechanical Engineering, UBC. Thesis: Multi-layer flows of yield stress fluids (Advisor: Ian Frigaard, Co-advisor: Sarah Hormozi, in progress).
7. Mohammad Hossein Firouznia, M.Sc. Mechanical Engineering, Ohio University. Thesis: The hydrodynamic interaction of two small freely-moving particles in a Couette flow of yield stress fluid (Advisor: Sarah Hormozi, Completed).
8. Mohammad Gholami, M.Sc. Mechanical Engineering, Ohio University. Thesis: Non-Newtonian suspension flows (Advisor: Sarah Hormozi, Completed).
9. Geoffrey Dunbrack, M.Sc. Mechanical Engineering, UBC. Thesis: Visco-plastic sculpting(Advisor: Ian Frigaard, Co-advisor: Sarah Hormozi, Completed).
10. Amir Maleki Zamenjani, M.Sc. Mechanical Engineering, UBC. Thesis: Macro-size drop encapsulation (Advisor: Ian Frigaard, Co-advisor: Sarah Hormozi, Completed).
11. Ye Liu, M.Sc. Mathematics, UBC. Thesis: The Propagation of the gravity current of Bingham fluid a numerical investigation (Advisor: Neil Balmforth, Co-advisor: Sarah Hormozi, Completed).

UNDERGRADUATE STUDENTS SUPERVISED

1. Zachery Tucker, B.Sc. Mechanical Engineering, Ohio University (Advisor: Sarah Hormozi, in progress).
2. Quinn Mitchell, B.Sc. Mechanical Engineering, Ohio University (Advisor: Sarah Hormozi, in progress).
3. Kane Pickrel, B.Sc. Mechanical Engineering, Ohio University (Advisor: Sarah Hormozi, Completed).
4. Leonid Sergueev, B.Sc. Mechanical Engineering, UBC (Advisor: Sarah Hormozi, Completed).
5. Billy Fung, B.Sc. Mechanical Engineering, UBC (Advisor: Sarah Hormozi, Completed).
6. Ryan Yee, B.Sc. Mechanical Engineering, UBC (Advisor: Sarah Hormozi, Completed).

EDITORIAL AND JOURNAL POSITIONS

Guest Editor, Journal of Non-Newtonian Fluid Mech, Special Issue Viscoplastic Fluids: from theory to applications, Rotorua, NZ, (2017).

SERVICE

CONFERENCE SESSION OR SYMPOSIUM ORGANIZER

1. Organizer and Chair of "Enabling Process Innovation through Computation (EPIC)" (2018), CMO-BIRS Workshop in Oaxaca, Mexico.
2. Chair of Experimental technique, 69th Annual Meeting of the APS Division of Fluid Dynamics (2016) November 20-22, Portland, OR, USA.
3. Organizer and Chair of Complex Flow and Deformation session of XVIIth International Congress on Rheology (2016), Kyoto, Japan.
4. Organizer of Summer School: Visco-plastic fluids: from theory to application, International Centre for Mechanical Sciences (CISM) (2016), Udine, Italy.
5. Organizer and Chair of Non-Newtonian Fluid Mechanics and Stability, Society of Rheology meeting (2014), Philadelphia, USA.
6. Volunteering for the International Council for Industrial and Applied Mathematics (Vancouver, 2011), Canadian Applied and Industrial Mathematics Society (Toronto, 2012) and Applied Mathematics Perspectives meeting (Vancouver, 2011).

PANEL SERVICE

1. NSF CBET Particulate & Multiphase Flows regular panel (2017).
2. NSF CBET Particulate & Multiphase Flows regular panel (2016).

COMMITTEE SERVICE

Assisting faculty search committee, recruitments 2014 & 2015, Mechanical Engineering, Ohio University.

JOURNAL SERVICE

Manuscript Review: Journal of Fluid Mechanics, Journal of Non-Newtonian Fluid Mechanics, Journal of Rheology, Meccanica, Advances in Computational Mathematics, Journal of Chemical Engineering Science, Journal of Engineering Mathematics, Mechanics of Time-Dependent Materials and Journal of Fluids.

SHORT COURSE TAUGHT

Short Course on Multi-layer flows of non-Newtonian fluids- International Centre for Mechanical Sciences (CISM) Summer School: Visco-plastic fluids: from theory to application, (May 30- June 3, 2016), Udine, Italy.

OUTREACH AND PROFESSIONAL SERVICE

1. Undergraduate advisor, Mechanical Engineering, Ohio University.
2. Participated in Tech Savvy: a day-long STEM career conference for girls in grades 6-9 and the adults who support them. S.H. annually hosts this program in her research laboratory.
3. Participated in Technology Camp for High School Girls. A three-day residential experience camp gives female high school students the opportunity to explore careers specifically in engineering and technology. S.H. annually hosts this program in her research laboratory.
4. Participant, Women Center Mentoring Program: the program seeks to inspire and encourage undergraduate women to become engaged, confident and connected leaders at OHIO and beyond. S.H. is mentoring a female undergraduate research assistant, Divine Buttram.

5. Organizing scientific visits and undergraduate/graduate seminar talks: Professor Metzger (Aix-Marseille University, France), Dr Souzy (Aix-Marseille University, France), Professor Ovarlez (Bordeaux University, France), Dr Eskin (Schlumberger, Boston, USA), Dr Malek (MIT, USA), Professor Brandt (KTH University, Sweden), Dr Rahmani (UBC, Canada) and Dr Maleki (UBC, Canada).
6. Hosting a series of movie nights about fundamental problems of fluid mechanics (spring semester 2016).
7. Science cafe talk at Baker center Ohio University, 21 Sept 2016 (Invited lecture).
8. Science talk to public, sponsored by Tau Beta Pi and the Mechanical Engineering Student Advisory Board, 29 Nov 2017 (Invited lecture).

PROFESSIONAL MEMBERSHIPS

1. Society of Rheology
2. American Physical Society, Division of Fluid Dynamics
3. Women Center, OHIO
4. Tech Savvy, OHIO

REFERENCES

Prof. Bud Homsy, Departments of Mechanical Engineering, University of Washington. Tel: +1 206 543 5705, E-Mail: bud@math.ubc.ca

Prof. Ian Frigaard, Departments of Mathematics and Mechanical Engineering, University of British Columbia. Tel: +1 604 822 2781, Fax: +1 604 822 2403, E-Mail: frigaard@math.ubc.ca

Prof. Guillaume Ovarlez, Lab of Future (LOF), UMR5258 CNRS-Solvay- Bordeaux University. Tel: +33 5 56 46 47 91, E-Mail: guillaume.ovarlez@u-bordeaux.fr

Prof. Neil Balmforth, Departments of Mathematics and Earth Ocean Sciences, University of British Columbia. Tel: +1 604 822 2666, Fax: +1 604 822 6074, E-Mail: njb@math.ubc.ca

Prof. Michael Ward, Department of Mathematics, University of British Columbia. Tel: +1 604 822 5869, Fax: +1 604 822 6074, E-Mail: ward@math.ubc.ca

Prof. Xavier Chateau, Navier Laboratory, Ecole des Ponts Paris Tech. Tel: +33 01 81 66 94 69, E-Mail: xavier.chateau@ifsttar.fr