

Professor Suzanne Marie Kresta Curriculum Vitae, January 2018

Dean, College of Engineering
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Awards and Honors

Fellow, AIChE (2016), Engineers Canada (2014).

Engineers Canada Medal for Distinction in Engineering Education, 2014.

APEGA Summit Award for Excellence in Education, 2013.

Killam Annual Professor, 2012. University of Alberta award that recognizes a record of outstanding scholarship and teaching and substantial contributions to the community outside the University. Six are awarded annually.

Academic Women's Association Woman of the Year, 2012.

Alexander Rutherford Award for Excellence in Undergraduate Education, 2011. Up to six are awarded annually. This is only the (11th/140 total recipients) which has gone to a member of the Faculty of Engineering, 1982-2011.

McCalla Professor, 2008-2009.

Syncrude Canada Innovation Award, 2006: awarded by the Canadian Society for Chemical Engineering (CSChE) for distinguished contributions to the field of Chemical Engineering achieved before the age of 40.

Senior Moulton Medal, 2004: Institute of Chemical Engineers (UK) award recognizing the best publication of a mature nature published by the institute.

NAMF Award for Excellence in Mixing Research and Practice, 2004: North American Mixing Forum award for excellence and sustained contributions to mixing research and practice.

American Publishers' Association Award for Outstanding Achievements in Professional and Scholarly Publishing, 2004: awarded to the best book of a scholarly or intellectual nature published in the field of engineering in 2004.

YWCA Women of Distinction Award, Science and Technology Category, Edmonton, 2004.

Iron Ring Alternate Warden, Camp 6, 1999-2017, Honorary Warden, 2017.

CCPE Young Engineer Achievement Award, 1998. Awarded by Canadian Council of Professional Engineers (now Engineers Canada) for distinguished contributions to the field of engineering by the age of 35.

APEGGA Early Accomplishment Award, 1998. Association of Professional Engineers, Geologists and Geophysicists of Alberta (now APEGA).

Engineering Undergraduate Teaching Award, University of Alberta, 1993 and 1995.

Additional student awards include the Commonwealth Scholarship, NSERC PGS1 and 2, the CSChE undergraduate student paper competition (1st place, 1986), and Canada Cord Guide.

Education

P.Eng., May 14, 1993.

Ph.D. in Chemical Engineering, 1992, McMaster University.

M.Sc. - Integrated Design of Chemical Plant, 1987, Leeds University.

B.Sc.Eng. in Chemical Engineering, 1986, University of New Brunswick.

Employment

January 2018-	Dean, College of Engineering, University of Saskatchewan
July 1996-Dec 2017	Professor, Chemical and Materials Engineering, University of Alberta
July 2015-June 2017	Associate Dean, Faculty of Graduate Studies and Research, Univ. Alberta
Jan-Dec 2009	<i>Professeur invité</i> , Institut National Polytechnique, Toulouse, France.
Jan-June, 2014	Acting Associate Dean, Research and Planning, Faculty of Engineering
Jan-April 2006	Visiting Professor, Centre National de Recherche Scientifique, Laboratoire de Genie Chimique, Toulouse, France.
Sept-Dec 2005	Consultant, CoSyn Engineering, Edmonton.
Sept 1998-Sept 1999	Visiting Scientist, Kodak Research Labs, Rochester, NY
June 1996 and 1997	Consultant, DuPont Engineering Technology Group, Wilmington DE.
Aug 1995-Jan 1997	Part-time Childbirth and Parental leave.
July 1996-Sept 1998	Associate Chair, Chemical Engineering Program, Dept. of Chemical and Materials Engineering, University of Alberta.
July 1993-July 1996	Associate Professor, Chemical Engineering, University of Alberta.
July 1993 -July 1995	Graduate Coordinator, Chemical Engineering Program, University of Alberta.
Nov 1992-Jan 1993	Childbirth leave.
Jan 1992-July 1993	Assistant Professor, Chemical Engineering, University of Alberta.

Research

Research Publications

Handbooks (2)

1. Kresta, S.M., A.W. Etchells, D.S. Dickey, and V. Atiemo-Obeng, editors, **Advances in Industrial Mixing, a companion to the Handbook of Industrial Mixing**, Wiley, 2016. 961 pages plus Mixing Tutorials DVD, 28 chapters, 41 contributors.
2. Paul, E.L., V. Atiemo-Obeng and S.M. Kresta, editors, **Handbook of Industrial Mixing**, Wiley, 2004. 1450 pages plus Visual Mixing CD; 46 contributors; 22 chapters.

Refereed journal papers (62, h-index 22) education publications listed separately

1. Machado, Marcio B. and Suzanne M. Kresta, 2017, *Evolution of Bench Scale Mixing Devices: Getting Reliable Scale-up Data*, American Pharmaceutical Review, Sept/Oct 2017, 1-4.
2. Komrakova, Alexandra, Zheyuan Liu, Marcio B. Machado, and Suzanne M. Kresta, 2017, *Development of a zone flow model for the confined impeller stirred tank (CIST) based on mean velocity and turbulence measurements*, ChERD, **125**, 511-522.

3. Maluta, Francesco, Archie Eaglesham, Don Jones, Alexandra Komrakova, Suzanne M. Kresta, 2017, *A novel factorial design search to determine realizable constant sets for a multi-mechanism model of mixing sensitive precipitation*, Computers in Chemical Engineering, **106**, 322-338.
4. Machado, Marcio B. and Suzanne M. Kresta, 2016, *Scaling Down Local Mixing Effects for Biotechnology Applications*, American Pharmaceutical Review, 47-51. (invited paper for trade publication)
5. Chong, Jengyi, Marcio B. Machado, Nitin Arora, Sujit Bhattacharya, Samson Ng, and Suzanne M. Kresta, 2016, *Demulsifier Performance in Diluted Bitumen Dewatering: Effects of Mixing and Demulsifier Dosage*, Energy and Fuels, **30**, 9962–9974.
6. Chong, Jengyi, Marcio B. Machado, Sujit Bhattacharya, Samson Ng and Suzanne M. Kresta, 2016, *Reduce overdosing effects in chemical demulsifier performance by an increase in mixing energy and a decrease in injection concentration*, Energy and Fuels, **30**, 5183-5189.
7. Machado, Marcio B. and Suzanne M. Kresta, 2015, *When Mixing Matters: Choose Impellers Based on Process Requirements*, Chem. Eng. Prog., July 2015, 27-33.
8. Laplante, Patrick, Marico B. Machado, Sujit Bhattacharya, Samson Ng and Suzanne Kresta, 2015, *Demulsifier performance in froth treatment: Untangling the effects of mixing, bulk concentration and injection concentration using a standardized mixing test cell (CIST)*, Fuel Processing Technology, **138**, 361-367.
9. Ayranci, Inci, Suzanne Kresta, Jing Shen and Natalia Semagina, 2014, *Negative Impact of High Stirring Speed in Laboratory-Scale Three-Phase Hydrogenations*, IECRes, 53 (46), 18091-18094.
10. Ayranci, Inci and Suzanne M. Kresta, 2014, *Critical Analysis of Zwietering Correlation for Solids Suspension in Stirred Tanks*, ChERD, **92**, 413-422.
11. Calabrese, R.V., S.M. Kresta and M. Liu, Jan 2014, *Recognizing the 21 Most Influential Contributions to Mixing Research*, Chem. Eng. Prog., **110**, 20-29.
12. Machado, Marcio and Suzanne M. Kresta, 2013, *The Confined Impeller Stirred Tank (CIST): A Bench Scale Testing Device for Specification of Local Mixing Conditions Required at the Large Scale*, ChERD, **91**, 2209-2224.
13. Ayranci, Inci, S.M. Kresta, and J.J. Derksen, 2013, *Experiments and simulations on bi-disperse solids suspension in a mixing tank*, CET, **36**, 1957-1967.
14. Machado, Márcio B., Kevin Bittorf, Vesselina Roussinova, Suzanne M. Kresta, 2013, *Transition From Turbulent to Transitional Flow in the Top Half of a Stirred Tank*, Chem Eng Sci, **98**, 218-230.
15. Ayranci, Inci, Theodore Ng, Arthur W. Etchells III, and Suzanne M. Kresta, 2013, *Prediction of Just Suspended Speed for Mixed Slurries at High Solids Loadings*, ChERD, **91**, 227-233.
16. Shah, Syed Imran Ali, Larry W. Kostiuk and Suzanne M. Kresta, 2012, *The Effects of Mixing, Reaction Rates, and Stoichiometry on Yield for Mixing Sensitive Reactions—Part II: Design Protocols*, International Journal of Chemical Engineering, Article ID 654321, 13 pages, 2012. doi:10.1155/2012/654321.
17. Shah, Syed Imran Ali, Larry W. Kostiuk and Suzanne M. Kresta, 2012, *The Effects of Mixing, Reaction Rates, and Stoichiometry on Yield for Mixing Sensitive Reactions—Part I: Model Development*, International Journal of Chemical Engineering, Volume 2012, Article ID 750162, 16 pages, doi:10.1155/2012/750162.
18. Ayranci, Inci, Marcio B. Machado, Adam M. Madej, Jos J. Derksen, David S. Nobes, and Suzanne M. Kresta, 2012, *Effect of Geometry on the Mechanisms for Off-bottom Solids Suspension in a Stirred Tank*, Chem Eng Sci, **79**, 163-176.

19. Machado, Marcio, Roberto Nunhez, David Nobes, and Suzanne M. Kresta, 2012, *Impeller Characterization and Selection: Balancing Efficient Hydrodynamics with Process Mixing Requirements*, *AIChE Journal*, **58**, 2573-2588, doi: 10.1002/aic.12758.
20. Ayranci, Inci and Suzanne M Kresta, 2011, *Design Rules for Suspending Concentrated Mixtures of Solids in Stirred Tanks*, *ChERD*, **89**, 1961-1971.
21. Kukukova, Alena, Joelle Aubin and Suzanne M Kresta, 2011, *Measuring the Scale of Segregation in Mixing Data*, *CJChE*, **89**(5), 1122-1138.
22. Siddiqui, Shad, Peter J Unwin, Zhenghe Xu, and Suzanne M Kresta, 2009, *The Effect of Stabilizer Addition and Sonication on Nanoparticle Agglomeration in a Confined Impinging Jet Reactor*, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 350, 38-50.
23. Siddiqui, Shad, Yinan Zhao, Alena Kukukova, and Suzanne M. Kresta, 2009, *Characteristics of a Confined Impinging Jet Reactor: Energy Dissipation, Homogeneous and Heterogeneous Reaction Products, and Effect of Unequal Flow*, *I E C Res*, **48** (17), 7945-7958.
24. Kukukova, Alena, Joelle Aubin, and Suzanne M. Kresta, 2009, *A New Definition of Mixing and Segregation: Three Dimensions of a Key Process Variable*, *ChERD*, **87**, 633-647.
25. Khazam, Oscar and Suzanne M. Kresta, 2009, *A Novel Geometry for Solids Drawdown in Stirred Tanks*, *Chem Eng Res Des*, **87** (3), 280-290.
26. Kukukova, Alena, B. Noel, Suzanne M. Kresta and J. Aubin, 2008, *Impact of Sampling Method and Scale on the Measurement of Mixing and the Coefficient of Variance*, *AIChE J*, **54**, 3068-3083.
27. Khazam, Oscar and Suzanne M. Kresta, 2008, *Mechanisms of Solids Drawdown in Stirred Tanks*, *Can J Chem Eng*, **86**, Issue 4, 622-634.
28. Unwin, Peter J., Martina E. Rusnacik, Suzanne M. Kresta, and Alan E. Nelson, 2008, *Effect of Amine and Thiol Addition on the Surface Chemistry and Agglomeration of Fine Cu Powders*, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **325**, Issues 1-2, 72-80.
29. Roussinova V, and Suzanne M. Kresta, 2008, *Comparison of Continuous Blend Time and Residence Time Distribution Models for a Stirred Tank*, *IEC Res*, **47**, issue 10, 3532-3539.
30. Bhattacharya, Sujit, David Hebert and Suzanne M. Kresta, 2007, *Air Entrainment in Baffled Stirred Tanks*, *Chem. Eng. Res. Des.*, **85**, 654-664.
31. Ibemere, Solomon and Suzanne M. Kresta, 2007, *Modeling the Mixing and Dissolution Kinetics of Partially Miscible Liquids*, *Chem. Eng. Res. Des.*, **85**, 710-720.
32. Munoz, Alex, Stephen Craik and Suzanne Kresta, 2007, *Computational Fluid Dynamics for Predicting Performance of Ultraviolet Disinfection - Sensitivity to Particle Tracking Inputs*, *Journal of Environmental Engineering & Science*, **6**, 285-301.
33. Aubin, J., S.M. Kresta, J. Bertrand, C. Xuereb and D. F. Fletcher, 2006, *Alternate Operating Methods for Improving the Performance of Continuous Stirred Tank Reactors*, *Chem. Eng. Res. Des.*, **84**, 569-582.
34. Kresta, S.M., D. Mao and V.T. Roussinova, 2006, *Batch Blend Time in Square Tanks*, *Chem. Eng. Sci.*, **61**, 2823-2825.
35. Bhattacharya, S. and S.M. Kresta, 2006, *Reactor Performance with High Velocity Surface Feed*, *Chem. Eng. Sci.*, **61**, 3033-3043.
36. Kresta, S.M, G.L. Anthieren and K. Parsiegla, 2005, *Model Reduction for Prediction of Silver Halide Precipitation*, *Chem. Eng. Sci.*, **60**, 2135-2153.

37. Bhattacharya, S. and S.M. Kresta, 2004, *Surface Feed with Minimum By-product Formation for Competitive Reactions*, Chem. Eng. Res. Des., **82**, 1153-1160.
38. Kresta, S.M, G.L. Anthieren and K. Parsiegla, 2004, *Mixing Effects in Silver Halide Precipitation: Linking Theory with Practice using a Multi-Mechanism Model*, Chem. Eng. Res. Des., **82**, 1117-1126. *Awarded the Senior Moulton Medal for 2004.*
39. Roussinova, V.T., R. Weetman, and S.M. Kresta, 2004, *Resonant Geometry for Circulation Pattern Macro instabilities in a Stirred Tank*, AIChE J, **50**, 2986-3005.
40. Kresta, S.M. and V.T. Roussinova, 2004, *Comments to "On the origin, frequency and magnitude of macro-instabilities of the flows in stirred tanks" by Nikiforaki et al.*, Chem. Eng. Sci., **59**, 951-953.
41. Kresta, S.M., R. Krebs and T. Martin, 2004, *The Future of Mixing Research*, Chem. Eng. Tech., **27**, 208-214. *invited plenary paper*
42. Bittorf, K.J. and S.M. Kresta, 2003, *Prediction of Cloud Height for Solid Suspensions in Stirred Tanks*, Chem. Eng. Res. Des., **81**, 568-577.
43. Roussinova, V., S.M. Kresta and R. Weetman, 2003, *Low frequency macro instabilities in a stirred tank: scale-up and prediction based on large eddy simulations*, Chem. Eng. Sci., **58**, 2297-2311.
44. Bhattacharya, Sujit and Suzanne M. Kresta, 2002, *CFD Simulations of the Three Dimensional Wall Jets in Stirred Tanks*, Can. J. Chem. Eng., **80**, 695-709.
45. Chapple, D., S.M. Kresta, A. Wall and A. Afacan, 2002, *The Effect of Impeller and Tank Geometry on Power Number for a Pitched Bladed Turbine*, Chem. Eng. Res. Des., **80**, 364-372.
46. Kresta, Suzanne M., Kevin J. Bittorf and David J. Wilson, 2001, *Internal Annular Wall Jets: Radial Flow in a Stirred Tank*, AIChE Journal, **47**, 2390-2401.
47. Bittorf, K.J. and Suzanne M. Kresta, 2001, *Three Dimensional Wall Jets: Axial Flow in a Stirred Tank*, AIChE Journal, **47**, 1277-1284.
48. Roussinova, V., B. Grgic and Suzanne M. Kresta, 2000, *Study of Macro-Instabilities in Stirred Tanks using a Velocity Decomposition Technique*, Chem. Eng. Res. Des., **78**, 1040-1052.
49. Bittorf, K.J. and Suzanne M. Kresta, 2000, *Active Volume of Mean Circulation for Stirred Tanks Agitated with Axial Impellers*, Chem. Eng. Sci., **55**, 1325-1336.
50. Kresta, Suzanne M., 1998, *Turbulence in Stirred Tanks: Anisotropic, Approximate, and Applied*, Can. J. Chem. Eng., **76**, 563-576. *invited review paper*
51. Zhou, Genwen, and Suzanne M. Kresta, 1998, *Correlation of Mean Drop Size with the Turbulence Energy Dissipation and the Flow in an Agitated Tank*, Chem. Eng. Sci., **53**, 2063-2079.
52. Zhou, Genwen, and Suzanne M. Kresta, 1998, *Evolution of Drop Size Distribution in Liquid-Liquid Dispersions for Various Impellers*, Chem. Eng. Sci., **53**, 2099-2113.
53. Mishra, Vedprakash, Suzanne M. Kresta and Jacob H. Masliyah, 1998, *Self-Preservation of the Drop Size Distribution Function, and Variation in the Stability Ratio for Rapid Coalescence of a Polydisperse Emulsion in a Simple Shear Field*, J. Colloid and Interface Science, **197**, 57-67.
54. Zhou, Genwen, and Suzanne M. Kresta, 1996, *Impact of Geometry on the Maximum Turbulence Energy Dissipation Rate for Various Impellers*, AIChE Journal, **42**, 2476-2490.
55. Zhou, Genwen, and Suzanne M. Kresta, 1996, *Distribution of Energy Between Convective and Turbulent Flow for Three Frequently Used Impellers*, Chem. Eng. Res. Des., **74A**, 379-389.
56. Roberts, Randy M., Murray R. Gray, Brad Thompson, and Suzanne M. Kresta, 1995, *The Effect of Impeller and Tank Geometry on Circulation Time Distributions in Stirred Tanks*, Chem. Eng. Res. Des., **73A**, 78-86.

57. Chapple, Dallas, and Suzanne M. Kresta, 1994, *The Effect of Geometry on the Stability of Flow Patterns in Stirred Tanks*, Chem. Eng. Sci., **49**, 3651-3660.
58. Fokema, Mark D., Suzanne M. Kresta and P.E. Wood, 1994, *Importance of Using the Correct Impeller Boundary Conditions for CFD Simulations of Stirred Tanks*, Can. J. Chem. Eng., **72**, 177-183.
59. Kresta, Suzanne M., and Philip E. Wood, 1993, *The Flow Field Produced by a Pitched Blade Turbine: Characterization of the Turbulence and Estimation of the Dissipation Rate*, Chem. Eng. Sci., **48**, 1761-1774.
60. Kresta, Suzanne M., and Philip E. Wood, 1993, *The Mean Flow Field Produced by a 45 Degree Pitched Blade Turbine: Changes in the Circulation Pattern Due to Off Bottom Clearance*, Can. J. Chem. Eng., **71**, 42-53.
61. Kresta, Suzanne M., and Philip E. Wood, 1991, *Prediction of the Three Dimensional Turbulent Flow in Stirred Tanks*, AIChE Journal, **37**, 448-460.
62. Karman, D. and S. Kresta, 1987, *Sulfation of Mineral Matter in New Brunswick Oil Shale*, Energy and Fuels, **1**, 484-488.

Book Chapters and Encyclopedia Entries (11)

1. Etchells, A.W., David S. Dickey, Suzanne M. Kresta, Thomas Martin and Henry Zhang, 24 *Instructional Videos*, in **Advances in Industrial Mixing: A Companion Volume to the Handbook of Industrial Mixing**, Wiley, 2015.
2. Kresta, Suzanne M., and David S. Dickey, *Flow Patterns and Mixing*, in **Advances in Industrial Mixing: A Companion Volume to the Handbook of Industrial Mixing**, 34 pages, Wiley, 2015.
3. Machado, Marcio and Suzanne Kresta, *Turbulence in Mixing Applications*, in **Advances in Industrial Mixing: A Companion Volume to the Handbook of Industrial Mixing**, 38 pages, Wiley, 2015.
4. Aubin, Joelle and Suzanne M. Kresta, *A technical definition of mixing*, in **Advances in Industrial Mixing: A Companion Volume to the Handbook of Industrial Mixing**, 10 pages, Wiley, 2015.
5. Kresta, Suzanne M., *Turbulent Mixing Fundamentals*, in **Pharmaceutical Blending and Mixing**, ed. PJ Cullen and Chris Reilly, Wiley, 2015.
6. Paul, E.L., S.M. Kresta and A.W. Etchells, *Mixing and Chemical Reactions*, in the **Encyclopedia of Chemical Processing**, 1699-1708, Taylor and Francis, 2006.
7. Patterson, G.K., E.L. Paul, S.M. Kresta and A.W. Etchells, *Mixing and Chemical Reactions*, **Handbook of Industrial Mixing** eds. Paul, Atiemo-Obeng and Kresta, 114 pgs., Wiley, 2004.
8. Kresta, Suzanne M., and R. S. Brodkey, *Turbulence in Mixing Applications*, **Handbook of Industrial Mixing** eds. Paul, Atiemo-Obeng and Kresta, 60 pgs., Wiley, 2004.
9. Kresta, Suzanne M. and Keith Boyle, *Visual Mixing*, CD ROM to accompany the **Handbook of Industrial Mixing**, a collection of approximately 50 video clips illustrating the fundamentals of mixing with explanatory storyboards and cross links, Wiley, 2004.
10. Paul, E. L., V. Atiemo-Obeng and Suzanne M. Kresta, *Editors' Introduction*, in **The Handbook of Industrial Mixing**, 60 pgs., Wiley, 2004.
11. Kresta, Suzanne M., 1996, *Boundary Conditions Required for the CFD Simulation of Flows in Stirred Tanks*, in the book **Advances in Fluid Mechanics: Multiphase Reactor and Polymerization System Hydrodynamics**, N. P. Cheremisinoff ed., pp. 297-316.

Refereed or Invited Conference Proceedings (13, details on request)

Theses (Supervised 5 PhD, 18 MSc, 2 MEng)

1. Ulrich, Dustyn, September 2017, *Development of a method to detect and quantify time-dependent yield stress in mineral slurries*, Masters, University of Applied Sciences, Merseburg, Germany.
2. Saraka, Colin, May 2017, *Mixing and Settling Characterization in Low-Quality Bitumen Froth Treatment*, MSc, University of Alberta.
3. Arora, Nitin, June, 2015, *Mechanisms of Aggregation and Separation of Water and Solids from Bitumen Froth using Cluster Size Distribution*, MSc, University of Alberta.
4. Akorede Awosemo, January 2015, *The Effect of Sampling Orientation on Mixing and Settling Data Obtained During Diluted Bitumen Clarification in a Confined Impeller Stirred Tank*, MEng Project, University of Alberta.
5. Chikosulu (Trina) Ginegeme, January 2015, *Effects of Heterogeneity on Polymer Flooding*, MEng Project, University of Alberta.
6. Shaun Leo, August 29, 2013, *Measurement and Analysis of Changes in Drop Size Distribution during Bitumen Clarification using Image Analysis*, MSc Thesis, University of Alberta.
7. Navid Ershad, August 27, 2013, *Concentration and Mixing Effects on the Production of Amine Hydrochloride Salts in a Confined Impinging Jet Reactor*, MSc Thesis, University of Alberta.
8. Jeng Yi Chong, August 22, 2013, *Mixing Effects on Chemical Demulsifier Performance in Diluted Bitumen and Froth*, MSc Thesis, University of Alberta.
9. Ayranci, Inci, March 22, 2012, *Suspension of Mixtures of Solids in Stirred Tanks: Problem Definition and Model Identification*, PhD Thesis, University of Alberta.
10. Laplante, Patrick G, September 12, 2011, *On Mixing and Demulsifier Performance in Oil Sands Froth Treatment*, MSc Thesis, University of Alberta.
11. Abdurrahman, Abdul, August 1, 2011, *Simulation model for the optimization of a post-combustion CO₂ capture, transport and sequestration system*, MEng project report, University of Alberta.
12. Shah, Imran, February 25, 2010, *Study of the Effects of Mixing, Reaction Rates and Stoichiometry on Yield for Mixing Sensitive Reactions*, MSc thesis, University of Alberta.
13. Siddiqui, Shad, May 4, 2009, *Use of the CIJR for Production of Nanoscale Metal Powders*, PhD thesis, University of Alberta.
14. Khazam, Oscar, April 30, 2007, *Drawdown of Floating Solids in Stirred Tanks*, MSc Thesis, University of Alberta, Canada.
15. Ibemere, Solomon, December 22, 2005, *Dissolution Kinetics of Liquid-Liquid Dispersions using Local Rates of Turbulent Dissipation*, MSc Thesis, University of Alberta, Canada.
16. Bhattacharya, Sujit, September 7, 2005, *Performance Improvement of Stirred Tank Reactors with Surface Feed*, PhD Thesis, University of Alberta, Canada.
17. Munoz, Alex, April 2004, *CFD simulation of UV reactors for disinfection of drinking water*, MSc Thesis, University of Alberta, Canada.
18. Kennedy, Corrina, September 2003, *Rapid Mixing with HEV Static Mixers during Aluminum Hydroxide Precipitation and Coagulation with Alum*, MSc Thesis, University of Alberta, Canada.

19. Anthieren, Gary L., September 2003, *Eulerian-Lagrangian Model of Turbulent Mixing for Silver Halide Precipitation*, MSc Thesis, University of Alberta, Canada.
20. Roussinova, Vesselina T., September 2001, *Low Frequency Macroinstabilities in a Stirred Tank*, MSc Thesis, University of Alberta, Canada.
21. Hemsing, Jordi L., August 2001, *Kinetics of Blending for Soluble Polymer Additives*, MSc thesis, University of Alberta, Canada.
22. Bittorf, Kevin J., August 2000, *The Application of Wall Jets in Stirred Tanks with Solids Suspension*, PhD thesis, University of Alberta, Canada.
23. Chen, Mei, August 1999, *Characteristics of the Vortex Structure in the Outlet of a Stairmand Cyclone: Regular Frequencies and Reverse Flow*, M.Sc. thesis, University of Alberta, Canada.
24. Serink, Mike, April 1999, *The Impingement Point of the Discharge of a Pitched Blade Turbine in a Stirred Tank*, Senior Research Project Report, University of Alberta.
25. Grgic, Biljana, August, 1998, *Influence of the Impeller and Tank Geometry on Low Frequency Phenomena and Flow Stability*, M.Sc. thesis, University of Alberta, Canada.
26. Zhou, Genwen, October 1996, *Characteristics of Energy Dissipation and Liquid-Liquid Dispersions in an Agitated Tank*, Ph. D. thesis, University of Alberta, Canada.
27. Kresta, S., 1991, *Characterization, measurement, and prediction of the turbulent flow in stirred tanks*, PhD thesis, McMaster University, Hamilton, Canada.
28. Kresta, S., 1987, *Integration of H2LK, a stand-alone thermodynamics package, into an in-house simulation package, and development of a generalized procedure for integration of other thermodynamics packages*, M.Sc. dissertation, Leeds University, England.
29. Kresta, S., 1985, *Characterization of Oil Shale Using X-ray Powder Diffraction and Scanning Electron Microscopy*, Internal Report, Dept. of Chemical Engineering, University of New Brunswick.
30. Kresta, S., 1985, *Causes and Prevention of Corrosion at the Screw-Plate Interface of 316L Stainless Steel Orthopaedic Implants*, B.Sc. thesis, Dept. of Chemical Engineering, University of New Brunswick.

Research Presentations

Plenary, Keynote and Award Presentations (8, 5 most recent listed)

1. Kresta, S., *Liquid Draw-down and Dispersion: Scaling Down to a CIST*, Invited Keynote, International Symposium on Mixing in Industrial Processes (ISMIP 9), Birmingham UK, June 25-28, 2017.
2. Márcio B. Machado* and Suzanne M. Kresta, *Scaling-Down Local Mixing Effects for Biotechnology Applications, invited presentation*, The Bioprocessing Summit, Boston, August 15-19, 2016.
3. Kresta, S. and Inci Ayranci, *Suspending Mixtures Of Solids In Stirred Tanks - Complexities and Solutions*, Invited Keynote, European Congress on Chemical Engineering, Nice, France, September 30, 2015.
4. Richard V. Calabrese, Minye Liu, and Suzanne M. Kresta, *21 Most Influential Contributions to Mixing Research*, Invited Plenary Talk, Mixing 23, Quintana Roo, Mexico, June 17-22, 2012.
5. Kresta, S., Machado, Marcio, David Nobes, and Roberto Nunhez, *Impeller Characterization and Selection: Balancing Efficient Hydrodynamics with Process Mixing Requirements*, Invited Keynote, International Symposium on Mixing in Industrial Processes (ISMIP7) Beijing, September 18-22, 2011.

Archived Webinars or intraweb-based training modules (2)

1. Kresta, Suzanne M and Joelle Aubin, 2010, *What is Well Mixed?*, an intra-web based teaching module for Proctor and Gamble.
2. Kresta, Suzanne, *Identifying Mixing Problems*, AIChE Webinar, June 9, 2010 (archived on-line at <http://www.aiche.org/resources/chemeondemand/webinars/identifying-mixing-problems>).

Research Based Conference presentations (121 total, 20 most recent listed)

1. Hena Farooqi*, Suzanne M. Kresta and Heather D. Dettman, *Factorial Design Study of Diluted Bitumen and Conventional Crude Behaviour in Water Environments*, 67th Canadian Chemical Engineering Conference, Edmonton, Oct 22-25, 2017.
2. Runzhi (Anna) Xu*, Colin Saraka, Suiit Bhattacharva, Samson Ng, and Suzanne M. Kresta. *Analysis of Froth Separation Behavior during Induction Time for Poor Quality Froth* 67th Canadian Chemical Engineering Conference, Edmonton, Oct 22-25, 2017.
3. Khilesh Jairamdas*, Nicol Pinto, Akshav Bhalerao, Marcio B. Machado, and Suzanne M. Kresta. *Blend Time Measurements in a Confined Impeller Stirred Tank using Image Analysis* 67th Canadian Chemical Engineering Conference, Edmonton, Oct 22-25, 2017.
4. Fatemeh Safari Alamuti*, Marcio B. Machado, Akshav Bhalerao, Suzanne M. Kresta, and Alexandra Komrakova. *Liquid Drawdown and Dispersion: Scaling Rotational Speed and Mean Chord Length with Mixing Power and Mixing Energy*, 67th Canadian Chemical Engineering Conference, Edmonton, Oct 22-25, 2017.
5. Francesco Maluta, Alexandra Komrakova and Suzanne M. Kresta*. *A novel factorial design search to determine realizable constant sets for a multi-mechanism model of mixing sensitive precipitation*, 10th World Conference of Chemical Engineering, Barcelona, Spain, Oct 1st-5th, 2017.
6. Dustyn Ulrich, Marcio Machado, Ameneh Shokrollahzadeh, Sean Sanders, Thomas Martin and Suzanne M. Kresta. *Yield Stress Build up in Mineral Slurries and Implications for Design of Mixing Equipment*, 10th World Conference of Chemical Engineering, Barcelona, Spain, Oct 1st-5th, 2017.
7. Marcio B. Machado, Khilesh Jairamdas, Akshav Bhalerao, Nicol Pinto, and Suzanne M. Kresta. *Blend Time Measurements in a Confined Impeller Mixing Test Cell*, 10th World Conference of Chemical Engineering, Barcelona, Spain, Oct 1st-5th, 2017.
8. Dustyn Ulrich, Sean Sanders, and Suzanne Kresta*, *Structure build-up in mineral slurries*, CSChE National Conference, Quebec City, October 16-19, 2016.
9. Fatemeh Safari Alamuti, Akshay Bhalerao, Marcio Machado, Alexandra Komrakova, Suzanne Kresta*, *Mixing Energy as a Possible Scaling Variable for Liquid-Liquid Dispersion*, CSChE National Conference, Quebec City, October 16-19, 2016.
10. Francesco Maluta, Alexandra Komrakova, Suzanne M. Kresta*, *Mixing Models for Reactive Systems: Micro-mixing, Meso-mixing, and Reactive Precipitation*, Mixing 25, Quebec City, June 25-30, 2016.
11. Francesco Maluta*, Alexandra Komrakova, Archie Eaglesham, Don Jones, Suzanne M. Kresta, *The optimization of mechanistic model parameters to predict undesired reactive precipitation of by-products*, poster Mixing 25, Quebec City, June 25-30, 2016.
12. Fatemeh Safari*, Akshay Bhalerao, Marcio Machado, Alexandra Komrakova and Suzanne M. Kresta, *Effect of mixing energy on the transient drop size during liquid-liquid drawdown in different tank geometries using in-situ FBRM*, poster Mixing 25, Quebec City, June 25-30, 2016.

13. Colin Saraka*, Márcio B. Machado, Samson Ng, Sujit Bhattacharya, Suzanne M. Kresta, *Uncovering Dynamics of Meso-mixing in the Feed Plume for Froth Dewatering Using In-Situ FBRM and PVM*, poster Mixing 25, Quebec City, June 25-30, 2016.
14. Akshav Bhalerao, Alexandra E. Komrakova, Marcio Bezerra Machado, Suzanne Kresta* and Fatemeh Safari, *Drawdown of Liquid-Liquid Systems: Comparing Performance of Conventional Stirred Tank and Confined Impeller Stirred Tank*, AIChE Annual Meeting, Salt Lake City, Nov 8-13, 2015.
15. Nitin Arora*, Suzanne Kresta, Samson Ng, and Sujit Bhattacharya, *Mechanistic Study of Water/Solids Settling in a Diluted Bitumen System: Statistical and Image Analysis*, AIChE Annual Meeting, Salt Lake City, Nov 8-13, 2015.
16. Alexandra E. Komrakova, Suzanne Kresta*, Archie Eaglesham, and Don Jones, *Mechanistic Model Development of Amine Hydrochloride Salts Production in a Confined Impinging Jet Reactor*, AIChE Annual Meeting, Salt Lake City, Nov 8-13, 2015.
17. Marcio Bezerra Machado* and Suzanne M. Kresta, *The Confined Impeller Stirred Tank (CIST): A New Mixing Device Designed to Properly Scale-Down Local Mixing Effects in Industrial Applications*, AIChE Annual Meeting, Salt Lake City, Nov 8-13, 2015.
18. Suzanne M. Kresta, *Advances in Industrial Mixing: We've Come a Long Way!* AIChE Annual Meeting, Salt Lake City, Nov 8-13, 2015.
19. Kresta, S.*, *What does well mixed mean?* AIChE Student Conference, Salt Lake City, Nov 8-13, 2015. Presented twice to a total of approximately 300 students
20. Saraka, C.*, N. Arora, S. Kresta, S. Bhattacharya and S. Ng, *Performance of FGRM and PVM for Measurements in Bitumen Froth*, Canadian Society for Chemical Engineering Annual Meeting, Calgary, Alberta, October 6-8, 2015.

Invited Research Talks (54, 5 most recent listed)

1. S. Kresta*, *The Effect of Mixing on Naphtha Addition, Bitumen Dewatering and Froth Treatment*, Syncrude Emulsion Workshop, Edmonton, August 2-3, 2017.
2. Machado, M. B.; Kresta, S. M. In *Results of Dynamic FBRM Measurements in a Confined Impelled Stirred Tank (CIST) for O/W, W/O, Phase Inversion, and Bitumen Dewatering Studies*. Process Development & Scale-up, Houston, Texas, USA, June 28, 2017; Mettler Toledo: Houston, Texas, USA, 2017.
3. S. Kresta, *What do you mean by Well Mixed?*, Lightnin SPX, Rochester, NY, September 2016.
4. S. Kresta, *From Nano to Mega: Scaling Down Industrial Conditions for Pharmaceutical Development and Scaling up to Very Large Scale Oil Sands Extraction and Upgrading*, Rutgers University, New Jersey, December 3, 2015.
5. S. Kresta, *When Mixing Matters: Scaling Down Industrial Conditions for Chemical Synthesis and Reactor Design*, Middle East Technical University, Ankara, Turkey, September 28, 2015.

Short Courses (6+NAMF conferences, details on request)

Research Grants and Contracts (49, total \$4.23M at May 2016, details on request)

Research Highly Qualified Personnel (58 since 1995, details on request)

Teaching

Teaching Publications

Books (used as textbook in several mixing courses, cross listed under research)

1. Kresta, S.M., A.W.E. Etchells, D.S. Dickey, and V. Atiemo-Obeng, editors, **Advances in Industrial Mixing, a companion to the Handbook of Industrial Mixing**, Wiley, 2016. 961 pages plus Mixing Tutorials DVD, 28 chapters, 41 contributors.
2. Paul, E.L., V. Atiemo-Obeng and S.M. Kresta, editors, **Handbook of Industrial Mixing**, Wiley, 2004. 1450 pages plus Visual Mixing CD; 46 contributors; 22 chapters.

Refereed Publications (8)

1. Suzanne Kresta and Inci Ayranci, 2017, *Psychrometric Charts in Color: An Example of Active Learning for Chemical Engineering Students and Faculty Members*, Education for Chemical Engineers, accepted July 17.
2. Kresta, Suzanne M., 2017, *They Copied it RIGHT OUT of the Solution Manual!* invited editorial, Chemical Engineering Education, 51 (1), 10.
3. Suzanne Kresta and Inci Ayranci, *Bi-modal no more: Shifting the curve in material and energy balances courses*, AC 2011-1283, ASEE Conference Proceedings, Vancouver, June 2011.
4. Suzanne Kresta*, Uttandaraman Sundararaj and John Nychka, *Building an Engaged, Collaborative, and Inspired Teaching Culture*, AC 2011-1269, ASEE Conference Proceedings, Vancouver, June 2011.
5. Suzanne Kresta*, John Nychka, and Roger Graves, AC 2011-1164, *Writing Well²: Building Traction and Triumph into Co-Authorship*, ASEE Conference, Vancouver, June 2011.
6. Nelson, A.E. and S.M. Kresta, *Team Teaching of Thermodynamics: Rapid Instructional Development in Young Academics*, proceedings of the American Society for Engineering Education Annual Meeting, Salt Lake City, June 2004.
7. Kresta, S. and K. Boyle, *Visual Mixing: A Video Resource for the Alberta Grade 8 Curriculum*, October, 2003.
8. Kresta, Suzanne, 1998, *Hands-on Demonstrations: An Alternative to Full Scale Lab Experiments*, Journal of Engineering Education, **87**, 7-9.
9. Kresta, Suzanne M., Andree Koenig and Murray R. Gray, 1997, *Choosing an Optimum Feedstock for Yeast Production: A Design Oriented Senior Laboratory Experiment*, Chemical Engineering Education, **31**, 1, 22-25.

Teaching Presentations

Major Award and Plenary Lectures – Engineering Education (7)

1. Kresta, S., *Teaching Excellence in a Research Intensive University*, Morning Plenary, Olive Young Teaching and Learning Day, Faculty of Nursing, University of Alberta, March 24, 2017.
2. Kresta, S., *Whole-Hearted and Single Minded: Living a 3-Dimensional, Highly Engaged Life - up-shifting from balance to harmony to symphony*, Invited Plenary, Engineers Without Borders National Conference, Edmonton, Jan 13-15, 2017.
3. Kresta, S., *Bimodal No More – Shifting the Curve from Failure to Mastery in Mass and Energy Balances and Plant Design*, invited keynote at the European Congress on Chemical Engineering, Nice, France, October 1, 2015.

4. Kresta, S., *Innovation, Reliability, or Both? Education for Engineers as Entrepreneurs and Leaders*, Lectures at the Leading Edge, University of Toronto Dept of Chemical and Biological Engineering, January 14, 2014. **note that this was the first LLE given on engineering education**
5. Kresta, S., *Innovation and Reliability in Engineering Education: A Both/And Possibility*, Plenary Lecture, Canadian Engineering Education Association, Montreal, June 2013.
6. Kresta, Suzanne, *Exploring Examples*, Inaugural Lecture for the Catalysts: A Conversation Series on Teaching by various major teaching award winners at the University of Alberta. Sponsored by the Center for Teaching and Learning, March 18, 2013.
7. Kresta, Suzanne M., 2000, *Water into Wine: Guiding New Professors on their Path to Greatness*, Invited Speaker, McMaster Centre for Leadership in Learning Symposium on Helping students become more self-directed in their learning, June 12, 2000.

Invited Talks and Workshops – External (14)

1. Kresta, S., *Teaching Certification: engaging everyone from Students to Professors*, University of Newcastle, UK, June 24, 2017.
2. Kresta, S., *Great things happen when teaching certification works*, University of Newcastle, UK, June 24, 2017.
3. Kresta, S., *Innovation and Reliability in Engineering Education*, Rutgers University, December 4, 2015.
4. Kresta, S., *Writing Well²- Building Traction and Triumph into Co-authorship*, North Carolina State University Department of Chemical and Biological Engineering, September 14, 2015.
5. Kresta, S., *Innovation in Engineering: Expanding our Perspective*, Friday Forum, Syncrude Research, Edmonton, March 28, 2014.
6. Kresta, S., *The Power of a Great Example*, Invited Workshop, Dept of Chemical and Biological Engineering, University of Toronto, January 14, 2014.
7. Kresta, S., *Innovation and Rigor in Engineering Education and Design: A Both/And Possibility*, Discovery Seminar, Ecole Polytechnique, Montreal, Nov 29, 2013.
8. Kresta, S., *Do Teaching Practices Really Impact Student Learning? (Yes!)*, Invited workshop, University of Ottawa, Nov 22, 2013.
9. Kresta, S., *Don Woods – Innovation in Engineering Education*, Invited contribution, AIChE Annual Meeting, San Francisco, Nov 2-7, 2013.
10. Kresta, S., *The Power of a Great Example*, UBC Department of Chemical and Biological Engineering, March 5, 2013.
11. Suzanne M Kresta, *Building an Engaged, Collaborative, and Inspired Teaching Culture*, Chairs Workshop, ACCCE meeting, Calgary, May 31, 2012.
12. U. Sundararaj, S.M. Kresta, L. Mallory, J.A. Nychka, J.A.W. Elliott, J. Derksen, R. Eadie, L. Unsworth, M. Kloster, *Teaching Triads: A skit about how Teaching Triads are used as a tool for professors to learn how to teach from their peers*. One of six submissions to be selected for an oral stage presentation at the Festival of Teaching and Learning, University of Alberta, January 27, 2009.
13. Kresta, S. *Panel Discussion on Mixing and Education – Current State and NAMF's Role*, NAMF Biennial Conference, Mixing 21, Parksville, Utah, June 17-22, 2007. *invited panelist*
14. Kresta, Suzanne, *Making Technology Touchable*, half-day, 33rd Alberta Teachers' Association Science Council Annual Conference, Edmonton, Oct. 22-24, 1993

Conference Presentations and Workshops (28, 10 most recent listed)

1. Abdulnabi, Ahlam and Suzanne M. Kresta, *A Survey of Requirements for Lanauaae Courses in Accredited Engineering Proarams across Canada: Responses to CEAB Requirements*, 67th Canadian Chemical Engineering Conference, Edmonton, Oct 22-25, 2017.
2. Kresta, S.M., Renee Polziehn, Deanna Davis, John Nychka, and Heather Zwicker, *Graduate Student and Faculty Development in Teaching and Learning at the University of Alberta*, 10th World Congress of Chemical Engineering, Barcelona, October 1-5, 2017.
3. Suzanne Kresta, Renee Polziehn, Deanna Davis, John Nychka, and Heather Zwicker, *Graduate Teaching and Learning Program: Creating the Future*, Festival of Teaching, University of Alberta, May 3-4, 2017.
4. Alyona Sharunova, Mehwish Butt, Suzanne Kresta, Jason Carey, Loren Wyard-Scott, Samer Adeen, Lucienne Blessing, Ahmed J. Qureshi, *An Educational Framework for Undergraduate Engineering Design Curriculum Development*, Festival of Teaching, University of Alberta, May 3-4, 2017.
5. Kresta, S. et al., *Let's Stop Reinventing the Wheel: Continuous Course Improvement Across Instructors and Sections*, CSChE National Conference, Quebec City, October 16-19, 2016. *Posted on CIC website and newsletter as a webinar:*
<http://cic.sclivelearningcenter.com/index.aspx?PID=7247&SID=223037>
6. Kresta, S., *Whole-Hearted Excellence: remaining whole while serving the world*, Invited workshop for African Long Term Fellows and Kumvana Fellows, Engineers Without Borders National Conference, Edmonton, Jan 13-15, 2017.
7. Kresta, S. and P. Schiavone, *Sharing the Excitement of Learning Design in Graduate Course Projects*, Canadian Society for Chemical Engineering Annual Meeting, Calgary, Alberta, October 6-8, 2015.
8. Kresta, S., *Impact of Informed Course Design and Data Driven Course Improvement in Student Learning*, invited workshop at the Canadian Society for Chemical Engineering Annual Meeting, Calgary, Alberta, October 6-8, 2015.
9. Kresta, S. *Active Learning: The Devil is in the Details*, Canadian Society for Chemical Engineering Annual Meeting, Calgary, Alberta, October 6-8, 2015.
10. Kresta, S., J. Nychka, and K. Cor, *Designing Robust Tests*, workshop at the Canadian Engineering Education Association Conference, Canmore, Alberta, June 8, 2014.

Internal Workshops (17 plus 24 (New) Faculty Forums, details on request)

Mentoring of Teaching Assistants, Sessionals, and Early Career Instructors (details on request)

Funding for Teaching Projects (8, last 5 listed)

1. TLEF (Ahmed Qureshi, PI), *Transdisciplinary Design Education for Engineering Undergraduates*, \$128 240, July 2016-June 2018.
2. Fraser and Shirley Russell Teaching Fellowship (awarded to Ardalan Sadighian) *Development of Open Ended Assignment Problems in Design (ChE 464)* joint with Arno de Klerk, Sept-Dec, 2011.
3. Fraser and Shirley Russell Teaching Fellowship (awarded to Inci Ayranci) *Development of Structured Problem Solving and Visual Learning Tools for CME 265*, Sept-Dec 2010.
4. TLEF (John Nychka PI), *Formative Assessment Technique Development in Engineering*, \$20 230+\$17000 matching, March 2008-June 2010.
5. McCalla Professorship, *Visual Thinking and Learning*, \$32 000, July 2008-July 2009.

Courses Taught

Course number (contact hours per week, number of times taught) Course Name: *major development work is briefly described in italics, where a * indicates that a refereed publication documents the development work*

years taught: full list of offerings

ChE 358 (9 hrs; 1x) Advanced Process Analysis: *industrial statistics, shifted the focus to analysis of the results, collaborated with Stollery Executive in Residence Jim Kresta and mentored TA Nadia Shardt, added bi-weekly quizzes and discussion periods*

years: 2016.

CME 265 (9 hrs;14x) Process Analysis: *incorporated industrial best practice structured problem solving tools, visual learning, and active learning approaches which shifted the distribution of student performance on the final exam from underperforming (bulge below average) to high performing (bulge above average)*

years: 1994, 1995, 1997, 1998, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2012.

ChE 464/365 (6 hrs, 8x) Process Design I: *fully integrated team taught course with individual industrially sponsored projects; the course is very dynamic and student centered, so we serve primarily as guides and facilitators*

years: 2001, 2002, 2003, 2004, 2007, 2008, 2009, 2010, 2011, 2013.

ChE 420/520/620 (4 hrs, 5x), Mixing in the Process Industries: *new course in 1998; developed and published CD of mixing videos which was adapted for Alberta Junior High Teachers*; co-edited 2 major handbooks* now used as a text and as a training manual by mixing equipment vendors; developed mixing demo-labs; final exam in this course is a teaching assignment where students develop a new problem for future course offerings.*

years: 1998, 2001, 2004, 2007, 2010, 2013, 2015, 2017.

CME 481 (1 hr, 8x) Colloquium I (public speaking) and/or

CME 483 (1 hr, 4x) Colloquium II (technical presentations): *shifted teaching approach in the course from acting only as a critic to integrating all of the lessons from a session of three presentations to give the students a summary and perspective on key take aways*

years: 1995, 1999-2006, 2011, 2012.

ChE 312 (4 hrs, 7x) Introduction to Fluid Mechanics: *developed 6 classroom demos* in 1993 which are still in use in the course. These demos give TA's a structured teaching experience where they give the same short lesson 4 or 5 times to hone their teaching skills. At least two former 312 TA's (Sharp, Mees) became faculty members at the University of Alberta.*

years: 1992, 1993, 1994, 1999, 2000, 2001, 2002.

CME 200/ChE 285 (1 hr;5x) Introduction to the Chemical and Materials Process Industry: *restructured the course from 1 hour per week to a CME Boot Camp where they are immersed in the department culture and support system for one day before classes start. Student ratings of the course jumped from "waste of time!" to "Thanks for great support!"*

years: 1999, 2000, 2001, 2002, 2003.

ChE 612 (4 hrs, 2x) Advanced Fluid Mechanics: *incorporated group discussions and peer instruction to adapt to multicultural nature of the class and help the students adapt to a new learning culture. In this context, students readily embraced self-directed learning and critical thinking*

years: 1996, 2000

ChE 454 (1 hr, 2x) Chemical Engineering Laboratory III: *commissioned a new lab* and incorporated face-to-face feedback on lab reports. We now have two FSO's continuing this approach with our much larger student body*

years: 1992, 1993.

Leadership and Administrative

International, National, and Provincial Leadership Roles

Professional Organizations

Canadian Engineering Accreditation Board Member, September 2017-June 2020

Iron Ring Warden, Camp 6, April 1999-December 2017.

APEGA Council, Councillor, 2010-2013; Finance Committee (2010-2012), Strategic Planning Committee (2010-2013), Audit Committee (2012-2013).

North American Mixing Forum, Past-President (2012-life), President (2010-2012), Award Committee (2005-2009), Vice-President (2007-2010), Treasurer (2003-2007), AIChE Technical Program Chair (1998-2001), Director (1995-2006).

Member, APEGGA Board of Examiners, December 1997-June 2000.

AWES Edmonton (Association of Women in Engineering and Science) Past President (1995), President (1994), Vice President (1993), W.I.S.E.S.T. Liaison (1992), Program Coordinator (1996).

University Liaison, Edmonton Chapter, CSCHE, June 1992- June 1994.

Journals and Review Panels (since 2010)

Associate Editor, Education for Chemical Engineers, Elsevier, 2015-ongoing.

NSERC Design Chair Review Panel, January 2016-ongoing (December 2019).

Guest Editor, Chemical Engineering Research and Design, Special Issue for the European Mixing Conference, 2015.

Site Visitor, NSERC Design Chair, University of Calgary, 2013.

Accreditation Visitor, Lakehead University, October 2013.

Journal of Chemical Engineering Education Publications Committee (2009-2015)

Special Issue Editor, Canadian Journal of Chemical Engineering, 2011, **89**(5).

Conference Organizing Committees

Conference Chair, Mixing XXII, Victoria, BC, June 20-25, 2010.

Mixing Symposium Co-chair, World Congress of Chemical Engineering, Montreal, Aug 25-28, 2009.

Member of the Organizing Committee, STLHE (Society for Teaching and Learning in Higher Education) Conference, Edmonton, June 2007.

Education Symposium Chair, CSCHE Conference, Edmonton, 2007.

Member of the Scientific Committee, European Conferences on Mixing, 1997, 2000, 2003, 2006, 2009, 2012.

Member of the International Scientific Committee, Fluid Mixing 8, 2006.

Conference Chair, Mixing XX, Parksville, Vancouver Island, 2005.

Member of the International Scientific Committee, ISMIP5, 2004, ISMIP6, 2008, ISMIP7, 2011, ISMIP8, 2014, ISMIP9, 2017.

Editor, Program Book, 47th Canadian Chemical Engineering Conference, Edmonton, 1997.

Member of the organizing committee for the "More Than Just Numbers Update Conference" on Women in Engineering, Fredericton, NB, May 1995.

Leadership as Associate Dean, Faculty of Graduate Studies and Research, University of Alberta, July 2015-June 2017

Student Cases and Mentoring of Graduate Coordinators/Associate Chairs

Mediate on cases involving supervisory issues not handled at the department level, advise on FGSR Policy, particularly related to program completions and oral exams, serve as pro-Dean on PhD Candidacy and thesis defenses in cases of concern, and rule on violations of the Code of Student Behavior and the Research and Scholarship Integrity Policy. Approximately 50 cases per year.
Provide annual orientation and training for new Associate Chairs, Graduate.

Governance and Chair/Dean Searches

Member of FGSR Council, GFAC, URPC, Killam Trust Committee.

Member of search committees for the Dean of Students and the Chair of Chemistry (2015-16),
Chair search committees for Depts. of Economics, Emergency Medicine, Anaesthesiology, Family Medicine, and Mechanical Engineering (2016-17).

Graduate Student Teaching Strategic Portfolio

Undertake a full academic review of the Graduate Teaching and Learning Program (GTLP) in 2015-2016. Passed through governance in 2016-2017.

Design and launch pilot of GTLP-4 Teaching Research and Scholarship, 2017.

Lead the funding project, *Indigenous Community Engagement, Research, and Learning*, a \$300K investment in multidisciplinary research.

Leadership As Acting Associate Dean, Research and Planning, Faculty of Engineering, University of Alberta, January-July, 2014

Scientific Advisory Committees

Helmholtz Alberta Initiative (HAI – NOC)

Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies (C5MPT)

Institute for Oil Sands Innovation (IOSI)

Canadian Foundation for Innovation (CFI IF) Steering Committee

Governance

University Research Policy Committee (URPC)

Faculty of Graduate Studies and Research (FGSR) Council

Executive Coordinating Committee (ECC), Faculty of Engineering

Award Adjudication

Petro Canada Young Innovator (PCYI) Award

J Gordon Kaplan Adjudication Committee

Conferences

Faculty of Engineering Graduate Research Symposium (FEGRS) advisor

Faculty of Engineering Design Instructors Retreat and workshop – Chair of Organizing Committee, full report surveying major outcomes submitted June 2015.

Canadian Graduate Education Consortium (CGEC)

Leadership as a Faculty Member, University of Alberta, 1992-2017

McCalla Professorship Selection Committee, 2017.

Faculty Forums Steering Committee Chair (Jan 2013-Jan 2016)

Teaching Award Winners forum (TAW), 2011-2017.

SPM-Onlea Oversight, Jan-April 2016.

J Gordon Kaplan Adjudication Committee, 2015, 2016, 2017.

Provost Search Committee, Jan-April, 2015.

Provost's Digital Learning Committee, Sept 2014-Sept 2017.

Faculty Affiliate, Center for Teaching and Learning, January 2014-December 2017.

Center for Teaching and Learning Advisory Committee, 2008-2012.

Provost's Committee on the Learning Environment Subcommittee on Assessment and Grading, 2010.

Peer Consultant for instructional development of faculty throughout the university, 2004-2017; program redesign focus group, January 2012-July 2013.

University Wide Mid-Term Course Evaluation Steering Committee, TLEF project, 2008.

Teaching Enhancement Committee, CME Department, Co-Chair (2007-2013).

General Faculties Council, 2006 – 2009.

University of Alberta Graduate Scholarships Committee, September 1999-August 2001.

Nominating Committee, Faculty of Engineering, member (1993 – 1995), Chair (2009-2012).

Hiring Committees, Chemical Engineering, 2000, 2011, 2012, Civil Engineering, 2000, Electrical Engineering, 2000, 2001.

Faculty Evaluation Committee, 1999-2000.

New Faculty Forums Organizing Committee, Engineering, Chair, 1996-1998, Member, 1999-2000, Presenter 1996-2003, 2007, 2008.

Admissions, Promotions and Timetabling Committee, 1996-1998.

Undergraduate Student-Staff Committee: member, January - June 1992, Vice Chair, 1992 - 1994.