Morteza Eslamian, PhD, PEng	
Permanent Address: 3101-125 Village Green Square Toronto, ON, M1S 0G3 Canada Tel: 1-647-501-4298 (Winter) Tel: 86-18121344205 (Fall and Summer)	Born: September 28, 1975, Shiraz, Iran Canadian Citizen Permanent Resident of the United States Email: Morteza.Eslamian@gmail.com URL:http://umji.sjtu.edu.cn/faculty/morteza-eslamian/

Present Status

2013/09-Present:	Primary: Associate Professor and Director of Laboratory for Thin Films and Thin Film Photovoltaic Solar Cells, University of Michigan- Shanghai Jiao Tong University Joint Institute
2016/04-Presenet	Dual Appointment: Associate Professor, State Key Laboratory of Composite Materials, School of Materials Science and Engineering, Shanghai Jiao Tong University

Education

2002-2006	PhD	Mechanical and Industrial Engineering	University of Toronto	Micro- and nano- particle production and modeling by spray methods
1998-2000	MSc	Energy Conversion-Mechanical Engineering	Sharif University of Technology	Energy efficiency in heat exchangers and exergy analysis
1994-1998	BSc	Thermal-Fluid Sciences Mechanical Engineering	Sharif University of Technology/Shiraz University	Boundary layer theory

Career History

2013-Present	Associate Prof (Primary appointment)	Mechanical Engineering	University of Michigan-Shanghai Jiao Tong University Joint Institute	Spray-On Polymer and Perovskite Solar Cells
2016-Present	Associate Prof (Joint appointment)	Materials Science and Engineering	Shanghai Jiao Tong University	Thin Film Composite Materials
2011-2013	Assistant Prof	School of Engineering	Texas A&M University-Corpus Christi	Solar cell fabrication by spray coating
2009-2011	Research Associate/Lecturer	Microgravity and Thermofluids Lab	Ryerson University	Transfer Phenomena/ Thermal Diffusion
2007.3-2007.8	Postdoctoral Fellow	Particle Technology Lab	ETH Zurich	Flame spray pyrolysis
2006-2008	Postdoctoral Fellow	Energy Efficiency Group,	University of Toronto	Kraft recovery boilers/Biomass gasification
2002-2006	Research Assistant	Mechanical Engineering	University of Toronto	Advanced Materials Synthesis by Sprays
2000-2002	Design Engineer	Hydrodynamics Group	Institute for Surface Effect Vehicles	Design of Hovercrafts and Flying Boats
1998-2000	Research Assistant	Energy Conversion	Sharif University of Technology	Design of Heat Exchangers, Evaporative Coolers

Honors and Awards

1. Recipient of Shanghai Distinguished Professor Oriental Scholar Award (Recognition and Research Fund), 2014.
2. Granted United States Permanent Residence Status (Green Card) based on Extra-Ordinary Ability, 2013.
3. Ryerson Postdoctoral Fellowship, Ryerson University, International Competition, October 2008-September 2011.
4. Postdoctoral Fellowship from ETH Zurich, 2007.
5. Postdoctoral Fellowship from Department of Chemical Engineering, University of Toronto, 2006-2008.
6. Four-year PhD overseas scholarship from the Iranian Ministry of Science and Technology, 2002-2006.
7. University of Toronto full scholarship (RA), 2002-2006.
8. Ranked 1st in B.Sc., Shiraz University, Shiraz, Iran, 1998.
9. Ranked 1st among all admitted students to Thermo-Fluids Mechanical Engineering in the Nationwide Universities Entrance Exam of Iran, Sharif University of Technology, 1994.
10. Distinguished degree in the Undergrad Nationwide Universities Entrance Exam, Ranked 59 among all science and technology students in Iran, 1994.

Teaching Experience

2013- 2016	University of Michigan-SJTU Joint Institute	Selected Topics in Nanotechnology, Fluid-Thermal Systems Design, Advanced Fluid Mechanics, Fluid Mechanics
2013	Ryerson University	Statics and Mechanics of Materials
2011-2013	Texas A&M University- Corpus Christi	Thermodynamics; Heat Transfer; Foundation of Engineering; Thermodynamics
2010 & 2011	Ryerson University	Dynamics of Machines
2008	University of Ontario, Institute of Technology	Hydroelectric Power Systems
2008	Seneca College, School of Aviation, Toronto	Fundamentals of Electricity Lab
2007	University of Toronto	Structures, Materials, and Design
2001	Persian Gulf University	Heat Transfer; Internal Combustion Engines
2007	ETH Zurich	Drying Technology Lab
2001	Shiraz University	Thermodynamics Lab

Research Fund

1. SJTU Research Incentive Program Fund, 600, 000 RMB (~100,000 USD), 2016/3 to 2019/2.
2. National Natural Science Foundation of China (NSFC) for the fabrication of perovskite solar cells, 410, 000 RMB (~70,000 USD), 2016/1 to 2017/12.
3. Recipient of Shanghai Distinguished Professor Oriental Scholar Research Fund, 600,000 RMB (100,000 USD), 2014/1-2016/12.
4. University of Michigan- Shanghai Jiao Tong University Joint Institute Startup Fund, 1.05 Million RMB (170,000 USD), 2013.
5. Postdoc research funds awarded to two of my Postdocs for research purposes, China Postdoc Fund, 130, 000 RMB (21,000 USD), 2014, 2015.
6. Government of China scholarship to cover stipends and tuition fees of 5 PhD and 6 MS students, 2014-present
7. Texas A&M-CC Startup Fund, 100,000 USD, 2011-2013.
8. New Faculty Development Program Grant- Texas A&M-Corpus Christi, 2012.
9. Texas Research and Development Fund- Texas A&M-Corpus Christi, 25,000 USD, 2012

Book Chapters

1. **M. Eslamian** and N. Ashgriz, Chapter 2: Powder Production via Spray Route in "Powder Metallurgy Research Trends", Invited Book Chapter, Nova Science Publishers, New York Editors: Lotte J. Smit and Julia H. Van Dijk. ISBN**:** 978-1-60456-852-3.

2. **M. Eslamian,** M. Ahmad and N. Ashgriz, Chapter 40: Powder Production by Emulsion Combustion Spray Method, Handbook of Atomization and Sprays, Theory and Applications", Springer. (Editor: N. Ashgriz), ISBN: 978-1-4419-7263-7. DOI 10.1007/978-1-4419-7264-4_40.

3. **M. Eslamian** and N. Ashgriz, Chapter 37: Spray Drying and Spray Pyrolysis, Handbook of Atomization and Sprays, Theory and Applications", Springer. (Editor: N. Ashgriz), ISBN: 978-1-4419-7263-7. DOI 10.1007/978-1-4419-7264-4_37.

4. **M. Eslamian** and N. Ashgriz, Chapter 25: Drop-ON-Demand Drop Generators, Handbook of Atomization and Sprays, Theory and Applications", Springer. (Editor: N. Ashgriz), ISBN: 978-1-4419-7263-7. DOI 10.1007/978-1-4419-7264-4_25.

5. **M. Eslamian** and N. Ashgriz, Chapter 33: Swirl, T-Type and Vibrating Mesh Atomizers, Handbook of Atomization and Sprays, Theory and Applications", Springer. (Editor: N. Ashgriz), ISBN: 978-1-4419-7263-7. DOI 10.1007/978-1-4419-7264-4_33.

Refereed Journal Papers (Google Scholar Citations) (Citation=900; h-index=18; i-10 index=35)

1. Q. Wang, C.-C. Chueh, **M. Eslamian*** and **A. K.-Y. Jen*** (2016), PH modulation of PEDOT: PSS toward efficient inverted peorvskite solar cells with reduced potential loss and enhanced stability, *ACS Applied Materials and Interfaces*, DOI: 10.1021/acsami.6b11757.

2. Q. Chen, F. Zabihi, **M. Eslamian***, Improved functionality of PEDOT:PSS thin films via graphene doping, fabricated by substrate vibration-assisted spray coating, *Synthetic Metals*, 10.1016/j.synthmet.2016.11.009.

3. A. Rahimzadeh, M. **Eslamian*** (2016), Stability of thin films of liquid solutions subjected to ultrasonic substrate vibration and characteristics of the resulting thin solid films, *Chemical Engineering Science*, In Press, doi:10.1016/j.ces.2016.11.006.

4. F. Zabihi, Q. Chen, Y. Xie, **M. Eslamian*** (2016), Fabrication of efficient graphene-doped polymer/fullerene bilayer organic solar cells in air using spin coating followed by ultrasonic vibration post treatment, *Superlattices and Microstructures*, 10.1016/j.spmi.2016.10.087.

5. Y. Xie, F. Zabihi, **M. Eslamian*** (2016), Fabrication of highly reproducible polymer solar cells using ultrasonic substrate vibration posttreatment, Journal of Photonics for Energy 6 (2016), 045502.

6. **M. Eslamian*** (2016), Inorganic and organic solution-processed thin film devices, Nano-Micro Letters. DOI: 10.1007/s40820-016-0106-4.

7. M. Ahmadian-Yazdi, F. Zabihi, M. Habibi, **M. Eslamian*** (2016), Effects of Process Parameters on Characteristics of Mixed-Halide Perovskite Solar Cells Fabricated by Single-Step and Two-step Sequential Coating, *Nanoscale Research Letters*, 11 (2016) 408.

8. M. Habibi, F. Zabihi, M.R. Ahmadian-Yazdi, **M. Eslamian*** (2016), Progress in Emerging Solution-Processed Thin Film Solar Cells– Part II: Perovskite Solar Cells, *Renewable & Sustainable Energy Reviews*, 62 (2016) 1012-1031.

9. F. Soltani-Kordshuli, E. Zabihi, **M. Eslamian*** (2016), Graphene-doped PEDOT:PSS nanocomposite thin films fabricated by conventional and substrate vibration-assisted spray coating (SVASC), *Engineering Science and Technology*, 19 (2016) 1216-1223.

10. F. Zabihi, M. Ahmadian-Yazdi, **M. Eslamian*** (2016), Fundamental Study on the Fabrication of Planar Perovskite Solar Cells using Two-Step Sequential Substrate Vibration-Assisted Spray Coating (2S-SVASC), *Nanoscale Research Letters*, 11 (2016) 71.

11. M. Habibi, A. Rahimzadeh, **M. Eslamian*** (2016) On Dewetting of Thin Films due to Crystallization (Crystallization Dewetting), *European Physical Journal E*, 39 (2016) 30.

12. Q. Wang, **M. Eslamian*** (2016), Improving Uniformity and Nanostructure of Solution-Processed Thin Films using Ultrasonic Substrate Vibration Post Treatment (SVPT), *Ultrasonics*, 67 (2016) 55-64.

13. Q. Wang, Y. Xie, F. Soltani-Kordshuli, **M. Eslamian*** (2016), Progress in Emerging Solution-Processed Thin Film Solar Cells– Part I: Polymer Solar Cells, *Renewable & Sustainable Energy Reviews*, 56 (2016) 347–361.

14. E. Jafar-Salehi, **M. Eslamian***, M. Z. Saghir* (2015), Effects of Thermodiffusion on the Fluid Flow, Heat Transfer, and Solidification of Molten Metal Alloys, *Engineering Science and Technology*, 16 (2016) 511-517.

15. M. Habibi, **M. Eslamian***, F. Soltani-Kordshuli, F. Zabihi (2015), Controlled Wetting/Dewetting Through Substrate Vibration-Assisted Spray Coating (SVASC), *Journal of Coatings Technology and Research*, 13 (2016) 211-225.

16. **M. Eslamian*,** F. Zabihi (2015), Ultrasonic Substrate Vibration-Assisted Drop Casting (SVADC) for the Fabrication of Photovoltaic Solar Cell Arrays and Thin-Film Devices, *Nanoscale Research Letters* 10 (2015) 462.

17. Q. Wang, M-R. Ahmadian-Yazdi, **M. Eslamian*** (2015), Investigation of Morphology and Physical Properties of Modified PEDOT: PSS Films via In-Situ Grafting Method, *Synthetic Metals*, 209 (2015) 521-527.

18. Y. Xie, S. Gao, **M. Eslamian*** (2015), Fundamental Study on the Effect of Spray Parameters on Characteristics of P3HT:PCBM Active Layers Made by Spray Coating, *Coatings*, 5 (2015) 488-510.

19. M. Ahmed, **M. Eslamian*** (2015), Numerical Simulation of Natural Convection of a Nanofluid in an Inclined Heated Square Enclosure using a Two-Phase Lattice Boltzmann Method, *Nanoscale Research Letters*, 10 (2015) 296.

20. F. Zabihi and **M. Eslamian*** (2015), Substrate Vibration-Assist Spray Coating: Significant Improvement in Conductivity and Uniformity of PEDOT:PSS Thin Films for PV Solar Cells, Invited Paper, *Journal of Coatings Technology and Research*, 12 (2015) 711-719.

21. F. Zabihi, Y. Xie, S. Gao, **M. Eslamian*** (2015), Morphology and Wetting Characteristics of PEDOT:PSS Thin Films Deposited by Spin and Spray Coating, *Applied Surface Science*, 338 (2015) 163–177.

22. F. Zabihi, **M. Eslamian*** (2015), Characteristics of thin films fabricated by spray coating on rough 5 and permeable paper substrates, *Journal of Coating Technology and Research*, 12 (2015) 489-503.

23. M. Ahmed, **M. Eslamian** (2015), Laminar Forced Convection of a Nanofluid in a Microchannel: Effect of Flow Inertia and External Forces on Heat Transfer and Fluid Flow Characteristics, *Applied Thermal Engineering*, 78 (2015) 326–338.

24. **M. Eslamian***, M. Ahmed, M.F. El-Dosoky, M. Z. Saghir (2015), Effect of Thermophoresis on Natural Convection in a Rayleigh-Benard Cell Filled with a Nanofluid, *International Journal of Heat and Mass Transfer*, 81 (2015) 142-156.

25. M. Ahmed, **M. Eslamian*** (2014), Natural Convection in a Differentially-Heated Square Enclosure Filled with a Nanofluid: Significance of the Thermophoresis Force and Slip/Drift Velocity, *International Communications in Heat and Mass Transfer*, 58 (2014) 1-11.

26. R. Abedini-Nasab, **M. Eslamian*** (2014), Recent Patents and Advances on the Applications of Magnetic Nanoparticles and Thin Films in Cell Manipulation, *Recent Patents on Nanotechnology*, 8 (2014) 157 - 164.

27. **M. Eslamian**, A. Amighi, N. Ashgriz* (2014), Atomization of a Liquid Jet in High Pressure and High Temperature Subsonic Crossflow, *AIAA Journal*, 52 (2014) 1374-1385.

28. **M. Eslamian*** and M. Z. Saghir (2014), On Thermophoresis Modeling in Inert Nanofluids, *International Journal of Thermal Sciences*, 80 (2014) 58-64.

29. **M. Eslamian*** (2014), Spray-On Thin Film PV Solar Cells: Advances, Potentials and Challenges, *Coatings*, 4 (2014) 60-84.

30. **M. Eslamian***, J. E. Newton (2014), Spray-On PEDOT:PSS and P3HT:PCBM Thin Films for Polymer Solar Cells, *Coatings*, 4 (2014) 85-97.

31. E. Jafar-Salehi, **M. Eslamian*** and M. Z. Saghir* (2014), Estimation of Molecular and Thermodiffusion Coefficients for Non-Ideal Molten Metal Alloys and its Implication in Solidification Process, *Canadian Journal of Chemical Engineering*, 92 (2014) 1314-1324.

32. M. Shekarriz*, R. Khadivi, S. Taghipoor, **M. Eslamian*** (2014), Systematic Synthesis of High Surface Area Silica Nanoparticles in the Sol-Gel Condition by using the Central Composite Design (CCD) Method, *Canadian Journal of Chemical Engineering*, 92 (2014) 828-834.

33. **M. Eslamian*** and M. Z. Saghir* (2013), Novel Thermophoretic Particle Separators: Numerical Analysis and Simulation, *Applied Thermal Engineering*, 59 (2013) 527-534.

34. E. Jafar-Salehi, A. Ghasempour*, **M. Eslamian*** (2013), Experimental Study and Predictive Modeling of Cold Compaction Green Density in Powder Metallurgy of Stainless Steel Components, *Powder Metallurgy*, 56 (2013) 208-215.

35. **M. Eslamian***, (2013) A Mathematical Model for the Design and Fabrication of Polymer Solar Cells by Spray Coating, *Drying Technology*, 31 (2013) 405-413.

36. **M. Eslamian** and M. Z. Saghir* (2012), Reply to a comment by S.N. Semenov and M.E. Schimpf on 'Role of the velocity frame of reference in thermodiffusion in liquid mixtures', *Philosophical Magazine* vol. 92, 705, by M. Eslamian, C.G. Jiang and M.Z. Saghir, *Philosophical Magazine*, 92 (2012) 705.

37. M. Shekarriz*, A. Saffar, S. Taghipoor, F. Hajialiakbari, **M. Eslamian*** (2012), A Novel Approach for Producing α- and γ-Fe_2O_3 Nanoparticles using Microemulsion Method, *International Journal of Nanoparticles*, 5 (2012) 380-388.

38. A. Khoshnevis, M. Farzalipour Tabriz, M. Hemayatkhah, A. Esmaielzadeh Kandjani, J. Millani, E. Esmaeilzadeh, **M. Eslamian**, M.R. Vaezi (2012), Characteristics of Break-up and Fragmentation of an Electrohydrodynamic Melt Jet, *Particuology*, 10 (2012) 255-265.

39. **M. Eslamian** and M. Z. Saghir* (2012) "Thermodiffusion in Binary and Ternary Nonpolar Hydrocarbon + Alcohol Mixtures." *Journal of Non-Equilibrium Thermodynamics*, 37 (2012) 329-351.

40. **M. Eslamian**, C. G. Jiang, M. Z. Saghir* (2012), Role of the Velocity Frame of Reference in Thermodiffusion in Liquid Mixtures, *Philosophical Magazine* 92 (2012) 705-726.

41. **M. Eslamian** and M. Z. Saghir* (2012), Thermodiffusion Applications in MEMS, NEMS and Solar Cell Fabrication by Thermal Metal Doping of Semiconductors, *Fluid Dynamics and Materials Processing*, 8 (2012) 353-380.

42. **M. Eslamian** and M. Z. Saghir* (2012), Modeling of DNA Thermophoresis in Dilute Solutions using the Non-equilibrium Thermodynamics Approach, *Journal of Nonequilibrium Thermodynamics*, 37 (2012) 63-76.

43. **M. Eslamian** and M. Z. Saghir* (2012), Estimation of Thermodiffusion Coefficients in Ternary Associating Mixtures, *Canadian Journal of Chemical Engineering*, 90 (2012) 936-943.

44. **M. Eslamian***, Advances in thermodiffusion and thermophoresis (Soret effect) in liquid mixtures (2011), *Frontiers in Heat and Mass Transfer* 2 (2011) 043001.

45. **M. Eslamian** and M. Z. Saghir* (2011), Thermodiffusion (thermomigration) and convection in molten semiconductor-metal layers, *International Journal of Thermal Sciences*, 50 (2011) 1232-1242.

46. **M. Eslamian***, M. Ahmed, and A. H. H. Ali (2011). A Theoretical Model for the Formation of Functional Micro- and Nano- Particles from Emulsion Droplet Combustion, *Drying Technology*, 29 (2011) 1025-1036.

47. **M. Eslamian** and M. Z. Saghir* (2011), Nonequilibrium Thermodynamic Model for Soret Effect in Dilute Polymer Solutions, *International Journal of Thermophysics*, 32 (2011) 652-664.

48. **M. Eslamian**, F. Sabzi, M. Z. Saghir* (2010), Modeling of Thermodiffusion in Liquid Metal Alloys, *Chemical Physics Physical Chemistry*, 12 (2010) 13835-13848.

49. A. Esmaielzadeh Kandjani, A. Khoshnevis, M. Hemayatkhah, E. Esmaeilzadeh, M.R. Vaezi and **M. Eslamian** (2010), Powder production via electrohydrodynamic-assisted molten metal jet impingement into a viscous medium, *Powder Technology*, 203 (2010) 518-528.

50. **M. Eslamian**, M. Z. Saghir* and M. M. Bou-Ali (2010), Investigation of the Soret Effect in Binary, Ternary and Quaternary Hydrocarbon Mixtures: New Expressions for the Thermodiffusion Factors in Quaternary Mixtures, *International Journal of Thermal Sciences*, 49 (2010) 2128-2137.

51. M. Shekarriz*, S. Taghipoor, F. Haji-Ali-Akbari, M. Soleymani Jamarani, R. Kaveh-Ahangar, **M. Eslamian** (2010), Optimal Synthesis and Nitrate and Mercury Removal Ability of Microemulsion-Made Iron Nanoparticles, *International Journal of Nanoparticles*, 3 (2010) 123-137.

52. **M. Eslamian** and M. Z. Saghir* (2010), Dynamic Thermodiffusion Theory for Ternary Mixtures, *Journal of Non-Equilibrium Thermodynamics*, 35 (2010) 51-73.

53. A. Kaliazine*, **M. Eslamian**, H. N. Tran (2010), On the Failure of a Brittle Material by High Velocity Gas Jet Impact, *International Journal of Impact Engineering* 37 (2010) 131-140.

54. **M. Eslamian** and M. Z. Saghir* (2009), Microscopic Study and Modeling of Thermodiffusion in Associating Mixtures, *Physical Review E* 80 (2009) 061201.

55. **M. Eslamian** and M. Z. Saghir* (2009), Dynamic Thermodiffusion Model for Binary Liquid Mixtures, *Physical Review E*, 80 (2009) 011201.

56. A. Pophali, **M. Eslamian**, A. Kaliazine, M. Bussmann*, H. Tran (2009), Breakup mechanisms of brittle deposits in kraft recovery boilers - a fundamental study, *TAPPI Journal*, 8 (2009) 4-9.

57. **M. Eslamian**, and M. Z. Saghir* (2009), A Critical Review of Thermodiffusion Models: Role and Significance of the Heat of Transport and Activation Energy of Viscous Flow, *The Journal of Non-Equilibrium Thermodynamics*, 34 (2009) 97-131.

58. **M. Eslamian*** and M. Shekarriz, (2009) Recent Advances in Nanoparticle Synthesis by Spray and Microemulsion Methods, *Recent Patents on Nanotechnology*, 3 (2009) 99-115.

59. **M. Eslamian*,** A. Heydari, and P. Ghezelbash (2009), Entropy Generation Minimisation Analysis of Cross Flow Heat Exchangers Used in Indirect Evaporative Air Conditioners, *International Journal of Exergy*, 6 (2009) 61-79.

60. N. Jakic, J. Gregory, **M. Eslamian**, N. Ashgriz* (2009), Effect of Impurities on Characteristics of ZrO2 and ZnO Ceramic Powders Produced by Spray Pyrolysis, *Journal of Materials Science*, 44 (2009) 1977-1986.

61. **M. Eslamian**, M. Ahmed, N. Ashgriz* (2009), Modeling of Solution Droplet Evaporation and Particle Evolution in Droplet-to-Particle Spray Methods, *Drying Technology*, 27 (2009) 3-13.

62. **M. Eslamian**, A. Pophali, M. Bussmann*, and H. N. Tran (2009), Breakup of Brittle Deposits by Supersonic Air Jet: The effects of varying jet and deposit characteristics, *International Journal of Impact Engineering*, 36 (2009) 199–209.

63. A. Abbasi*, **M. Eslamian**, D. Rousseu, (2008) Modeling of Caffeine Release from Crosslinked Water-Swellable Gelatin and Gelatin-Maltodextrin Hydrogels, *Drug Delivery*, 15 (2008):455–463.

64. A. Abbasi*, **M. Eslamian**, D. Heyd, D. Rousseu, (2008) Control Release of DSBP from Genipin-Crosslinked Gelatin Thin Films, *Pharmaceutical Development and Technology*, 13 (2008) 549-557.

65. **M. Eslamian***, H. C. Heine (2008), Characteristics of spray flames and the effect of group combustion on the morphology of flame-made nanoparticles, *Nanotechnology* 19 (2008) 045712.

66. **M. Eslamian**, J. Rak, and N. Ashgriz* (2008), Preparation of Aluminum/Silicon Carbide Metal Matrix Composites Using Centrifugal Atomization, *Powder Technology* 184 (2008) 11–20.

67. A. Chau, **M. Eslamian**, N. Ashgriz* (2008), On Preparation of Non-Disrupted Particles by Spray Pyrolysis, *Particle & Particle Systems Characterization*, 25 (2008) 183-191.

68. **M. Eslamian**, A. Pophali, M. Bussmann*, D. Cormack, and H. N. Tran (2008), Failure of Cylindrical Brittle Deposits Impacted by a Supersonic Air Jet, *ASME Journal of Engineering Materials and Technology*, 130 (2008) 031002.

69. **M. Eslamian** and N. Ashgriz* (2007): Effect of Atomization Method on the Morphology of Spray Generated Particles. *Journal of Engineering Materials and Technology,* 129 (2007) 130-142.

70. **M. Eslamian** and N. Ashgriz* (2007): Evaporation and evolution of suspended solution droplets at atmospheric and reduced pressures. *Drying Technology*, 25 (2007) 1009-1020.

71. **M. Eslamian** and N. Ashgriz* (2006): Effect of Precursor, Ambient Pressure, and Temperature on the Morphology, Crystallinity, and Decomposition of Powders Prepared by Spray Pyrolysis, *Powder Technology*, 167 (2006) 149–159.

72. **M. Eslamian**, M. Ahmed, and N. Ashgriz* (2006): Modeling of Nanoparticle Formation during Spray Pyrolysis, *Nanotechnology*, 17 (2006) 1674-1685.

73. **M. Eslamian** and N. Ashgriz* (2006): Modeling of Particle Formation during Spray Pyrolysis using Droplet Internal Circulation, *International Communications in Heat and Mass Transfer*,33 (2006) 863-871.

74. **M. Eslamian** and N. Ashgriz* (2006): The Effect of Reactor Ambient Pressure on the Morphology of Spray Dried Magnesium Sulphate Powders. *Canadian Journal of Chemical Engineering*, 84 (2006) 581-589.

Under Review:

75. M. Habibi, M.R. Ahmadian-Yazdi, **M. Eslamian***, Optimization of spray coating for the fabrication of planar perovskite solar cells, Atomization and Sprays.

76. F. Soltani-Kordshuli, **M. Eslamian***, Impact dynamics and drop casting of pristine and graphene-doped PEDOT:PSS polymeric droplets, Experimental Thermal Fluid Science.

77. A. Rahimzadeh, **M. Eslamian***, On evaporation of thin liquid films subjected to ultrasonic substrate vibration, International Communications in Heat and Mass Transfer.

78. F. Zabihi, **M. Eslamian*,** Low-cost transparent graphene thin film electrodes made by ultrasonic substrate vibration-assisted spray coating (SVASC), Synthetic Metals.

Conference Proceedings and Abstracts

1. **M. Eslamian**, F. Zabihi, Ultrasonic Substrate Vibration-assisted Drop-casting and Spray Coating as Versatile Scalable Techniques for the Fabrication of Thin Films in Perovskite Solar Cells, International Conference on Perovskite Thin Film Photovoltaics (ABXPV), Barcelona, Spain, 3-4 March 2016.

2. F. Soltani-kordshuli, F. Zabihi, Y. Xie, **M. Eslamian**, Conductive CNT- and Graphene-Doped PEDOT:PSS Thin Films Fabricated by Ultrasonic Spray Coating, ICLASS 2015, 13th Triennial International Conference on Liquid Atomization and Spray Systems, Tainan, Taiwan, August 23-27, 2015.

3. F. Soltani-Kordshuli, F. Zabihi, M. Habibi, Y. Xie, **M. Eslamian**, Wetting/Dewetting and Conductivity of CNT-Doped PEDOT:PSS Thin Films Made via Substrate Vibration-Assisted Spray Coating (SVASC), 13th Triennial International Conference on Liquid Atomization and Spray Systems, Tainan, Taiwan, August 23-27, 2015.

4. Y. Xie, **M. Eslamian**, Characterization and Structure of Spray-on P3HT:PCBM Film for Polymer Solar Cells, 13th Triennial International Conference on Liquid Atomization and Spray Systems, Tainan, Taiwan, August 23-27, 2015.

5. F. Zabihi and **M. Eslamian**, Two-step sequential substrate vibration-assisted spray coating (SVASC) as a path to high performance perovskite solar cells, 42th IEEE Photovoltaic Specialists Conference, June 2015, New Orleans, USA.

6. F. Zabihi, S. Gao, **M. Eslamian**, Preparation of Polymeric Thin Films by Spray Coating for PV Solar Cell Applications, ILASS-Asia 2014, 17th Annual Conference on Liquid Atomization and Spray Systems - Asia, Shanghai, China, October 2014.

7. **M. Eslamian** and F. Zabihi, Two-Step Up-Scalable Spray Coating Method for the Fabrication of Solution-Processed Thin Film Solar Cells, ILASS-Asia 2014, 17th Annual Conference on Liquid Atomization and Spray Systems - Asia, Shanghai, China, October 2014.

8. **M. Eslamian**, M. Z. Saghir, Significance of Thermophoresis (Soret Effect) in Heat Transfer Augmentation using Nanofluids, Proceedings of World Connect Nanotech Conference and Expo, Washington, DC, 2013.

9. J. E. Newton, **M. Eslamian,** Fabrication of thin film solar cells by spray coating, 2013 Undergraduate Research Symposium, Texas A&M University- Corpus Christi, Second Best Oral Presentation Award.

10. **M. Eslamian** and Maryam Dashti, Modeling Spray Coating of Polymer Thin Film Photovoltaic Solar Cells, Proceedings of World Tech-Connect Conference and Expo, Santa Clara, CA, 2012.

11. **M. Eslamian** and Maryam Dashti, A Mathematical Model for the Fabrication of Solution-Processed Thin-Film PV Solar Cells using Spray Coating , Proceedings of 38th IEEE Conference, Austin, TX, 2012.

12. **M. Eslamian** and M. Z. Saghir, Theory of Thermodiffusion in Semicondutor-Metal Mixtures, and its Applications in MEMS and Solar Cell Fabrication, Thermal and Materials Nanoscience and Nanotechnology Conference, May 29- June 3, 2011, Antalya Turkey.

13. **M. Eslamian** and M. Z. Saghir, Thermodiffuion Model for Soret Effect in Dilute Polymer Solutions, 9th International Meeting on Thermodiffusion, June 7-11, 2010, Toulouse France.

14. **M. Eslamian**, F. Sabzi, M. Z. Saghir, Modeling of Thermodiffusion in Liquid Metal Mixtures, June 7-11, 2010, Toulouse France.

15. S. Srinivasan, **M. Eslamian**, and M. Z. Saghir, Estimation of the thermodiffusion coefficients for do-decane/n-butane/methane mixtures and comparison with experimental data from FOTON M3 mission, Proceedings of the 60th International Astronautical Congress (IAC 2009), Paper No. IAC-09-A2.3.1, 617-619.

16. A. Amighi, **M. Eslamian** and N. Ashgriz (2009), Trajectory of Liquid Jets in High Pressure and High Temperature Crossflows, *ICLASS 2009, 11th International Annual Conference on Liquid Atomization and Spray Systems*, Vail, Colorado USA, July 2009.

17. M. Z. Saghir, S. Srinivasan, **M. Eslamian**, Theoretical Estimation and Experimental Measurements of Soret Coefficients for Multi-Component Hydrocarbon Mixtures, 9ème Congrès de Mécanique 21 – 24 avril 2009 Marrakech Maroc.

18. **M. Eslamian** and Z. Saghir (2009), Evaluation of Theromodiffusion Models, in Joint Workshop between the Canadian Diffusion Discipline Working Group and the European ATLAS Topical Team, Canadian Space Agency, St Hubert, QC, Canada, February 26 and 27.

19. A. Pophali, **M. Eslamian**, M. Bussmann, A. Kaliazine and H Tran (2008), Breakup Mechanisms of Brittle Deposits in Kraft Recovery Boilers – A Fundamental Study, 2008 Engineering, Pulping, Environmental Conference, 8/24/2008 to 8/27/2008, Portland, OR.

20. **M. Eslamian**, A. Yip, M, Kawaji, C. Mims, H. Tran (2008), Biomass Gasification Using a Fixed-Bed Downdraft Gasifier, Emerging Energy Frontiers in Research and Innovation submission for 2008 Spring National Meeting of AICHE .

21. **M. Eslamian**, A. Yip, M, Kawaji, C. Mims, H. Tran (2007) Gasification of Biomass in a Fixed-Bed Downdraft Gasifier, Pulp and Paper Annual Conference, University of Toronto, November 2007.

22. **M. Eslamian**, A. Pophali, M. Bussmann, D. Cormack, and H. N. Tran, (2007) Effect of Jet Type on the Breakup of Brittle Deposits, Pulp and Paper Center Annual Conference, University of Toronto, November 2007.

23. **M. Eslamian**, A. Pophali, M. Bussmann, D. Cormack, and H. N. Tran (2007), Breakup Behavior of Symmetric and Asymmetric Deposits, Pulp and Paper Center Annual Conference, University of Toronto, November 2007.

24. **M. Eslamian** and N. Ashgriz (2006), Effect of Operating Conditions on the Characteristics of Micro- and Nano-Powders Synthesized by Spray Drying and Pyrolysis, 2006 International Aerosol Conference, September 9-14, St. Paul, MN, USA.

25. **M. Eslamian** and N. Ashgriz (2006): Characteristics of Powders Produced in Spray Drying and Spray Pyrolysis, 19th Annual ILASS-Americas Conference: Institute for Liquid Atomization and Spray Systems, Toronto, Canada May 23-26.

26. **M. Eslamian**, A. Pophali, D. Cormack, and H. N. Tran 2006, Failure Mechanisms of Cylindrical Brittle Deposits, Pulp and Paper Center Annual Conference, University of Toronto, November 14-17.

27. **M. Eslamian**, A. Pophali, D. Cormack, and H. N. Tran 2006, Effect of Jet Characteristics on Removal of Brittle Cylindrical Deposits, Pulp and Paper Center Annual Conference, University of Toronto, November 14-17.

28. **M. Eslamian**, H. N. Tran, and D. E. Cormack (2006), Effect of Air Jet Exposure Frequency and Duration on the Breakup of Brittle Deposits in Boilers, 56th Conference of Canadian Society of Chemical Engineers, Sherbrooke, QC, CANADA, October 15-18.

29. **M. Eslamian** and N. Ashgriz (2006), Investigation of Suspended Solution Droplet Evaporation and Particle Evolution in Reduced Pressures, 56th Conference of Canadian Society of Chemical Engineers, Sherbrooke, QC, CANADA, October 15- 18.

30. **M. Eslamian** and N. Ashgriz (2005): Effect of Atomization Method on the Morphology of Powders Produced by Spray Pyrolysis. Proceeding of the 2005 ASME International Mechanical Engineering Congress and Exhibition: November 2005, Orlando, Florida.

31. **M. Eslamian** and A. Dehghanian (2005), Analysis and Estimation of the Total Drag Force in Air-Cushion Crafts, (in Persian), Pazhoohesh Journal, 33, pp. 65-70.

32. **M. Eslamian** and N. Ashgriz (2005): The Effect of Pressure on the Morphology of Particles Prepared by Spray Pyrolysis. 55th Conference of Canadian Society of Chemical Engineers, Toronto, October 2005.

33. **M. Eslamian**, M. Ahmed, and N. Ashgriz (2005): Modeling Nanoparticle Formation in Spray Pyrolysis: 55th Conference of Canadian Society of Chemical Engineers, Toronto, CANADA, October 2005.

34. **M. Eslamian** and N. Ashgriz (2005): Modeling Particle Formation in Spray Pyrolysis at the Presence of Droplet Internal Circulation. 55th Conference of Canadian Society of Chemical Engineers, Toronto, CANADA, October 2005.

35. **M. Eslamian** and N. Ashgriz (2005): Preparation of Zirconia Particles in Low Pressures by Spray Pyrolysis. Emerging Materials Knowledge Conference, June 2005, Toronto, Canada.

36. **M. Eslamian**, A. Jafari, R. Li, H. Nasoodi and N. Ashgriz (2003): Design and Manufacturing of Novel Liquid Injectors and Inhalers: Spray Characteristics. Materials and Manufacturing of Ontario (MMO) exhibition and conference, Toronto, Canada, 2003.

37. A. Dehghanian, K. Alempour, **M. Eslamian** (2002)**,** Study of the Reduction of Dynamic Moments Applied on the Semimonoquce Structure of Hovercrafts (in Persian), in the Proceedings of the first conference on Thin-Walled Structures, Orumieh, Iran, p. 321.

38. **M. Eslamian** and A. Heydari (2001): Second Law analysis of cross flow heat exchangers used as second stages of indirect-direct evaporative coolers, Proceedings of International Conference of Iranian Society of Mechanical Engineers, Rasht, (In Persian) Iran.

39. A. Heydari, **M. Eslamian**, S. Hatefipour, and M. Mahboubifard (2000): Energy Efficiency Standards, Conservation of Potentials and Labeling Evaporative Coolers in Iran, Proceedings of International Conference of Iranian Society of Mechanical Engineers, Tehran, Iran.

40. A. Heydari, **M. Eslamian**: Project Report on "Design of energy labels for evaporative coolers in IRAN", for the ministry of Energy of Iran, 1999 (in Persian).

41. A. Heydari, **M. Eslamian**: Project Report on "Design of energy labels for refrigerator compressors in IRAN, for the ministry of Energy of Iran, 2000 (in Persian).

42. **M. Eslamian** (2000): Optimum design of two-stage evaporative coolers. Report submitted to Iranian Institute of Research and Standards (in Persian).

43. **M. Eslamian**: Aerodynamics design of a flying boat. Report submitted to Surface- Effect Vehicles Institute of IRAN, 2001-2002 (in Persian).

Service

1. Review of numerous manuscripts and proposals submitted for publication or funding;
   Publons profile: https://publons.com/author/469804/morteza-eslamian

   - Natural Sciences and Engineering Research Council of Canada (NSERC)
   - Czech Science Foundation
   - National Science Center, Poland
   - The United States Israel Binational Agricultural Research and Development Fund (BARD)
   - Chilean National Science and Technology Commission

   - International Journal of Thermal Sciences
   - Microgravity Science and Technology
   - Journal of Aerosol Science
   - Aerosol Science and Technology
   - Drying Technology
   - Pharmaceutical Research
   - Journal of Nanoparticle Research
   - Powder Technology
   - Chemical Engineering Science
   - International Journal of Heat and Mass Transfer
   - Materials Letters
   - Fluid Dynamics and Materials Processing
   - Canadian Journal of Chemical Engineering
   - Energy Conversion and Management
   - Applied Mathematical Modeling
   - Fuel
   - Optics and Lasers in Engineering
   - Energies
   - Microfluidics and Nanofluidics
   - Computer Physics Communications
   - Applied Thermal Engineering
   - Heat and Mass Transfer
   - Iranian Journal of Science and Technology-Transactions of Mechanical Engineering
   - Aerospace Science and Technology
   - British Journal of Applied Science & Technology
   - ACS Applied Materials & Interfaces
   - Materials Chemistry and Physics
   - International Journal of Chemical Reactor Engineering
   - Journal of the Taiwan Institute of Chemical Engineers
   - Engineering Science and Technology: an International Journal
   - International Journal of Numerical Modelling: Electronic Networks, Devices and Fields
   - Surface Coatings and Technology
   - Scientific Reports
   - Sensors
   - British Journal of Applied Science and Technology
   - Applied Mathematics and Computations
   - National Science Review
   - Indian Journal of Physics: D
   - Physica A

- Fullerenes, Nanotubes and Carbon Nanostructures
- Superlattices and Microstructures
- Scientia Iranica
- Physics of Fluids
- Nano-Micro Letters
- Heat Transfer Engineering
- Solar Energy
- Journal of Analytical and Applied Pyrolysis
- ACS Energy and Fuels
- Nanoscale Research Letters
- Materials Science and Engineering- Part B

2. Guest Editor of Journal "Coatings", for special issue on spray coatings, 2016-2017.

3. Member of the Editorial Board of International Scholarly Research Notices (ISRN) Thermodynamics and Advances in Nano Research (ANR).

4. Member of the Scientific Committee of the 13th International Conference on Liquid Atomization and Spray Systems, Taiwan, 2015.

5. Member of the Scientific Committee of the Fifth and Sixth International Conference on Thermal Engineering, 2010, 2012.

6. Member of the International Students Recruitment Committee: UM-SJTU Joint Institute, 2014-present.

7. Member of the International Graduate Committee, UM-SJTU Joint Institute, 2014-present.

8. Undergraduate Student Advising, UM-SJTU Joint Institute, 2013-present.

9. Graduate Thesis Committee Member:

- Yang Wenjing: MS Thesis; UM-SJTU Joint Institute
  Study of the effect of swirl control valve system on the intake runner and in-cylinder flow fields in a spark-ignition direction-injection optical engine, Final Defense-May 2016.
- Weihao Li, MS Thesis, UM-SJTU Joint Institute
  Hole-to-hole and Pulse-to-pulse Variation of Gasoline Direct Injection Spray Impingement Force Measurement, 2016.
- Lv Huijia, MS Thesis, UM-SJTU Joint Institute
  Experimental investigation of spray impingement phenomenon, 2016.
- Shibo Gu, MS Thesis, UM-SJTU Joint Institute
  Study of liquid jet breakup, July 2016.
- Xiang Chen, MS Thesis, UM-SJTU Joint Institute
  Numerical modeling of multi-component droplet evaporation and ignition process, July 2016

Scientific Contributions

Main scientific contributions may be divided into the following areas:
1. Droplet dynamics, sprays and atomization
2. Particle and nanoparticle synthesis by spray methods

3. Thermodiffusion, thermophoresis, and nanofluids
4. Thin films and emerging thin film solar cells (Current Main Focus)
5. Fluid jet solid surface interaction

1. Droplet dynamics, sprays and atomization

Eslamian studied in the area of thermal-fluids sciences and energy conversion. For his MS thesis, he designed a two stage evaporative cooler based on the exergy analysis. He made a prototype and successfully tested it. The project was sponsored by the Iranian Institute of Research and Standards in the period of 1998-2000. The design has been used by the Iranian air conditioning manufacturers and now is in the market. In addition to the final report submitted, a journal paper was published in the International Journal of Exergy, explaining the design and optimization steps. This two stage evaporative cooler has a higher efficiency and consumes let water. It is called direct-indirect evaporative cooler and is suitable for dry climates, such as Iran, central parts of the United States, etc.

With strong background in thermal-fluids sciences, and extraordinary credentials, he entered the Multiphase Flows and Sprays Systems Lab at the University of Toronto, the best University in Canada and one of the best in the world. Department of Mechanical Engineering of the University of Toronto is a world class center for droplet, sprays, and thin film research. Eslamian performed a series of experiments on a project on Liquid Jet Atomization in Cross Flow Air at High Pressure and Temperature, funded by the United States Air force. He published the results as an outstanding paper in AIAA Journal. In that work, he and co-authors performed experiments under harsh jet engine conditions and developed correlations to estimate the penetration of liquid fuel jet in aircraft engine conditions. The physics of jet breakup and atomization was substantially elucidated and advanced.

For his PhD Thesis, he was appointed by Prof. N. Ashgriz, his PhD advisor, on a project to produce powders and particles using spraying technique with a funding of 0.5 million CAD. The details of particle formation and modeling is given in the next section.

2. Particle and nanoparticle synthesis by spray methods

Following his solid background in spray systems, for his PhD thesis (2002-2006), Eslamian was assigned to work on the production and modeling of advanced functional particles and nanoparticles using spray methods. He designed and made a state-of-the-art experimental setup and performed a series of experiments and numerical simulation on the production of ceramic particles by spray pyrolysis. In particular, he clarified the effect of spray droplet characteristics, such as nozzle type, droplet size and velocity on the morphology of produced particles. In the modeling part, he developed a mathematical model that can predict the formation of particles using a droplet-to-particle spray method. The model explains how a single micro or nano droplet undergoes various evaporation and evolution stages to form a solid particle. For the first time, Eslamian proposed an intermediate stage in particle formation, called the induction period between partial drying and final solid form of the particle. The outcome of the work is more than 10 papers in top tier journals of the field, where the papers are frequently cited by the researchers in the field.

Owing to the success of his work on particle research at the University of Toronto, he was hired as a Postdoctoral Research Fellow at Swiss Federal Institute of Technology (ETH-Zurich), where he worked on flame spray pyrolysis. He developed a model explaining the process of group combustion during the formation of nanoparticles using precursors that contain hydrated (water) molecules and, therefore, may not completely vaporize in the spray flame and adversely affect the property of nanoparticles. This outstanding multidisciplinary work was published in Nanotechnology journal.

3. Thermodiffusion, thermophoresis, and nanofluids

Owing to his strong in thermal-fluid sciences and nanoparticles, from 2008 to 2011 Eslamian was appointed as a research associate to work on a complex hydrodynamic problem, i.e., the physics of thermodiffusion and

thermophoresis in complex mixtures and in nanofluids. The project was funded by the Canadian Space Agency. Eslamian revisited the theory and proposed models to estimate thermodiffusion coefficients in various complex mixtures, such as hydrocarbon mixtures, associating alcohol mixtures, molten metals and semiconductors, polymers, DNA molecules, etc. In these mixtures, there is a main fluid containing molecules or nanoparticles, forming a mixture. A temperature gradient imposed on the boundaries of the mixture results in the motion of the suspended particles. In the models, the forces acting on the suspended particles or molecules were identified and the behavior of the particles and their trajectory was predicted. The application is in various systems, used for separation, or heat augmentation in nanofluids. In the area of nanofluids, he has had a huge impact by explaining the importance of thermophoresis in nanofluids. In natural convection of a nanofluid in a cavity or in the forced convection flow of a laminar flow in a microchannel, thermophoresis can significantly influence the flow and heat transfer characteristics. This effect had been neglected or modeled inadequately or incorrectly. He has published the results in prestigious physical and thermos-fluids journals, such as Physical Review E, Chemical Physics Physical Chemistry, International Journal of Thermal Sciences, International Journal of Heat and Mass Transfer, Applied Thermal Engineering, Nanoscale Research Letters, etc. Eslamian is internationally known for his great contribution in Thermodiffusion and Thermophoresis.

4. Thin films and emerging thin film solar cells and other thin film devices (Current Main Focus)

Following his strong background in sprays, energy conversion, advanced materials, and the huge demand for renewable sources of energy, Eslamian focused his long time career in the fabrication and process modeling of emerging photovoltaic solar cells. This also includes fundamental research on thin liquid and solid films and coatings. This is a multidisciplinary field requiring knowledge of various areas of science and engineering. Since the start of his work in Texas A&M University-Corpus Christi in 2011, he has been developing mathematical models to describe the process of thin film formation by spray coating. Spray coating is a scalable and low cost method suitable for the fabrication of emerging solar cells, which can be processed from a spray-able solution. Eslamian and his collaborators associates and students have had major contribution in polymer and perovskite thin films so far and the research is in progress.

In mathematical modeling aspect, Eslamian has developed a model that predicts the fate of spray droplets of solar cell material solutions sprayed from the spray nozzle to the substrate surface. This is the first model which explains the process in detail. Eslamian and his team are now working to mathematically model the impact, spreading and coalescence of impinged droplets on a substrate. This is a unique work in solar cell community, since it enables to design and predict the quality of thin films and solar cell performance.

In process optimization, Eslamian and his team have performed substantial experiments to understand how the spray characteristics and process parameters actually affect the film formation process. This work in solar cell area has become possible thanks to the multidisciplinary background of Eslamian and his team. Our results are critical to successful and sustainable development of fabrication procedures and have been recognized by the solar cell research community.

We have also developed a revolutionary spray coating process, very well received by the research community and experts in the field. Spray-on films suffer from the lack of surface uniformity and high roughness. In our developed method, i.e., substrate vibration assisted spray coating (SVASC), an ultrasonic transducer is connected to the substrate. We have found that the low amplitude vibration of the substrate works as an external mechanical stirring force and results in improved spreading of the droplets. In PEDOT:PSS film, which is a conducting polymer film, it was observed that the film electrical conductivity increases 4 times when the film is subjected to low amplitude vibration. This is highly promising and exciting and is expected to have a huge impact in the all areas of coating. We are also applying the method on spin-coated films, where again significant improvement in film uniformity and conductivity has been observed. Eslamian and his PhD students are developing a mathematical model that can explain the instability of thin liquid films and the effect of vibration on the film stability. The model and also the experimental results show that a high amplitude vibration, in fact, destabilizes the film and results in promoted dewetting. These are very important discoveries in the area of fluid mechanics and coatings with huge impact on thin film and solar cell device fabrication.

5. Fluid jet interaction with solid surfaces

Eslamian also has had a great contribution in increasing the efficiency of Kraft recovery boilers used in Pulp and Paper industry. In these boilers, the flue gasses tend to deposit on the outer surface of the heat exchanger tubes. A supersonic nozzle is used to blow off the deposits using high pressure steam. Eslamian has performed a series of experimental and theoretical works to document and visualize the process of jet impact on solid surfaces and the solid surface breakup process. The research was performed at the University of Toronto between 2006 and 2008 and sponsored by an international consortium of more than 10 companies. The results were used to improve the boiler maintenance process and efficiency and also to advance the fundamental knowledge behind fluid-solid interaction. The results were published in top journals of the field, such as journal of impact

Society Membership

Professional Engineers Ontario
American Physical Society (APS)

Mentoring/Advising

Current

1. Dr. Hitanshu Kumar, University of Michigan-Shanghai Jiao Tong University Joint Institute, To join in spring 2017.

2. Dr. Anima Ghosh, University of Michigan-Shanghai Jiao Tong University Joint Institute, Postdoctoral Research Fellow, 2016-Present

3. Azhar Abbas Khan, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, 2016-present

4. Zulkarnain Abbas, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, 2016-present

5. Nuri Erdem Ersoy, University of Michigan-Shanghai Jiao Tong University Joint Institute, MS Student, 2016-present

6. Peng Sun, University of Michigan-Shanghai Jiao Tong University Joint Institute, MS Student, 2016-present

7. Yihe Miao, University of Michigan-Shanghai Jiao Tong University Joint Institute, MS Student, 2016-present

8. Mohammad Javad Vafaee Rostami, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, 2015-present

9. Mohammad Reza Ahmadian-Yazdi, University of Michigan-Shanghai Jiao Tong University Joint Institute, MS Student, Fabrication of perovskite solar cells, 2014-present

10. Firuze Soltani, University of Michigan-Shanghai Jiao Tong University Joint Institute, MS Student, Fabrication of spray-on solar cells, 2014-present

11. Qin Wang, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, Fabrication of spray-on solar cells, 2014-present

12. Mehran Habibi, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, Fabrication of spray-on solar cells, 2014-present

13. Amin Rahimzadeh, University of Michigan-Shanghai Jiao Tong University Joint Institute, PhD Student, Stability of thin liquid films, 2014-present

Past

14. Yu Xie, PhD, University of Michigan-Shanghai Jiao Tong University Joint Institute, Postdoctoral Research Fellow and Research Scientist, Fabrication of polymer spray-on solar cells, 2014-2016

15. Fatemeh Zabihi, PhD, University of Michigan-Shanghai Jiao Tong University Joint Institute, Postdoctoral Research Fellow, Fabrication of perovskite spray-on solar cells, 2014-2016.

16. Inas Bennouna, Intern International Student from Polytechnique Nantes, France, Summer 2016.

17. Jianchi Huang, Undergraduate Research Assistant, May 2015-August 2016.

18. Zhihao Yuan, Undergraduate Research Assistant, September 2015-August 2016.

19. Siyi Gao, Undergraduate Research Assistant, 2013-Augest 2015.

20. Jianshan Liao, Undergraduate Research Assistant, May 2015-August 2015.

21. E. Jafar-Salehi, PhD Candidate, Ryerson University, Thermodiffusion modeling, 2011-2014.

22. Yasmine Benchekroun, Intern International Student from Polytechnique Nantes, France, Summer 2014.

23. Joshua E. Newton, Research Assistant, Texas A&M University-Corpus Christi: Fabrication of spray-on thin films for solar cell fabrication, 2012-2013.

Current Active Collaboration

1. Prof. Qianli Chen, UM-SJTU Joint Institute
2. Prof. Mahmoud Ahmed: Egypt-Japan University of Science and Technology
3. Prof. Alex Jen, University of Washington