

CURRICULUM VITAE OF PROFESSOR

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DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING

UNIVERSITY OF TORONTO

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CURRICULUM VITAE

Department of Mechanical and Industrial Engineering

Date: Jan 10, 2002

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SECTION I – EDUCATION

1.1 Education

Degree	Institution	Department	Thesis Field	Year
B.S., M.S., Ph.D.	Carnegie-Mellon University	Mechanical Engineering	Flame Propagation in Monodispersed Sprays	1984
J.D.	State University of New York	School of Law – Admitted to the New York Bar Association	Patent Law	1996

1.2 Full Time Employment, Sabbatical Leave and University Administrative Functions

Dates	Employer	Position
2002-present	University of Toronto- Department of Mechanical & Industrial Engineering	Professor
1998/1-7	Imperial College – London, England	Sabbatical Leave
1996-2002		Professor
1995/5-8	Phillips Laboratory, Edwards Air Force Base, California, USA	Faculty Fellow
1990-1996	State University of New York at Buffalo – Department of Mechanical & Aerospace Engineering	Associate Professor
1986/5-8	NASA – Glenn Research Centre, Cleveland, OH, USA	Faculty Fellow
1984-1990	State University of New York at Buffalo – Department of Mechanical & Aerospace Engineering	Assistant Professor
1979-1984	Carnegie-Mellon University	Research Assistant

1.3 Lifetime Academic, Research and Professional Honours

Date	Award Title	Awarded By	Terms of Award
2010-	Fellow	American Association for Advancement of Science (AAAS)	Achievement Award
2007/7	Faculty Fellow	Korea University – Department of Mechanical Engineering, Seoul, Korea	Teaching and Research Collaboration
2006	Research Noted	Auto Innovation, Spring 2006, Volume 4, No. 2, P:5.	“Making a clean fuel all the cleaner,”
2003	Distinguished Research Award	Kingston College	In recognition of outstanding research
1997	Research Noted	UB Research, Vol. 7, No. 1, 1997	“Extraction of Nanodrops of Ferrofluids to Design Ultrafast Ferrofluid Inkjet Printers (with S. Sen, & Bernard A. Weinstein, Physics)”
1994	Faculty Fellowship	Air Force	Research Fellowship
1995	TOKTEN Award	United Nations, New York, NY.	Transfer of Knowledge Through Expatriate Nationals
1992	Best Paper Award	The Combustion Institute, Columbus, OH.	For a paper entitled "Combustion Characteristics of Chlorobenzene and Its Mixtures with Decane and Dodecane”
1990	Initiation Award	National Science Foundation, Washington, DC.	Investigation of the Binary Drop Collisions
1988	Ralph Teetor Award	Society of Automotive Engineers, Detroit, MI	In recognition of significant contribution to research, teaching and student development.
1986	Faculty Fellowship	NASA	Research Fellowship for Space Station
1989	Research Noted	Buffalo News, Monday, June 12 (1989), p. A-8	“UB Researchers See Light at End of Scramjet Tunnel”
1989	Biographical data recorded	Who is Who in America.	
1989	Biographical data recorded	Who's Who in Higher Education Engineering	
1989	Biographical data recorded	AcademicKeys	
1989	Research Noted	Source, a Research Digest from the University at Buffalo, Fall (1989), p. 26	“Dissecting Flames”

1989	Research Noted	the <i>Reporter</i> , UBriefs, University at Buffalo Newspaper, August 3 (1989), p. 14	“Clean Burning of Toxic Wastes”
1988	Biographical data recorded	Who is Who in the East, 22 nd Edition	
1988	Biographical data recorded	Men of Achievement, 13th Edition	
1984	Member,	SIGMA XI scientific research honor society	Lifetime
1981 & 1983	Bennet Prize	Carnegie-Mellon University, Pittsburgh, PA	In recognition of outstanding scholarly work in Mechanical Engineering

SECTION II – PROFESSIONAL ACTIVITIES

2.1 Professional Association Activities

Date	Association	Capacity
2007-	Professional Engineer of Ontario	Member
2007-	<i>International Journal of Reacting Systems</i> , S. Aggarwal, Editor, Hindavi Publishing Corp.	Editorial Board
2006	19 th ILASS Americas Conference, Toronto, Canada, May 23-26, 2006	Program Chair and Host
2005-	<i>Journal of Applied Fluid Mechanics</i> , E. Shirani, Editor	Associate Editor
1996-2011	Journal of the International of <i>Atomization and Sprays</i> , Norman Chigier, Editor, Begell House, Inc.	Editorial Board
2005	International Green Energy Conference, Waterloo, Ontario, Canada, June 12-16, 2005	Organizing Committee
2003	16 th Annual Conference on Liquid Atomization and Spray Systems, Monterey, CA, May 18 - 21, 2003	Chairman of the Committee on “Deposition and Coating”
2003-05	NSF Review Committee on the ITR projects, Washington, DC	Member
2003-07	American Institute of Aeronautics and Astronautics (AIAA)	Member
2002-05	American Physic. Society (APS)	Member
2002	15 th Annual Conference on Liquid Atomization & Spray Systems, Madison, Wisconsin, May 14 - 17, 2002	Session Chair on Modeling II
2000	14 th Annual Conference on Liquid Atomization & Spray Systems. Institute for Liquid Atom. & Spray Sys., Dearborn, MI, May 20-23/2000	Session Chairman
2000	8 th International Conference on Liquid Atomization & Spray Systems ICLASS 2000, Pasadena, CA	Session Chairman, session on “Atomization”
1999	12 th Annual Conference on Liquid Atomization and Spray System Institute for Liquid Atom. & Spray Sys., IN, May (16-19)/1999	Session Chairman, session on “Spray Dynamics”
1998-	<i>Recent Research Development in Applied Physics</i> , S.G. Pandalai, Editor, Transworld Research Network	Associate Editor
1997	Annual Meeting of the Division of Fluid Mechanics American Physical Society, Berkley, CA, 11/(20-22)/1997.	Session Chairman, session on “Drops and Bubbles”
1996	Annual Meeting of the Division of Fluid Mechanics American Physical Society, Syracuse, NY , 11/(20-22)/1996.	Session Chairman, session on “Taylor Instability”
1995-96	Buffalo Environmental Law Journal	Associate Editor
1995	8 th Annual Conference on Liquid Atomization and Spray System	Session Chairman, session on

	Institute for Liquid Atom. & Spray Sys., Troy, MI 5/(21-24)/1995.	“Spray Modeling”
1993	6 th Annual Conference on Liquid Atomization and Spray Systems Institute for Liquid Atom. & Spray Sys., Worcester, MA, 5/(17-19)/1993	Session Organizer and Chairman, sessions on "Exhibition of Images," and “Spray Modeling”
1992	The Combustion Institute Columbus, OH, The Central States Section Meeting 4/(26-28)/1992	Session Chairman, session on "Hazardous Materials Combustion”
1992	National Science Foundation Washington, D.C., Oct 14/1992	Review Panel for Small Business Innovative
1989	Proceedings of the 1989 ASME Winter Annual Meeting in Heat Transfer & Combustion Systems	Associate Editor
1989	ASME Winter Annual Meeting, San Francisco, CA, 12/10/1989	Session Organizer & Session Chair on Combustion of Solids & Liquids
1988	American Physical Society Buffalo, NY. 41st Annual Meeting of the APS, Division of Fluid Dynamics, Nov 20, 1988	Organizer of the Gallery of Fluid Motion, Organizer of the Gallery of Fluid Motion
1987-89	American Society of Mechanical Engineers	ASME K-11 Committee on "Heat Transfer in Fire and Combustion Systems"
1988	Waste Incineration ASME Winter Annual Meeting, Chicago, IL 12/2/1988	Session on: Waste Incineration
1985-1990	Society of Automotive Engineers (SAE)	Member
1984-1990	American Institute of Aeronautics and Astronautics (AIAA)	Member
1980-1990	American Society of Mechanical Engineers (ASME)	Member
1980-1996	The Combustion Institute	Member

2.2 Technical Consulting and Advisory Activities

Duration	Client	Activity
2006-present	Bruce Power	Advisor & Consultant
1995-present	Xerox Corporation, Rochester, NY	Research and consulting on the Ink-Jet Printer technology
1996	Ohmcraft, Inc. Rochester, NY	Adhesive Delivery System for Computer Chips
1996	American Precision Industries Buffalo, NY	Moisture Separation from Condensers and Intercoolers.
1989-90	Atlantic Research Company Buffalo, NY	Fuel Distribution in Bipropellant Rocket Engines.
1988-92	Occidental Chemical Corp. Buffalo, NY	Incineration of hazardous liquid waste. Combustion of

		chlorinated hydrocarbon droplets. Transfer of technology from lab-scale to full-scale.
1988-89	Bell Aerospace-Textron Corp. Buffalo, NY	Cooling of Mirrors for High Power Lasers. Flow behavior in thin-gapped diamond-shape channels with pins.
1982-83	Carnegie-Mellon University	Computer User Consultant, in charge of helping students with their problems in various programming Languages.
1979/5-9	Dickie-MaCamey Law Firm, Pittsburgh, PA, USA	Consulting engineer, Mechanical failure analysis of a power plant.
1978/5-9	Allis-Chalmers Corp. Milwaukee, WI,	Engineer Assistant, involved in grinding machine design. Analyzing characteristics and behaviors of the mineral samples under the grinding process for the design of grinding machines.

2.3 Professional Interests

- Thermal-Hydraulics of Nuclear Engineering
 - CFD Modeling in Moderators and Fuel Channels
 - Modeling of Nucleation and Bubble Formation
 - Modeling Two Phase and Bubbly flows
- Atomization and Spray Systems:
 - Developed models for atomization and spray systems.
 - Spray diagnostics using various optical devices, such as Phase Doppler Particle Analyzer (PDPA).
 - Droplet Dynamics including drop-drop collisions, drop-surface impactions, and drop oscillations.
- Energy, Combustion and Environment
 - PEM Fuel cells – water management
 - Diesel Engines – fuel injection and mixing systems
 - Combustion of Liquid Fuels
 - Incineration of Hazardous Liquid Wastes – e.g., Chlorinated hydrocarbons
 - Fire Spread
 - Liquid Propellant Rocket Engines
 - Combustion of Emulsions
- Microfluidics
 - Inkjet Technology
 - Micro-Channels
 - Micro-Valves

2.4 Scholarly Addresses and Conference Presentations

1. “Biofuel Spray Characterization”, Green Auto Power Meeting, MacMaster University, November 2011.
2. Keynote Speaker: “Advances in Modeling the Atomization Process,” 4th International Meeting on Advances in Thermofluids - IMAT 2011, Malaka, Malaysia, Oct. 2-5, 2011.
3. “Characterization of Spray Formation in an Electrospray Having a Co-Flowing Gas,” ILASS – Europe 2011, 24th European Conference on Liquid Atomization and Spray Systems, Estoril, Portugal, September 2011.

4. Keynote Speaker: "Atomization of Jet in Cross Flows," The 4th International Symposium on Clean and High-Efficiency Combustion in Engines," Tianjin, China, August 1-3, 2011.
5. "Experimental study of spreading, penetration and adhesion of solid ink wax to paper", International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, Dec. 15-20, 2010.
6. "A KIVA-based Model for Liquid Jet in Cross Flows, *ILASS 2010*, 22nd Conference on Liquid Atomization and Spray Systems, Cincinnati, Ohio USA, May 16-19, 2010.
7. "Droplet Size and Velocity Prediction for Splash Plate Nozzles", *ILASS 2008*, Orlando, USA, May 2008.
8. "Modeling Splash Plate Nozzles", Annual Meeting on Increasing Energy and Chemical Recovery Efficiency in the Kraft Process, Toronto, Ontario, Nov. 8, 2007.
9. "Discrete Phase Based Method (DPM) of Modeling Sheet Formation and Breakup", *ILASS 2007*, Chicago, USA, May 2007.
10. "A Model for Deformation of Liquid Jets and Droplets in Gaseous Crossflows," 20th Annual Conference on Liquid Atomization and Spray Systems, Chicago, IL, May 14-18, 2007.
11. "Computational Fluid Dynamics in Gas Turbines", Siemens Inc., June , 2008.
12. "Water management in PEM fuel cells," Fuel Cell Workshop, NRC-AUTO21-Waterloo, Thursday, October 25, 2007, University of Waterloo.
13. "PEM fuel cell technology development in North America," Korea Institute of Machinery and Materials, July 20, 2007, Daejeon, Korea.
14. "Modeling the Atomization Process," School of Power Engineering, University of Shanghai for Science and Technology, July 2, 2007.
15. "Evolution of a Ink Dot in Offset Ink-Jet Printing", University of Tokyo, Tokyo, Japan, August 31, 2006.
16. "Atomization and Spray Modeling from the First Principals," Department of Aerospace Engineering, Seoul National University, Seoul, Korea, August 21, 2006.
17. "Atomization and Spray Modeling from the First Principals," Department of Mechanical Eng., Korea Advanced Institute of Science and Technology, Daejeon, Korea, August 22, 2006.
18. "Atomization and Spray Modeling from the First Principals," Korea Institute of Machinery and Materials, August 23, 2006, Daejeon, Korea.
19. "Texture of the ink droplets impacting on a surface", Xerox Research Center, Toronto, Ontario, April 10, 2006.
20. "CFD study on Moderator Temperature Fluctuations", CNSC, Toronto, Ontario, November 14, 2005.
21. "Droplet Drawback in Ink-jet Printing," Xerox Research Center, Toronto, Ontario, May 13, 2004.
22. " Numerical Modeling of Liquid Atomization," General Motors, Detroit, MI, May 9, 2005.

23. "Numerical Modeling of Liquid Atomization," Ford Motor Company, Detroit MI, May 10, 2005.
24. "Numerical Modeling of Black Liquor Spray Nozzle," Presented at the International Energy Agency Meeting on Black Liquor and BioMass Gasification, Lynchburg, Virginia, February 14-16, 2005.
25. "Advancement of High-Temperature Black Liquor Gasification," DOE meeting, Atlanta, November 4-5, 2004.
26. "Atomization of Black Liquor," Presented at the International Energy Agency Meeting on Black Liquor and BioMass Gasification, Turku, Finland, August 30-September 1, 2004.
27. "A computer code for the design of the fuel Spray Nozzles," IEA Annex XV, Biomass and Gasification Meeting, February 10-13, 2003, Atlanta, Georgia.
28. "Numerical Simulation of the Fluid Processes in Ink-Jet Printers: Jets, Drops and Bubbles," Canadian Network of Computational Material Science (CNCMS), McMaster University, May 27, 2003.
29. "Numerical Simulation of the Coating Processes," Canadian Network of Computational Material Science (CNCMS), McMaster University, May 27, 2003.
30. "Impaction and Solidification of Liquid Drops on Solid Surfaces," Xerox Corporation, Webster, NY, December 12th, 2002.
31. "Numerical Simulation of the Atomization Process," Department of Mechanical Engineering, University of Pittsburgh, Pittsburgh, PA, Nov. 15th, 2002.
32. "Atomization of Melts", Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, Canada, February, 16, 2001.
33. "Impaction of Ink Drops on Paper," XEROX Corp., Webster, NY, April 6, 1999.
34. "CLEAR-VOF: An Algorithm for Advection of Interfaces in Unstructured Grids," ANSYS, Inc., Southpointe, PA, July 21, 1998.
35. "Collision Dynamics of Liquid Drops," Institute of Fluid Mechanics, Friedrich-Alexander-University, Erlangen-Nuremberg, Germany, May 28, 1998.
36. "Interface Modeling," ANSYS, Inc., Southpointe, PA, Sept. 29, 1997.
37. "Dynamics of Bubble Clouds," presented at Nucleation Phenomena: Implications for Decompression Bubbles," Symposium/Workshop satellite of the Annual Meeting of the Great Lakes Chapter of the UHMS, DCIEM, North York, Ontario, October 24, 1997.
38. "Dancing Bubbles," Department of Mechanical Engineering, University of Rochester, Rochester NY, March 21, 1997.
39. "Droplet Collisions and Dancing Bubbles," Institute of Physics, National University of Mexico, Mexico City, October 11, 1996.

40. "Dancing Bubbles," Department of Mechanical Engineering, The State University of New York at Buffalo, Buffalo, NY, Sept. 10, 1996.
41. "Dancing Bubbles," Department of Mechanical Engineering, The University of British Columbia, Vancouver, Canada, May, 16, 1996.
42. "Dancing Bubbles," Department of Mechanical Engineering, University of Victoria, Victoria, CANADA, May, 15, 1996.
43. "Mixing in Impinging Jet Injectors," Phillips Laboratory, Edwards Air Force Base, California, August 5, 1994.
44. "Mechanisms of the Liquid Atomization," presentation at the Panel on the Liquid Atomization Modeling at the 7th Annual Conference on Liquid Atomization and Spray Systems, May 31 - June 3, Bellevue, Washington, 1994. Washington, 1994.
45. "Capillary and Thermocapillary Instability of Liquid Jets," Sibley School of Mechanical and Aerospace Engineering Seminar Series, Cornell University, Ithaca, New York, February 1, 1994.
46. "Combustion Behavior of Emulsified Hydrocarbon Droplets," 1993 Conference on Innovative Remedial Technology, Albany, New York, October 12-14, 1993.
47. "Impaction of Liquid Drops," Keynote speaker at the Second Fluid Dynamics Conference, Isfahan, Iran, July 6-8, 1993.
48. "Collision Dynamics of Liquid Drops," Department of Mechanical Engineering Guest Lecture Series, Carnegie-Mellon University, April 14, 1993.
49. "Advance Techniques in Turbulent Reacting Flows," Jet Propulsion Laboratories, Tehran, Iran, July 7, 1992.
50. "Physico-Chemical Processes in Sprays," Department of Mechanical and Aerospace Engineering, University of Toronto, April, 1992.
51. "Spray Atomization," Department of Mechanical Engineering, Rutgers University, New Brunswick, New Jersey, March, 1992.
52. "Physico-Chemical Processes in Liquid Sprays," Department of Mechanical Engineering, University of Hamedan, Hamedan, Iran, April 15, 1991.
53. "Physico-Chemical Processes in Liquid Sprays," Department of Mechanical Engineering Graduate Seminar Series, Polytechnic University of Tehran, Tehran, Iran, March 30, 1991.
54. "Physico-Chemical Processes in Liquid Sprays," Department of Mechanical Engineering Graduate Seminar Series, University of Tehran, Tehran, Iran, October 10, 1990.
55. "Spray Combustion Phenomena: An Experimental and Numerical Study," Department of Mechanical Engineering Graduate Seminar Series, San Diego State University, San Diego, CA, February 14, 1990.
56. "Physico-Chemical Processes in Liquid Sprays," Department of Mechanical Engineering, University of Utah, Salt Lake City, Utah, March 10, 1990.

57. "Physico-Chemical Processes in Liquid Sprays," Department of Mechanical and Aerospace Engineering Graduate Seminar Series, State University of New York at Buffalo, Buffalo, NY, December 7, 1989.
58. "Application of Diffraction Tomography to the Supersonic Reacting Jets," Hypersonic Grant Review Conference, State University of New York at Buffalo, Buffalo, NY, June 1989.
59. "Combustion of Hazardous Liquid Waste," Department of Civil Engineering Graduate Seminar Series, State University of New York at Buffalo, Buffalo, NY, April 21, 1989.
60. "Collision Among Reactive Droplets," 3rd International Colloquium on Drops and Bubbles, Monterey, CA, September 18-21, 1988.
61. "Numerical Modeling of Viscous Damping of Drop Oscillations," 3rd International Colloquium on Drops and Bubbles, Monterey, CA, September 18-21, 1988.
62. "Ignition and Flame Propagation in Dense Sprays," 5th Annual Iroquois Fluids Conference, Casawasco Conference Center, Lake Owasco, NY, March 25-27, 1988.
63. "Engineers Path for Success", Tau Beta Pi annual invited speaker, State University of New York, Buffalo, NY, December 1988.
64. "Coalescence Collision of Fuel Droplets," AIAA 25th Aerospace Sciences Meeting, Reno, Nevada, January 12-15, 1987.
65. "Observations of the Collision of Two Non-burning and Burning Monodispersed Droplet Streams," Fall Technical Meeting of the Combustion Institute, Eastern States Section, Philadelphia, PA, Nov. 1985.
66. "Flame propagation in Laminar Premixed Sprays," Mechanical Engineering Department, State University of New York at Buffalo, Buffalo, NY, May 1984.
67. "Idealized Spray Combustion Experiments," Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ, May, 1984.
68. "Experimental Study of combustion of Mono-dispersed Sprays," Mechanical Engineering Department, West Virginia University, Morgantown, WV, April, 1984.
69. "Combustion of Mono-dispersed premixed Sprays," Chrysler Corporation, Detroit, MI, March, 1984.
70. "Mechanism of Flame Propagation in Sprays," Fall Technical Meeting of the Combustion Institute, Eastern States Section, Clearwater Beach, FL, Dec. 1984.
71. "Flame Propagation in Sprays," Bennet Price Award Contest Seminars, Carnegie-Mellon University, Pittsburgh, PA, 1983.
72. "Radiative Evaporation of Droplets in Sprays," Mechanical Engineering Seminar Series, Carnegie-Mellon University, Pittsburgh, PA 1981.

2.5 Graduate Students

Date	Degree	Candidate	Thesis Title
2010-	Ph.D.	Saman Hosseini	Numerical Modeling of Droplet Impact on Porous Surfaces
2012	M.Sc.	Shima Dadvar	Adhesion of ink droplets on porous substrates
2011-	M.Sc.	Shabannejad	Bubble departure size and velocity during the onset of nucleation.
2012	M.Sc.	Farhan Sultan	Characterization of Electrosprays for Mass Spectroscopy
2010-	Ph.D.	Medghalchi	Numerical Modeling of the Critical Heat Flux from the first Principals,
2008-	Ph.D.	Behzad-Jazi	Atomization Characteristics of Biodiesels
2006-	Ph.D.	Amirreza Amighi	Spray Characterization of Jets in Cross Flows
2006-	Ph.D.	Reza Karami	Flashing Phenomenon in Splash Plate Nozzles
2012	Ph.D.	Mohammad Movassat	Bubble Dynamics in Microgravity
2010	Ph.D.	Araz Sarchami	Three Dimensional Modeling the Thermo-hydraulics of Moderator in CANDU Reactors
2008	Ph.D.	Ri Li	Effect of droplet interaction and the drawback effect in the inkjet printing
2007	M.Sc.	Amirreza Amighi	Sprays for Ultra Clean Biodiesel Engines
2007	M.Sc.	Araz Sarchami	Numerical Modeling of Splash Plate Atomizers
2006	Ph.D.	Morteza Eslamian	Experimental and Theoretical Investigation of Micro- and Nano-Powder Synthesis by Spray Pyrolysis and Drying
2006	M.Sc.	Alireza Mashayek	Experimental and Numerical Study of Liquid Jets in Crossflow
2006	Ph.D.	Amirreza Golpaygan	Modeling of Sessile Droplet Dynamics in Channel Flow
2004	Ph.D.	Yousik Hong	Bubble Dynamics on a Microheater Induced by Pulse Heating
2004	M.Sc.	Ri Li	Breakup Mechanisms in Impinging Liquid Jets
2003	Ph.D.	Mazlan Abdul Wahid	Rotating Flame Characteristics
2001	M.Sc.	Bian Hongbin	Multi-Bubble Interaction in an Acoustic Field.”
2001	Ph.D.	Chang Fang Hsu	Impaction of Liquid Drops on Perforated Plates
2000	Ph.D.	Marry Saroka	Numerical Simulation of Collision of Liquid Drops
1999	M.Sc.	Joel Rak	“Production of Metal Matrix Composites by Spray Forming
1998	Ph.D.	Tiberiu Barbat	Nonlinear Bubble Interactions in Acoustic Pressure Fields
1997	M.Sc.	S. Stankovic	Moisture Separation in an Intercooler
1996	M.Sc.	W.H. Zhuang	Impaction of a Liquid Drop on a Surface

1996	M.Sc.	Benjamin Hackmann	Droplet Separation from Heat Exchanger Systems
1996	M.Sc.	L. Wei	Influence of Surfactants and Polymer Additives on Flame Propagation Over Oil-In-Water Emulsions
1996	M.Sc.	Ben M. Ortiz	Centrifugal Atomization for Production of Aluminum Particles
1995	M.Sc.	Alan Blatter	Flame Propagation Across Fuel Emulsions
1995	M.Sc.	Y. Guo	Instability of a Capillary Liquid Column with Interface Mass Transfer
1994	Ph.D.	Amgad Elgowainy	Nonlinear Analysis of the Rayleigh-Taylor Instability of Viscous Finite Fluid Layers
1994	M.Sc.	J. Tischledler	Flame Propagation Velocity of Highly-Concentrated Alkane-In-Water Emulsions
1994	Ph.D.	Farzad Mashayek	Numerical Study of Capillary and Thermocapillary jets and Drops
1994	M.Sc.	H. Huynh	Satellite Control in Capillary Jet Breakup by Modulated Surface Disturbances
1993	Ph.D.	Darren J. Mollot	Flow Visualization of Liquid Drops and Bridges
1993	M.Sc.	Ross Washburn	Impinging Jet Spray Characterization and Correlation
1992	M.Sc.	B. Rolls	Shock Impaction on a Liquid Drop
1992	M.Sc.	Christian Oberle	Spray Sizing by Tomographic Imaging
1992	Ph.D.	William Stry	The Combustion of Free Flowing Droplets of Chlorinated Benzenes, Alkanes, and Their Mixtures
1991	M.Sc.	John Lee	Combustion of Chlorinated Hydrocarbons
1991	M.Sc.	Adam Tunis	Design and Development of Rocket Injector Testing System
1990	M.Sc.	Peter F. Vassalo	Liquid Propellant Rocket Spray Characterization
1990	M.Sc.	Mahmoud Hammoud	Spreading of Liquid Masses on Surfaces
1990	M.Sc.	Shawn Wehe	Combustion Characterization of Hazardous Liquid Wastes
1990	M.Sc.	J. Seet	Flow Behavior in Compact Cooled Structures
1989	Ph.D.	J. Y. Poo	Experimental and Numerical Investigation of Binary Liquid Drop Collision
1988	M.Sc.	Mohammad Mostajjar	Mixing in Supersonic Turbulent Reacting Jets
1987	M.Sc.	D.J. Mangra	Numerical Modeling of a Liquid Jet Emitting from an Orifice: Influence of Surface Tension
1987	M.Sc.	John Stassinopoulos	Measurement of Interacting Droplet Burning Rates in Convective Environment
1986	M.Sc.	Jen Yan Poo	An Experimental Study of the Drag Coefficient of a Monosized Liquid Droplet Stream in a Turbulent Gas Field

1986 M.Sc. C.H. Chiang Flame Propagation Through a One-dimensional Air/Fuel Spray Mixture with Interactive Vaporization Between Droplets

2.6.1. Career Totals

Ph.D.	20
M.A.Sc.	32
M.Eng.	2
Ph.D. Committee Memberships	50
Postdoc. Supervision and Scholars	13

2.7 Post Doctoral Supervisor and Contract Employees Supported by Research Contracts

Duration	Fellow	Financial Sponsor	Topic of Study
2012	Bamdad Lesani, from U of Sci & Tech, Iran	Public Works	Blast Effect on the Otholit Layer of the Ear
2011-2012	M. Mehrabian, from Kerman University of Kerman, Iran U, Iran		Impact of a Shock Wave on a Droplet
2009-2010	Kihyung Lee, from Hanyang U, Korea	Hanyang University, Korea	Diesel Spray Injection Characteristics
2007-2008	Morteza Eslamian	NSERC	Nano Powder Production
2005-2006	Chi Sung Song, from KIMM, Korea	KIMM, Korea	Spray Characteristics
2005-2009	Mahmoud Ahmed, from U of Assiut, Egypt	Pulp and Paper Center, NSERC	Black Liquor Spray Study
2008-2009	Ri Sunny Li	Xerox Corp	Solid Ink Drop Impact
2004-2005	Majid Charmchi, from U Mass	Xerox/NSERC	
2004-2005	M. Mehrabian		
2004-05	Reza Kamali	Shiraz University	Lattice Boltzman analysis of Droplet collision
2003-2011	Serguei Savchenko	NSERC/Ionics	Modeling of flow through Mass Spectrometers
2003-04	Mofid Gorgi	U of Mazandaran	Perturbation Analysis on Liquid Interfaces
1994-1996	Amgad Elgowainy	NSF	Taylor Instability in Micro-explosions

2.8 Other Graduate Student Advisory Committee

Date	Name	Supervisor	Thesis Title
Feb 3, 2012	P. Ferdosi	M. Bussmann	Combined Numerical and Thermodynamic Analysis of Droplet Imbibition into an Axisymmetric Open Capillary
Dec. 16, 2011	K. K. Majithiya	C. Park	The Effect of Molecular Weight on Polypropylene Foaming
Dec. 13, 2011	N. Chen	C. Park	The Effects of Crosslinking on Foaming of EVA
Dec. 06, 2011	J. Wang	A. Bazylak	Development of Conductive Polymer Membrane for Energy Applications
Nov. 8, 2011	J. Hinebaugh	A. Bazylak	
Sept 12, 2011	H. Ghasemi	C. Ward	Sessile Water Droplets: Equilibrium and Evaporation
Jun 14, 2011	K. Jiao	X. Li	
May 6, 2011	B. Lashkari	A. Mandelis	Photoacoustic Imaging Using Chirp Technique: Comparison with Pulsed Laser Photoacoustics
May 4, 2011	T. Tzanetakis	M. Thomson	Spray Combustion Characteristics and Emissions of a Wood Derived Fast Pyrolysis Liquid Ethanol Blend in a Pilot Stabilized Swirl Burner.
Feb 16, 2011	M. E. Naeini	J. Spelt	Discrete Element Modeling of Granular Flows in Vibrationally Fluidized Beds.
2011	M. Saadatmand	M. Kawaji	A Study on Vibration Induced Particle Motion Under Microgravity
2010	Sina Moloodi	M. Thomson	Experimental Investigation of the Effects of Fuel Properties on Combustion Performance and Emission of Biomass
2010	Justin Ketterer	J. Wallace	Effects of Biodiesel Fueling on Diesel Particulate Matter
2010	Nada Zamel	X. Li	Effective Transport Properties of the Gas Diffusion Layer of PEM Fuel Cells
2010	Afsoon Goghari	S. Chandra	Producing Small Droplets of Aqueous Solution and Molten Metals Using Pneumatic Droplet Generator
2008	Rajeev Dhiman	S. Chandra	Splashing and Breakup of Droplets Impacting on A Solid Surface.
May 16, 2008	A. Gobeity	J. Spelt	The Development of Surface Profile Models in Abrasive Jet Micromachining
May 28, 2007	A. Moradian	J. Mostaghimi	Surface Tensiometry at High Temperatures
Mar 28 th , 2006	T. Tzanetakis	M. Thomson	Multi-Zone Modeling of a Primary Fuelled HCCI Engine
Mar 27 th , 2006	Eugen Suk	P. Sullivan	Cyclic Flow Characteristics within a Water Analog Engine,
2006	M. Abdelgawad	Wheeler	Using Digital Micro fluidics to Achieve Full Automation of Lab-on-Chip Devices
Feb. 15 th 2006,	Malahat Fardadi	P. Sullivan	Numerical and Experimental Investigation of Non-Spherical Particles Dispersion in Turbulent Flow
Feb. 28 th , 2006	Ronnie Yip	I. Currie	Slow Flow Across a Fibrous Porous Medium of Cylinder Arrays
July 26 th , 2005	Simal Saujani	Shepherd	Towards a Unified Theory of Balanced Dynamics
July 19 th , 2005	Amin Ghobeity	J. Spelt	Abrasive Jet Micromachining
May 6, 2005	Ming Fang	S. Chandra	Rapid Prototyping of Molten Metal Droplets,

April 11, 2005	Mohammad Biglarbegian	J. Zu	Dynamic Analysis and Simulation of Vehicles Carrying Liquids
March 14, 2005	Hanif Montazeri,	J. Mostaghimi	Modeling Dense Sprays
Sep. 27 th , 2005	Sajid Syed	M. Thomas	Oxidation studies of Surrogate Bio-diesel Fuels in Opposed Flow Diffusion Flames
Sep. 16, 2004	Ranjeev Dhiman	S. Chandra	Splashing of Liquid Jets and Dropelts on Solid Surfaces,
Sep. 14, 2004	Fei Duan	C. Ward	Thermocapillary Convection during Evaporation
Sep. 13, 2004	Mehdi Raessi	J. Mostaghimi	The Impact and Solidifaicaiton of Dropelts onto Uneven Substrates
Sep. 10, 2004	Zakia Sultana	J. Moastaghimi	Finite Elemnt Simulation of Fluid Flow with Free Surface using a Second Ordere Remapping Volume Tracking Method,"
April 7 th , 2004	Mayank Malik	M. Bussmann	Volume Tracking with Adptive Refinement
Feb. 6 th , 2004	Ala Moradian	J. Mostaghimi	Measuring Surface Tension of High Melting Point Materials
Feb. 3 th , 2004	Yanguang Shan	J. Mostaghimi	A Stochastic Spray Model for Radio Frequency Inductively Coupled Plasma
Aug 11 th , 2004	Wanlin Chen,	D. James	The Relationship between Rheological Properties and Morphology of Polyolefin Blends
Aug 9 th , 2004	David Erickson	Li	Numerical Simulation for Microfluidic Devices and the Development of an Electrokinetically Controlled DNA Hybridization Chip
Dec 19 th , 2003	Zhenjin Zhu	C. Park	Numerical Simulation of CapillaryDriven Flow in Microcellular Open-celled Foams
Dec 18 th , 2003	Hossein Tavana	Neumann	Contact Angles: Measurement and Interpretation
December 12 st , 2003	Tao Xu	M. Paraschivoiu	Large Eddy Simulation using a Parallel Solver.
August 20 th , 2003	Ali Keshavarz	C. Ward	Where Adsoprtion Affects Contact Angle; Wetting and Condenstion."
August 6 th , 2003	German Cardenas	M. Paraschivoiu.	Large Eddy Simulation using Tetrahedral Finite Elements
August 5 th , 2003	Vala Mehdi-Nejad	J. Mostaghimi	Modeling Flow and Heat Transfer in Two-Fluid Inerfacial Flows, with Applications to Drops and Jets.
April 22, 2003	Cezary Niewiadomski	M. Paraschivoiu	Spectral Element Methods for the Stokes Problem
April 22 nd , 2003	Ming Fang	S. Chandra	Rapid prototyping by deposition of molten metal droplets
April 11, 2003	Payam Rahimi	C.A. Ward	Effect of Pressure on the Rate of Evaporation
Jan 13, 2003	Jan Guerquin	J.S. Wallace	The Development of an IC Engine Model-based Fuel Injection Controller with Fuel Film COMpendation
Sept 4 th , 2002.	A. Espahbod	S. Chandra	
October 2, 2002.	Maher Hady	J. Mostaghimi	Effect of plasma turbulent temperature fluctuatoin on particelas heating
August 14, 2002	Warner Chen	D. F. James	The relationship between rheological properties and the morphology of polyolefin blends,
August 30, 2002	Fei Duan	C. Ward	Surface tension-driven convection during evaporation and condensation
July 10, 2002	Hae-Won Choi	M. Paraschivoiu	Towards a faster finite element output bound method

Feb 25, 2002 Deokkyu Park J.S. Wallace, & The Effects of Charge Motion Near the Spark Plug on Early
P.E. Sullivan Flame Kernel Development Supervisors

SECTION III – UNIVERSITY AND DEPARTMENTAL ADMINISTRATIVE COMMITTEES

3.1 University and Faculty Committees

Duration	Position and/or Duties
2011-2014	Member of the Connaught Review Panel. A University of Toronto awards committee selecting candidates for New Researcher Awards, McLean Award, Global Challenge Award, Summer Institute Award, and Innovation Award
2010-2011	NSERC and Ontario Graduate Scholarship Program (OGS), Panel Chair
2006-	The Senior Faculty Senior Promotions Committee, University of Toronto
2009-2011	Student Ethics committee
2007-	Faculty tenure promotion committee, University of Toronto
2007-	Dean's Promotion Committee
2003	Member of the Canadian Space Agency conference review board
2002	Focus Group "What kind of orientation should new faculty receive and views on recruitment process"
2002-2003	Panel Chairman for the Ontario Graduate Scholarship Program (OGS)
1989-1990	AIAA Niagara Frontier Section Vice-Chairman for Education
1989-1990	Society of Automotive Engineering Student Section faculty advisor
1988-1990	Honor Student Mentor
1986	Faculty Senate Alternate, State University of New York at Buffalo
1986-1991	AIAA Niagara Frontier Section Council member

3.2 Departmental Committee

Duration	Position and/or Duties
20010-2011	Internal reading committee for faculty promotion
2011-	Intellectual Property consultant for MIE
2005-06	Committee Graduate Admission Committee
1992-98	Member of the Graduate Program & Admissions Committee
1990	Member of Aerospace Engineering Curriculum Committee
1985/86/90	Seminar Series organizer
1987	Zimmerman Award Committee
1985-1990	AIAA student section faculty advisor
1987	Doctoral Qualifying Exam Committee
1987	Space Committee,

SECTION IV – PROFESSIONAL ACTIVITIES

4.1 Undergraduate Teaching

Year	Subject No. and Title	No. of Students	Year and Course	Lect./ Week	Wt
1985-90	EAS-103 Introduction to Engineering	50	I	3	12
1986-02	MAE-204 Thermodynamics	200	II	3	12
1992-93	MAE-331 Introduction to Aerospace Engineering	80	III	3	6
1993-95	MAE-338 Heat Transfer Laboratory	80	III	3	6
1996-98	MAE-382 Engineering Materials	80	III	3	6
1999-02	MAE-431 Energy Systems Thermodynamics II	80	IV	3	12
1984-86	MAE-423 Propulsion	30	IV	3	12
1987-90	MAE-459 Mechanical Engineering Design	30	IV	3	6
2002	MIE 233S Applied Science	213	II-	3	12
2003	MIE 233S Applied Science	213	II-	3	12
2004	MIE 233S Applied Science	213	II-	3	12
2005	MIE 210S Thermodynamics	200	II-	6	12
2006	MIE 210S Thermodynamics	200	II-	6	12
2007	MIE 210S Thermodynamics	170	II-	6	12
2008	MIE 210S Thermodynamics	170	II-	6	12
2010	MIE 210S Thermodynamics	220	II-	6	12
2011	MIE 210S Thermodynamics	220	II-	6	12

4.2 Graduate Teaching

Year	Subject No. and Title	No. of Students
1984-02	MAE-534 Combustion	15-30
1994-96	MAE-532 Advanced Thermodynamics	20
1986-90	MAE-511 Hypersonic Vehicles	20
1997-99	MAE-500 Emissions and Environment	10
2002-prent	MIE1222 Multiphase Flows	20/year

4.3 Undergraduate Thesis Supervision

Year	Student Name	Thesis Topic
2013-14	Robert Bento Florentino	CFD modeling of a Melody
2013-14	Rafael Orsi Koga	Impact of wax drops on a paper
2012-13	Milad Sadrollahi, Pedram Haeri	Design of a Simple Spray Particle Counter
2012-13	Lu Bin Liu	Measurement of the bubble separation characteristics during boiling in horizontal pipes.
2011-12	Aram Khosh Ettekal, Negin Shahbazian	Design of a Miniature Impact Sensing Device
2011-12	Milad Sadrollahi, Pedram Haeri	Design of Simple Spray Particle Counter
2011-12	S. Doroudi, A. Afshar, A. Alikhanzadeh	Considerations for Coal Slurry Atomization
2011-12	Armin Ayatollahi	Thermal Energy Conversion from Environmental Fluids: OTEC and ATEC Systems
2010-11	M. Zahid, N. Ganesanathan	Measurement of Penetration of an Ink Drop into Paper
2010-11	Navdeep Swach, Satyam Sahi	Energy Analysis for a High Rise Condominium
2009-10	A. Demeter, A. Debowski, D. Grant	Characterizing Jet in Cross-flow Fuel Injectors
2009-10	Daniel Shidvash	Sessile Droplet Dynamics in Corrugated channels
2009-10	Shuvo Chowdhury, Dejan Graovac	Numerical modeling of Boiling using Fluent
2009-10	B. Ali, U. Ahmed, A. Khalid, S. Khan	Ink Jet Printing
2009-10	Iman Datta, Kobtham Chotruangprasert	Bubble Behavior in Microgravity
2009-10	Muhammad Omer Khan	Characterization of a Fuel Injector for Jet Aircraft
2009-10	Shahriar Fatemi	Review of Spray Cooling Systems
2009-10	S. Chowdhury, D. Craovac	Modeling of Vapor Formation in a Cylindrical Pipe.
2007-08	Qiyiana Tian	Study of Flashing Evaporation in Liquid Sprays
2006-07		Delivery Efficiency of Inhaled Pharmaceutical Aerosols
2005-65	David Domingo	Computational Fluid Dynamics Modeling of High Pressure Bubble in Fluid Filled Cavity
2004-05	Abhinav Kalsi	Twin Fluid Atomization
2004-05	Kaushal Patel	Development of Small Low Speed Wind Tunnel
2004-05	Hosam Hassan	Examination of Mutually Impinging Sprays
2004-05	Amal Jina	Design and Development of a Novel Water Filter Based on Basic Principles
2004-05	Sparano, Hamid Zebarjad	A Device to Model a Human Lung
2004-05	Amirreza Amighi	Rheological Study of Leukocytes
2004-05	J. Nonis, R. Lam, P. Harrington, A. Pede	Design and Development of a Shock Tube for Supersonic Flows
2004-05	Thomas Hering	Swirl Chamber Nozzle Design with Variable Needle

2004-05	Andrei Calinescu, Randy Ly, Mark	Settings
2004-2005	Siavash Omid	Design and Development of a Human Long Model.
2003-04	Anna Lee	Fuel Injectors for Aircraft Gas Turbine Engines
		Design of a Compact Hair Spray Based on Ultrasonic Atomization
2004-04	J. Poon, L. Wong, T. H. Le	Bottle Design for High Efficiency Throughput
2002	.....	Measurements of Laminar Burning Velocity of Premixed Flames
2001	.....	Design and Development of a Human Long Model
2000	.....	Shock Tube Design
1999	.....	Measurements of Laminar Burning Velocity of Premixed Flames
1997	.....	The Effect of Temperature Variation on Biological Compounds
1996	.....	Construction of a Singing Flame Facility
1995	.....	Electric Field Effect on the Combustion of Droplets
1994	.....	Installment and Operation of the Ricardo Test Engine
1993	.....	Impingement of Jet Diffusion Flames on a Solid Surface
1992	.....	A Comprehensive Review of Digital Storage Oscilloscope, Digital Graphics Plotter, and Thermocouples
1990	.....	Interactive Droplet Vaporization
1989	.....	Design and Construction of a Flat Flame Burner
1988	.....	Measurement of the Liquid Jet Diameter Variation as a Function of the Reynolds Number
1987	.....	Visualization of Drop Collision Phenomena
1986	.....	Measurement of Damping Rates of a Liquid Column
1985	.....	Liquid Jet Breakup Lengths as a Function of Reynolds Number
1984	.....	Measurement of Impact Parameter in Drop Collisions

SECTION V – PUBLICATIONS

5.1 Refereed Journal Publications

1. Dadvar, S., Chandra, S., Ashgriz, N., “Adhesion of Wax Droplets to Porous Polymer Surfaces,” submitted to the *Journal of Surface and Coating Technologies*, 2013.
2. Eslamian, M., Amighi, A., and Ashgriz, N., “Atomization of a Liquid Jet in High Pressure and High Temperature Subsonic Crossflow,” submitted to the *AIAA Journal*, 2012.
3. Behzad, M., Ashgriz, N., Mashayek, A., “Instability of a liquid jet injected into a gas cross flow,” submitted to the *Journal of Fluid Mechanics*, 2013.
4. Sarchami, A., Ashgriz, N., “Comparison between Surface Heating and Volumetric Heating Methods inside CANDU Reactor Moderator Test Facility (MTF) Using 3D Numerical Simulation, submitted to the *International Journal of Nuclear Energy Science and Engineering*, 2012.
5. Sarchami, A., Ashgriz, N., “Temperature Fluctuations Inside the CANDU Reactor Moderator Test Facility (MTF), submitted to the *Annals of Nuclear Energy*, 2012.
6. Sarchami, A., Ashgriz, N., “Three Dimensional Numerical Simulation of a Full Scale CANDU Reactor Moderator to Study Temperature Fluctuations,” submitted to the *Nuclear Engineering and Design*, 2012.
7. Karami, R., Kankkunen, A., Ashgriz, N., and Tran, H., “Effects of Flashing on Spray Characteristics of Splash-Plate Nozzles, Accepted for publication in *TAPPI Journal*.
8. Movassat, M., Ashgriz, N., Bussmann, M., “Chaotic Dynamics of 2D Incompressible Bubbles under Forced Vibration in Microgravity,” *Journal of Microgravity Science and Technology*, Volume 24, Number 1 (2012), 39-51, DOI: 10.1007/s12217-011-9289-y
9. Saroka, M., Ashgriz, N., Movassat, M., “Numerical Investigation of Head-on Binary Drop Collisions in a Dynamically Inert Environment, *Journal of Applied Fluid Mechanics*, Vol. 5, No. 2, Issue 10, 2011.
10. Mashayek, F., Behzad, M., Ashgriz, N., “Multiple Injector Model for Primary Breakup of a Liquid Jet in Crossflow,” *AIAA Journal*, 2011, vol. 49, no11, pp. 2407-2420.
11. Golpaygan, A., Sarchami, A. and Ashgriz, N., “Three-Dimensional Multiphase Flow Model to Study Channel Flow Dynamics of PEM Fuel Cells”, *International Journal of Energy Research*, Vol. 35, issue 13, pp: 1188-1199, 25 Oct. 2011.
12. Li, R., Ashgriz, N., and Chandra S., “Maximum Spread of Droplets on Solid Surface: Low Reynolds and Weber Numbers,” *J. of Fluid Engineering*, Vol. 132, 061302-1-5 June 2010.
13. Sarchami, A., Ashgriz, N., & Tran, H., “An Atomization Model for Splash Plate Nozzles”, *AICHE Journal*, April 2010 Vol. 56, No. 4.

14. Sarchami A., Ashgriz N., & Tran H., " Correlation for the Initial Perturbation Amplitude of Liquid Sheets Produced by Jet Impingement Nozzles, *AIAA Journal*, Vol. 47(11), pp. 2775-2779, Nov. 2009.
15. Ahmed, M., Amighi, A., Ashgriz, N., Tran, H., "Influence of Breakup Regime on the Droplet Size Produced By Splash-Plate Nozzles, Volume 47, Number 3, *AIAA Journal*, Mar. 2009.
16. Jakic, N., Gregory, J., Eslamian, M., Ashgriz, N., "Effect of Impurities on Characteristics of ZrO₂ and ZnO Ceramic Powders Produced by Spray Pyrolysis", *Journal Materials Science*, Vol. 44(8), 2009, pp: 1977-1986.
17. R. Li, N. Ashgriz, S. Chandra and J. R. Andrews, "Contraction of Free Liquid Ligaments," *AIChE Journal*, Vol. 54, No. 12, pp: 3084-3091, December 2008.
18. Li, R., Ashgriz, N., Chandra S., and Andrews, J.R., S. Drappel, "Coalescence of two Droplets Impacting a Solid Surface," *Experiments in Fluids*, Vol. 48, pp: 1025-1035, 2010.
19. Mashayek, A., and Ashgriz, N., "A Model for the Deformation of Drops and Liquid Jets in Gaseous Cross Flows", *AIAA Journal*, Vol. 47, No. 2, (2009).
20. M. Eslamian, M. Ahmed, and N. Ashgriz, "Modeling of Solution Droplet Evaporation and Particle Evolution in Droplet-to-Particle Spray Methods," *Journal of Drying Technology*, Vol. 27, No. 3 (2009), pp: 3-13.
21. Mashayek, A., and Ashgriz, N., "Improved Model for the Penetration of Liquid Jets in Cross Subsonic Flows", *AIAA Journal*, 0001-1452, Vol. 46, No. 11, November 2008.
22. Li, R., Ashgriz, N., Chandra, S., Andrews, J.R., Williams, J., "Drawback during Deposition of Overlapping Molten Wax Droplets" *J. of Manufacturing Science & Engineering*, Transactions of ASME, Vol. 130, August 2008.
23. Ahmed, M., Amighi, A., Ashgriz, N., Tran, H., "Break-up Length of Liquid Sheets formed by Splash Plate Nozzles," *ASME Journal of Fluid Engineering*, Vol. 131, January 2009.
24. Li, R., Ashgriz, N., and Chandra, S. "Droplet Generation from Pulsed Micro-jets" *Journal of Experimental Thermal and Fluid Science*, Vol. 32, 2008, pp:1679-1686.
25. Tzanetakis, T, Ashgriz, N., James, D.F., and Thomson, M.J., "Liquid Fuel Properties of a Hardwood-Derived Bio-oil Fraction," *Energy & Fuels*, Vol. 22, pp: 2725-2733, 2008.
26. Li, R., Ashgriz, N., Chandra, S., Andrews, J.R., Drappel, S., "Deposition of Molted Ink Droplets on a Solid Surface," *Journal of Imaging Science and Technology*. **52**(2), 020502, 2008.
27. Li, R., Ashgriz, N., Chandra S., and Andrews, J.R., "Shape and Surface Texture of Molten Droplets Deposited on Cold Surfaces," *Surface and Coatings Technology*. **202**, 3960-3966, 2008.
28. Li, R., Ashgriz, N., Chandra, S., Andrews J.R., and Drappel, S., "Apparent Solidification Contact Angles of Micro-droplets Deposited on Solid Surfaces," in: K. L. Mittal (Ed.) *Contact Angle, Wettability and Adhesion*, Volume 5, Brill, Leiden, Netherlands, 2008.

29. Golpaygan, A., and Ashgriz, N., "Multiphase flow model to study channel flow dynamics of PEM fuel cell: deformation and detachment of water droplets," *International Journal of Computational Fluid Dynamics*, Vol. 22, Issue 1-2, Jan. 2008, pp. 85-95.
30. Chau, A., Eslamian, M., and Ashgriz, N., "On Preparation of Non-Disrupted Particles by Spray Pyrolysis," *J. of Particle Particle Systems and Characteristics*, Vol. [25, 2008, pp. 83-191.](#)
31. Ahmed, M., Amighi, A., Ashgriz, N., Tran, H., "Characteristic of Liquid Sheet sprays formed by Splash Plate Nozzles," *Journal of Experiments in Fluids* , Vol. 44, No. 1, January 2008.
32. Li, R., Ashgriz, N., Chandra, S., Andrews, J.R., "Solidification Contact Angles of Molten Droplets Deposited on Solid Surfaces," *Journal of Material Science*, Vol. 42, pp: 9511-9523, 2007.
33. Jafari, A., Shirani, E., and Ashgriz, N., "An Improved Three-Dimensional Model for Interface Pressure Calculations in Free-Surface Flows," *International Journal of Computational Fluid Dynamics*, Vol. 21, No. 2, pp: **87-97**, Feb 2007.
34. Seffolahli, M., shirani, E. and Ashgriz, N., "An Improved Method for Calculation of Interface Pressure Force in PLIC-VOF Methods," *European Journal of Mechanics/Fluids*, Vol. 27, Issue 1, pp: 1-23, Jan-Feb 2008.
35. Golpaygan, A., Hsu, N., and Ashgriz, N., "[Numerical investigation of impact and penetration of a droplet onto a porous substrate.](#)" *Journal of Porous Media*, Vol. 11, Issue: 4, pp: 323-341, 2008.
36. Eslamian, M. and Ashgriz, N., "Evaporation of Suspended Solution Droplets at Atmospheric and Reduced Pressures," *Journal of Drying Technology*, Vol. 25, No. 6, pp: 999-1010, 2007.
37. Eslamian, M., Rak, J., and Ashgriz, N., "Preparation of Aluminum/Silicone Carbide Metal Matrix Composites Using Centrifugal Atomization," *Journal of Powder Technology*. [Vol.184, Issue 1, pp: 11-20, 2008.](#)
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39. Li, R. and Ashgriz, N. "Edge Instability and Velocity of Liquid Sheets Formed by Two Impinging Jets", *Journal of Atomization and Sprays*, Vol. 17, No. 1, pp: 71-91, 2007.
40. Eslamian, M. and Ashgriz, N., "Effect of Atomization Method on the Morphology of Spray-Generated Particles," ASME *Journal of Engineering Materials and Technology*, Vol. 129, No. 1, pp: 131-142, January 2007.
41. Eslamian, M. and Ashgriz, N., "Effect of Precursor, Ambient Pressure, and Temperature on the Morphology, Crystallinity, and Decomposition of Powders Prepared by Spray Pyrolysis and Drying", *Journal of Powder Technology*, Vol. 167, No. 3, pp:149-159, 2006.
42. Eslamian, M. and Ashgriz, N., "Effect of Reactor Ambient Pressure on the Morphology of Spray Dried Magnesium Sulphate Powders," *The Canadian Journal of Chemical Engineering*, Vol. 129, No. 1, pp: 131-142, January 2007.
43. Eslamian, M. and Ashgriz, N., "Modeling of Particle Formation by Spray Pyrolysis using Droplet Internal Circulation, *International Communications in Heat and Mass Transfer*, Vol. 33, No. 7, pp: 863-871, 2006.

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51. Barbat, T. and Ashgriz, N., "Planar Dynamics of Two Interacting Bubbles in an Acoustic Field," *Journal of Applied Mathematics and Computations*, Vol. 157, 2004, pp: 775-824.
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53. Hong, Y., Ashgriz, N., and Andrews, J., "Experimental Study of Bubble Dynamics on Micro Heaters Induced by Pulse Heating," *ASME Journal of Heat Transfer*, Vol. 126, No. 2, pp: 259-271, April 2004.
54. Hsu, C.F., and Ashgriz, N., "Impaction of a Droplet on an Orifice Plate," *Physics of Fluids*, Vol 16, No. 2, pp: 400-411, February 2004.
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2. A. Sarchami, N. Ashgriz, M. Kwee, "Comparison between Surface Heating and Volumetric Heating Methods inside CANDU Reactor Moderator Test Facility (MTF) Using 3D Numerical Simulation", 33rd Annual Conference of the Canadian Nuclear Society, CNS2012, Saskatoon-Saskatchewan, June 10-13 2012.
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5. S. Dadvar, S. Chandra, N. Ashgriz, & S. Drappel, "Adhesion of Wax Droplets to Porous Substrates," ASME Heat Transfer, Fluids Engineering & Nanochannels, Microchannels & Minichannels Conference, Puerto Rico, USA, July 8-12, 2012.
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1.2 5.4 Patents

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6. Research Facility

<u>Instrument or System</u>	<u>Value</u>
PHASE DOPPLER PARTICLE ANALYZER (PDPA)	\$350,000
PLANAR LASER INDUCED FLUORESCENCE (PLIF) SYSTEM	\$400,000
INTERFEROMETRIC PARTICLE IMAGING SYSTEM	\$120,000
YAG LASER	\$30,000
ELEMENTAL ANALYZER	\$80,000
HIGH-SPEED VIDEO CAMERA	\$90,000
3D TRAVERSE SYSTEM	\$45,000
THE VACUUM CHAMBER	\$150,000
SPRAY BOOTH	\$50,000
COMBUSTION CHAMBERS	\$50,000
SHOCK TUBE	\$40,000
THE ACOUSTIC LEVITATOR	\$30,000
BREATHING MACHINE	\$10,000
INHALER TESTING SYSTEM	\$10,000
DATA ACQUISITION SYSTEM	\$20,000

CURRICULUM VITAE - Professor Gerry Byrne. February 2013. 4) Founder of Council of Professors of Mechanical Engineering in Irish Universities Based on a German model (Wissenschaftliche Gesellschaft Produktionstechnik, WGP), Professor Byrne collaborated with the late Professor John Fitzpatrick of Trinity College Dublin to establish this new Council. Professor Byrne was the first Chairman of this Council which was established in 1995. Strategic issues in mechanical engineering in Ireland are being addressed by this Council. The curriculum vitae, also known as a CV or vita, is a comprehensive statement of your educational background, teaching, and research experience. It is the standard representation of credentials within academia. The full CV is only used when applying for academic positions in four-year institutions. Do not use a CV when applying to community colleges use a teacher-focused. Format can vary by field, so also seek disciplinary-specific advice from advisers, professors, and others within your field. There are no length restrictions for CVs. FORMATTING.