CURRICULUM VITAE

Professor João B.P. Soares, PhD, FCIC, FCAE, PEng
Tier I Canada Research Chair in Advanced Polymer Reaction Engineering
CAIP Chair in Interfacial Polymer Engineering for Oil Sands Processing

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22 March 2018

1. Personal Details

Surname	Soares
First Name and Initials	João B. P.
Academic Title	Professor
Date of Birth	June 24, 1960
Place of Birth	Santos, São Paulo, Brazil
Marital Status	Married, two daughters
Nationality	Canadian and Brazilian
Home Address	67 – 25015 Township Road 544A, Sturgeon County, AB, Canada, T8T 0B9

Present Position

Professor, Campus Alberta Innovation Program Chair in Interfacial Polymer Engineering for Oilsands Processing

Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada T6G 2T4

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Academic Education

Degree	Department	Institution	Location	Year
BEng	Chemical Engineering	Federal University of Bahia	Salvador, Brazil	1983
MASc	Chemical Engineering	State University of Campinas	Campinas, Brazil	1985
PhD	Chemical Engineering	McMaster University	Hamilton, Canada	1994

Theses

Title of PhD Thesis	Dynamic Mathematical Modelling of Polymerization of Olefins using Heterogeneous and Homogeneous Ziegler-Natta Catalysts
Title of MSc thesis	Mathematical Modelling and Simulation of Fixed-Bed Reactors for the Oxidation of Ethanol to Acetaldehyde

Editorial and Advisory Boards

1. Editor-in-Chief, *Canadian Journal of Chemical Engineering*, **2010** – present.
2. Associate Editor, *Polímeros: Ciência e Tecnologia*, **2016 – 2017**.
3. *Macromolecular* Journals, Executive Advisory Board, **2003** – present.
4. Associate Editor, *Brazilian Journal ofChemical Engineering*, **2001 – 2010**.
5. International Advisory Board, *Macromolecular Rapid Communication,* **2002 – 2003**.
6. International Advisory Board, *Macromolecular Chemistry and Physics*, **2002 – 2003**.

7. Editorial Board, *Polymer Reaction Engineering*, **1997 – 2003**.

Awards and Honours

1. Premier's Research Excellence Award, **2000**.
2. Union Carbide Corporation Innovation Recognition Award, **2000**.
3. Dow Chemical Innovation Recognition Award, **2001**.
4. Canadian Society of Chemical Engineering Syncrude Canada Innovation Award for Distinguished Contribution in Chemical Engineering before the Age of 40, **2001**.
5. Fellow of the Chemical Institute of Canada, **2002**.
6. Outstanding Performance Award, University of Waterloo, **2012**.
7. University Research Chair, University of Waterloo, **2012**.
8. Fellow of the Canadian Academy of Engineering, **2017**.

Conference Organization

1. 67th Canadian Chemical Engineering Conference, Conference Chair, Edmonton, Alberta, Canada, October 22-25.
2. 6th International Conference on Polyolefin Characterization (6th ICPC), Organizing Committee, Shanghai, China, November 6-9, **2016.**
3. World Polyolefins Congress (WPOC 2015), Organizing Committee, Tokyo, Japan, November 23-27, **2016**.
4. 28th International Symposium on Polymer Analysis and Characterization (ISPAC 2015), Scientific Advisory Board, Houston, TX, June 8-10, **2015**.
5. Polymer Materials and Processing Theme in the 65th Canadian Chemical Engineering Conference, Calgary, Canada, October 4-7, **2015**.
6. 5th International Conference on Polyolefin Characterization (5th ICPC), Valencia, Spain, September 21-24, **2014**.
7. 5th International Conference on the Reaction Engineering of Polyolefins (Incorep V), Ferrara, Italy, September 2-5, **2013**.
8. Macromolecular Science and Engineering Theme in the 61st Canadian Chemical Engineering Conference, London, Canada, October 23-26, **2011**.
9. 4th International Conference on Polyolefin Characterization, Houston, TX, USA, October 21-14, **2012**.
10. 3rd International Conference on Polyolefin Characterization, Shanghai, China, November 7-9, **2010**.
11. 2nd International Conference on Polyolefin Characterization, Valencia, Spain, September 14-17, **2008**.
12. 4th International Conference on the Reaction Engineering of Polyolefins (Incorep IV), Montreal, Quebec, Canada, June 22-27, **2008**.
13. 1st International Conference on Polyolefin Characterization, Houston, TX, USA, October 16-18, **2006**.
14. World Polymer Congress – Macro 2006, International Advisory Committee, Rio de Janeiro, RJ, Brazil, July 16-21, **2006**.

15. 3rd European Conference on the Reaction Engineering of Polyolefins (Ecorep III), Lyon, France, June 20-24, **2005**.
16. Polymer Reaction Engineering V, Conference Chair, Quebec City, Quebec, Canada, May 18-23, **2003**.
17. 2nd European Conference on the Reaction Engineering of Polyolefins (Ecorep II), Lyon, France, July 1-4, **2002**.
18. 1st European Conference on the Reaction Engineering of Polyolefins (Ecorep), Lyon, France, July 3-6, **2000**.

Professional and Research Interests

1. Polymer Science and Engineering
2. Polymer Reaction Engineering
3. Water-Soluble Polymers for Oil Sands Technology
4. Coordination Polymerization Catalysis
5. Free Radical and Living Free Radical Polymerization
6. Mathematical Modelling of Polymerization Reactors
7. Mathematical Modelling of Polymer Microstructure
8. Polymer Microstructural Characterization
9. Structure-Property Relationships for Polymers
10. Polymer Nanocomposites

Employment History

March 2014	Present	Canada Research Chair on Advanced Polymer Reaction Engineering, University of Alberta, Edmonton, AB, Canada
July 2013	Present	Campus Alberta Innovates Program (CAIP) Chair in Interfacial Polymer Engineering for Oil Sands Processing, University of Alberta, Edmonton, AB, Canada
July 2013	Present	Professor, Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada
July 2013	Present	Adjunct Professor, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada
July 2012	June 2013	University Research Chair, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada
January 2005	December 2006	Adjunct Professor, Department of Chemical Engineering, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia
July 2003	June 2013	Professor, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada
June 2003	August 2003	Visiting Researcher, BASF Aktiengesellschaft, Ludwigshafen, Germany
July 1999	June 2003	Associate Professor, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada
January 1995	June 1999	Assistant Professor, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada

March 1990	December 1994	Research and Development Engineer for Polibrasil, Camaçari, BA, Brazil
May 1988	February 1990	Research and Development Engineer for COPENE, Camaçari, BA, Brazil
January 1986	April 1988	Research and Development Engineer for PRONOR, Camaçari, BA, Brazil

Membership in Academic and Professional Societies

1. American Chemical Society
2. Canadian Society of Chemical Engineering
3. PEO - Professional Engineers Ontario
4. APEGA – Association of Professional Engineers and Geoscientists of Alberta
5. Macromolecular Science and Engineering Division of the Canadian Institute of Chemistry, executive member at large

2. Publications in Refereed Journals

Submitted

1. AD Costine, V Vajihinejad, L Botha, PD Fawell, JBP Soares. Aggregate structures formed by hyperbranched functionalized polyethylene (HB*f*PE) treatment of oil sands tailings. *Can J Chem Eng* **2018**.
2. T Tongtummachat, S Anantawaraskul, JBP Soares. Dynamic Monte Carlo simulation of olefin block copolymers (OBCs) via chain-shuttling polymerization: Effect of kinetic rate constants on chain microstructure. *Macromol React Eng* **2018**.
3. GR Younes, AR Proper, TR Rooney, RA Hutchinson, SP Gumfekar, JBP Soares. Structure modifications of hydrolytically-degradable polymer flocculant for improved water recovery from mature fine tailings. *Chem Eng J* **2018.**
4. V Vajihinejad, JBP Soares. Monitoring polymer flocculation of oil sands mature fine tailings: A population balance model approach. *Chem Eng J* **2018**.
5. FL Motta, R Gaikwad, L Botha, JBP Soares. Quantifying the effect of polyacrylamide dosage, Na^{+}, Ca^{2+} concentrations, and clay particle size on the flocculation of mature fine tailings with robust statistical methods. *Colloid and Interface Science* **2017***.*
6. V Vajihinejad, SP Gumfekar, JBP Soares. Floc formation in oil sands tailings induced by a water-soluble cationic polymer with hydrophobic groups. *Chemosphere* **2017**.

Accepted

7. J Romero, JBP Soares. A Monte Carlo Method to Quantify the Effect of Reactor Residence Time Distribution on Polyolefins Made with Heterogeneous Catalysts: Part II – Packing Density Effects. *Macromol React Eng* **2018**.
8. LP de Oliveira, S Gumfekar, FL Motta, JBP Soares. Dewatering of oil sands tailings with novel chitosan-based flocculants. *Energy & Fuels* **2018**.
9. P DesLauriers, JS Fodor, JBP Soares, S Mehdiabadi. Mapping the structure-property space of bimodal polyethylenes using response surface methods: Part 1 – Digital data investigation. *Macromol React Eng* **2018**.

2018

10. R Hripko, V Vajihinejad, FL Motta, JBP Soares. Enhanced flocculation/dewatering of oil sands mature fine tailings by use of hydrophobically-modified polyacrylamide copolymers. *Global Challenges* **2018**, DOI: 10.1002/gch2.201700135.
11. P Buakrong, S Anantawaraskul, JBP Soares. Monte Carlo simulation of olefin block copolymers: Bivariate distribution of molecular weight and chemical composition. *Macromol Symp* **2018**, *377*, 1700060.
12. S Prasongsuksakul, S Anantawaraskul, JBP Soares. Mathematical modelling of multiple high temperature thermal gradient interaction chromatography (m-HT-TGIC) for ethylene/1-olefin copolymer blends. *Macromol Symp* **2018**, *377*, 1700061.
13. V Touloupidis, A Albretch, João BP Soares. A methodology for estimating kinetic parameters and reactivity ratios of multi-site type catalysts using polymerization, fractionation and spectroscopy techniques. *Macromol React Eng* **2018**, DOI: 10.1002/mren.201700056.
14. V Voraruth, A Caldera, JBP Soares, S Anantawarskul. Polyolefins made with dual metallocene catalysts: How microstructure affects polymer properties. *Macromol Chem Phys* **2018**, DOI: 10.1002/macp.201700551.
15. M Rahaman, I Hussein, A Aldalbahi, A Parvez, JBP Soares. Synthesis of metallocene catalyzed ethylene 1,7-octadiene copolymer: Effect of copolymerization on polymer properties. *Macromol Res* **2018**, *26*, DOI 10.1007/s13233-018.

16. FL Motta, SR Stoyanov, JBP Soares. Applications of solidifiers for oil spill containment: A review. *Chemosphere* **2018**, *194*, 837-846.

17. SP Gumfekar, JBP Soares. A novel hydrophobically-modified polyelectrolyte for enhanced dewatering of clay suspensions. *Chemosphere* **2018**, *194*, 422-431.

2017

18. T Charoenpanich, S Anantawaraskul, JBP Soares. On the robustness of forward and inverse artificial neural networks for the simulation of ethylene/1-butene copolymerization. *Macromol Theory Simul* **2017**, DOI: 10.1002/mats.201700042.

19. J Romero, JBP Soares. A Monte Carlo method to quantify the effect of reactor residence time distribution on polyolefins made with heterogeneous catalysts: Part I – Catalysts/polymer particle size distribution. *Macromol React Eng* **2017**, DOI:10.1002/mren.201700031.

20. S Gumfekar, T Rooney, R Hutchinson, JBP Soares. Dewatering oil sands tailings with degradable polymer flocculants. *ACS App Mat Interf* **2017**, DOI: 10.1021/acsami.7b10302.

21. ALT Brandão, AL Alberton, JC Pinto, JBP Soares. Copolymerization of ethylene with 1,9 decadiene. Part II – Prediction of molecular weight distributions. *Macromol Theory Simul* **2017**, DOI: 10.1002/mats.201700040.

22. ALT Brandão, AL Alberton, JC Pinto, JBP Soares. Copolymerization of ethylene with 1,9 decadiene. Part I – Prediction of average molecular weights and long-chain branching frequencies. *Macromol Theory Simul* **2017**, *26*, DOI:10.1002/mats.2016600059.

23. S Mehdiabadi, JBP Soares, J Brinen. Ethylene polymerization with a hafnocene dichloride catalyst using trioctyl aluminum and borate: Polymerization kinetics and polymer characterization. *Macromol React Eng* **2016**, *11*, DOI: 10.1002/mren.201600044.

24. C Vichitlimaporn, S Anantawaraskul, JBP Soares. Molecular weight distribution of ethylene/1-oelfin copolymers: Generalized bimodality criterion. *Macromol Theory Simul* **2017**, *26*, DOI: 10.1002/mats.201600060.

25. DA Moran, JBP Soares. Starch-based composites using mature fine tailings as fillers. *Can J Chem Eng* **2017**, DOI: 10.1002/cjce.22904.

26. DK Thompson, FL Motta, JBP Soares. Investigation of flocculation of oil sands mature fine tailings with alkoxysilanes. *Miner. Eng.* **2017**, *11*, 90-99.

27. AZ Al-Khazaal, JBP Soares. Joint effect of poly(ethylene-*co*-1-octene) chain length and 1-octene fraction on high-temperature thermal gradient interaction chromatography. *Macromol Chem Phys* **2017**, *218*, DOI: 10.1002/macp.201600332.

28. V Vajihinejad, R Guillermo, JBP Soares. Dewatering oil sands mature fine tailings (MFTs) with poly(acrylamide-*co*-diallyldimethylammonium chloride): Effect of average molecular weight and copolymer composition. *Ind Eng Chem Res* **2017**, *56*, 1256-1266.

29. T Tongtummachat, S Anantawaraskul, JBP Soares. Understanding the microstructure of living ethylyene/1-octene block copolymers with dynamic Monte Carlo simulation. *Macromol. Theory Simul.* **2017**, *26*, DOI: 10.1002/mats.201700012.

2016

30. L Botha, S Davey, B Nguyen, A Swarkanar, E Rivard, JBP Soares. Flocculation of oil sands tailings by hyperbranched functionalized polyethylenes. *Miner Eng* **2016**, *108*, 71-82.

31. TR Rooney, S Gumfekar, JBP Soares, RA Hutchinson. Cationic hydrolytically degradable flocculants with enhanced water recovery for oil sands tailings remediation. *Macromol Mater Eng* **2016**, DOI: 10.1002/mame.201600230.

32. T Tongtummachat, S Anantawaraskul, JBP Soares. Understanding the formation of linear olefin block copolymers with dynamic Monte Carlo simulation. *Macromol React Eng* **2016**, DOI: 10.1002/mren.201600002.

33. TM Mannan, JBP Soares, RM Berry, WY Hamad. In-situ production of polyethylene/crystalline nanocellulose composites. *Can J Chem Eng* **2016**, DOI: 10.1002/cjce.22608.

34. TN Palhares, LG Reis, RS Oliveira, LS Spinelli, EF Lucas, RL Vedoy, E Asare, JBP Soares. Using acrylamide/propylene oxide copolymers to dewater and densify oil sands tailings. *Minerals Eng* **2016**, *95*, 29-39.

35. K Chen, S Mehdiabadi, B Liu, JBP Soares. Estimation of apparent kinetic constants of individual site types for the polymerization of ethylene and α-olefins with Ziegler-Natta catalysts. *Macromol React Eng* **2016**, DOI: 10.1002/mren.201600003.

36. K Chen, S Mehdiabadi, B Liu, JBP Soares. Analysis of ethylene/1-olefin copolymers made with Ziegler-Natta catalysts by deconvolution of molecular weight and average short chain branching distributions. *Macromol React Eng* **2016**, *10*, 206-214.

37. S Mehdiabadi, JBP Soares. Quantifying the copolymerization kinetics of ethylene and 1-octene catalyzed with *rac*-$Et(Ind)_2ZrCl_2$ in a solution reactor. *Macromolecules* **2016**, *49*, 2448-2457.

38. ALT Brandão, JBP Soares, JC Pinto, AL Alberton. Comparison of different dynamic Monte Carlo methods for the simulation of olefin polymerization. *Macromol Symp* **2016**, *360*, 160-178.

39. V Vajihinejad, JBP Soares. Can we make better polyurethane composite foams with oil sands mature fine tailings? *Macromol Mater Eng* **2016**, *301*, 383-389.

40. K Chen, B Liu, JBP Soares. Effect of prepolymerization on the kinetics of ethylene polymerization and ethylene/1-hexene copolymerization with a Ziegler-Natta catalyst in slurry reactors, *Macromol React Eng* **2016**, DOI: 10.1002/mren.201500066.

41. T Charoenpanich, S Anatawaraskul, JBP Soares. Estimation of polymerization conditions needed to make ethylene/1-oelfin copolymers with specific chain microstructures using artificial neural networks. *Macromol React Eng* **2016**, *10*, 215-232.

2015

42. A Alghyamah, JBP Soares. Effect of solvent type on high-temperature thermal gradient interaction chromatography of polyethylene and ethylene/1-octene copolymers, *Macromol Chem Phys* **2015**, *216*, 38-48.

43. DRL Vedoy, JBP Soares. Water-soluble polymers for oil sands tailing treatment: A review. *Can J Chem Eng* **2015**, *93*, 888-904.

44. N Chokputtanawuttilerd, N Inwong, S Anantawaraskul, JBP Soares. Mathematical modeling of crystallization elution fractionation of ethylene/1-octene copolymers. *Macromol Chem Phys* **2015**, *216*, 621-635.

45. ALT Brandão, JBP Soares, JC Pinto, AL Alberton. When polymer reaction engineers play dice: Applications of Monte Carlo models in PRE. *Macromol React Eng*, **2015**, *9*, 141-185.

46. L Botha, JBP Soares. The influence of tailings composition on flocculation. *Can J Chem Eng* **2015**, *93*, 1515-1523.

47. AZ Al-Khazaal, JBP Soares. Effect of column type on polyolefin fractionation by high-temperature thermal gradient interaction chromatography. *Macromol Symp* **2015**, *356*, 10-18.

48. N Inwong, S Anantawaraskul, JBP Soares, AZ Al-Khazaal. High temperature thermal gradient interaction chromatography (HT-TGIC) of ethylene/1-octene copolymers: Model development and validation. *Macromol Symp* **2015**, *356*, 54-60.

49. N Inwong, S Anantawaraskul, JBP Soares, A Al-Khazaal. High-temperature thermal gradient interaction chromatography

(HT-TGIC) for blends of ethylene/1-octene copolymers: A mathematical model, *Macrol Symp* **2015**, *354*, 361-366.

2014

50. JBP Soares. The use of instantaneous distributions in polymerization reaction engineering, *Macromol React Eng* **2014**, *8*, 235-259.
51. A Alshaiban, JBP Soares. Effect of varying hydrogen concentration, external donor concentration, and temperature on propylene polymerization kinetics and microstructure of polypropylene made with a 4th generation Ziegler-Natta catalyst, *Macromol React Eng* **2014**, *8*, 723-735.
52. A Al-Khazaal, JBP Soares. Characterization of ethylene/α-olefin copolymers using high-temperature thermal gradient interaction chromatography, *Macromol Chem Phys* **2014**, *215*, 465-475.
53. A Alghyamah, JBP Soares. Fractionation of ethylene/1-octene copolymers by high temperature thermal gradient interaction chromatography, *Ind Eng Chem Res*, **2014**, *53*, 9228-9235.

2013

54. A Fisch, N da Silveira Jr, NSM Cardozo, AR Secchi, JHZ dos Santos, JBP Soares. Direct production of ultra-high molecular weight polyethylene with oriented crystalline microstructures. *J Mol Cat A: Chem* **2013**, *366*, 74-83.
55. S Mehdiabadi, JBP Soares. In-depth investigation of ethylene solution polymerization kinetics with *rac*-Et(Ind)$_2$ZrCl$_2$/MAO. *Macromol Chem Phys* **2013**, *214*, 246-262.
56. S Mehdiabadi, JBP Soares, J Brinen, D Bilbao. Ethylene polymerization and ethylene/1-octene copolymerization with rac-dimethylsilyl-bis(indenyl)hafnium dimethyl using trioctyl aluminum and borate: A polymerization kinetics investigation. *Macromolecules* **2013**, *46*, 1312-1324.
57. JT McCoy, JBP Soares, R Rawatlal. Analysis slurry-phase co-polymerization of ethylene and 1-butene by Ziegler-Natta catalysts Part 1: Experimental activity profiles. *Macromol React Eng* **2013**, *7*, 350-361.
58. O Perez, JBP Soares, M Garcia, VE Comparan, J McCoy, G Cadenas. Heterogeneous ethylene and alpha-olefin copolymerization using zirconocene aluminohydride complexes. *Macromol. Symp.* **2013**, *325-326*, 71.
59. S Anantawaraskul, S Sottesakul, E Siriwongsarn, JBP Soares. Chemical composition distribution and temperature rising elution fractionation of linear olefin block copolymers. *Macromol Symp* **2013**, *330*, 123-131.
60. N Chokputtanawuttilerd, S Anantawaraskul, JBP Soares. Mathematical model of dynamic crystallization of ethylene/1-octene copolymers. *Macromol Symp* **2013**, *330*, 132-141.
61. N Chokputtanawuttilerd, S Anantawaraskul, AA Alghyamah, JBP Soares. Effect of operating conditions on dynamic crystallization of ethylene/1-octene copolymers, *Macromol Chem Phys* **2013**, *214*, 2591-2601.

2012

62. Y Choi, JBP Soares. Supported single site catalysts for slurry and gas phase olefin polymerization. *Can J Chem Eng* **2012**, *90*, 646-671.
63. MA Al-Saleh, JBP Soares, TA Duever. The integrated deconvolution estimation model: Effect of inter-laboratory ^{13}C NMR analysis on IDEM performance. *Macromol React Eng* **2012**, *6*, 189-199.
64. AA Alghyamah, JBP Soares. Crystallization elution fractionation of polyolefins made with metallocene catalysts. *Macromol Symp* **2012**, *312*, 43-50.
65. A Alshaiban, JBP Soares. Effect of hydrogen, electron donor, and polymerization temperature on poly(propylene) microstructure. *Macromol Symp* **2012**, *312*, 72-80.

66. S Anantawaraskul, P Somnukguande, JBP Soares. Monte Carlo simulation of the microstructure of linear olefin block copolymers. *Macromol Symp* **2012**, *312*, 167-173.

67. P Somnukguande, S Anantawaraskul, JBP Soares. Effect of chain microstructure and cooling rate on crystaf calibration curves: An experimental study. *Macromol Symp* **2012**, *312*, 191-196.

68. S Mehdiabadi, JBP Soares. Ethylene homopolymerization kinetics with a constrained geometry catalyst in a solution reactor. *Macromolecules* **2012**, *45*, 1777-1791.

69. A Alshaiban, JBP Soares. Effect of hydrogen and external electron donor on propylene polymerization kinetics with a 4th generation Ziegler-Natta catalysts. *Macromol React Eng* **2012**, *6-7*, 265-274.

70. S Mehdiabadi, Y Choi, JBP Soares. Synthesis of polyolefins with combined single-site catalysts. *Macromol Symp* **2012**, *313-314*, 8-18.

71. E Siriwongsarn, S Anantawaraskul, N Chokputtanawuttilerd, AA Alghyamah, JBP Soares. Mathematical modeling of temperature rising elution fractionation (TREF) of polyethylene and ethylene/1-olefin copolymers. *Macromol Chem Phys* **2012**, *213*, 1892-1906.

72. A Alshaiban, JBP Soares. Effect of hydrogen and external donor on the microstructure of polypropylene made with a 4th generation Ziegler-Natta catalyst. *Macromol React Eng* **2012**, *6*, 265-274.

73. SM Al-Adwani, JBP Soares, WS Epling. Evaluating the effects of precious metal distribution along a monolith-supported catalyst for CO oxidation. *Ind Eng Chem Res* **2012**, *51*, 6672-6679.

2011

74. A Maneshi, JBP Soares, LC Simon. Polyethylene-clay nanocomposites made with metallocenes supported on different organoclays. *Macromol Chem Phys* **2011**, *212*, 216-228.

75. SY Shin, LC Simon, JBP Soares. Synthesis of ethylene/acrylonitrile composite elastomers with nanosized polyacrylonitrile domains using α-dimine-[N,N] nickel dichloride/EASC. *Macromol Chem Phys* **2011**, *212*, 715-722.

76. A Alshaiban, JBP Soares. Mathematical modeling of the microstructure of polypropylene made with Ziegler-Natta catalysts in the presence of electron donors. *Macromol React Eng* **2011**, *5*, 96-116.

77. A Carrero, B Paredes, JBP Soares, R van Grieken, I Suarez. Ethylene-1-Hexene Copolymers Produced with $MAO/(nBuCp)_2ZrCl_2$ Supported on SBA-15 Materials with Different Pore Sizes. *Macromol Chem Phys* **2011**, *212*, 1590-1599.

78. K Narkchamman, S Anantawaraskul, JBP Soares. Bimodality criterion for the chemical composition distribution of ethylene/1-olefin copolymers: Theoretical development and experimental validation. *Macromol React Eng* **2011**, *5*, 198-210.

79. K Suriya, S Anantawaraskul, JBP Soares. Cocrystallization of ethylene/1-octene copolymer blends during crystallization analysis fractionation and crystallization elution fractionation. *J Polym Sci: Part B: Polym Phys* **2011**, *49*, 678-684.

80. A Maneshi, JBP Soares, LC Simon. An efficient in-situ polymerization method for the production of polyethylene-clay nanocomposites: Effect of polymerization conditions on particle morphology. *Macromol Chem Phys* **2011**, *212*, 2017-2028.

81. S Mehdiabadi, JBP Soares, D Bilbao, JL Brinen. A polymerization kinetics comparison between a metallocene catalyst activated by tetrakis(pentafluorophenyl) borate and MAO for the polymerization of ethylene in a semi-batch solution reactor. *Macromol React Eng* **2011,** *5*, 418-430.

82. MA Al-Saleh, JBP Soares, TA Duever. The integrated deconvolution estimation model: Estimation of reactivity ratios per

site type for ethylene/1-butene copolymers made with a heterogeneous Ziegler-Natta catalyst. *Macromol React Eng* **2011**, *5*, 587-598.

83. S Anantawaraskul, W Bongsontia, JBP Soares. Simultaneous deconvolution of molecular weight and chemical composition distribution of ethylene/1-olefin copolymers: Strategy validation and comparison. *Macromol React Eng* **2011**, *5*, 549-562.
84. S Mehdiabadi, JBP Soares. Production of ethylene/α-olefin/1,9-decadiene copolymers with complex microstructures using a two-stage polymerization process. *Macromolecules* **2011**, *44*, 7926-7939.

2010

85. TFL McKenna, A Di Martino, G Weickert, JBP Soares. Particle growth during the polymerisation of olefins on supported catalysts, 1 – Nascent polymer structures. *Macromol React Eng* **2010**, *4*, 40-64.
86. Y Choi, JBP Soares. Ethylene slurry polymerization using nickel diimine catalysts covalently attached onto $MgCl_2$-based supports. *Polymer* **2010**, *51*, 2271-2276.
87. Y Choi, SY Shin, JBP Soares. Preparation of polyethylene/MMT nanocomposites through in-situ polymerization using a MMT-supported nickel diimine catalyst. *Macromol Chem Phys* **2010**, *211*, 1026-1034.
88. MA Al-Saleh, JBP Soares, TA Duever. Integrated deconvolution estimation model. A parameter estimation methodology for ethylene/α-olefin copolymers made with multiple-site-type catalysts. *Macromol React Eng* **2010**, *4*, 578-590.
89. Y Choi, JBP Soares. Supported hybrid early and late transition metal catalysts for the synthesis of polyethylene with tailored molecular weight and chemical composition distributions. *Polymer* **2010**, *51*, 4713-4725.

2009

90. AA Alghyamah, JBP Soares. Simultaneous deconvolution of the bivariate distribution of molecular weight and chemical composition of polyolefins made with Ziegler-Natta catalysts. *Macromol Rapid Commun* **2009**, *30*, 384-393.
91. M Al-Harthi, MJ Khan, SH Abbasi, JBP Soares. Gradient copolymers by ATRP in semibatch reactors: Dynamic Monte Carlo simulation. *Macromol React Eng* **2009**, *3*, 148-159.
92. S Anantawaraskul, P Somnukguandee, JBP Soares, J Limtrakul. Application of a crystallization kinetics model to simulate the effect of operation conditions on Crystaf profiles and calibration curves. *J Polym Sci: Part B: Polym Phys* **2009**, *47*, 866-876.
93. S Anantawaraskul, P Somnukguande, JBP Soares. Simulation of crystallization analysis fractionation (Crystaf) of linear olefin block copolymers. *Macromol Symp* **2009**, *282*, 205-215.
94. S Anantawaraskul, W Bongsontia, JBP Soares. Simultaneous deconvolution of molecular weight distribution and chemical composition distribution of ethylene/1-olefin copolymers synthesized with multiple-site-type catalytic systems. *Macromol Symp* **2009**, *282*, 167-174.
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3. Books

Technical Books

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6. Poster Presentations

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2. A Albeladi, JBP Soares. The effect of solvent viscosity on the solution polymerization of ethylene with a constrained geometry catalysts on polymer molecular weight and long chain branching. *67th Canadian Chemical Engineering Conference*, Edmonton, AB, Canada, October 22-25, **2017**.

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4. S Davey, B Bazoubandi, L Botha, JBP Soares. Synthesis and flocculation testing of amylopectin grafted hydrolyzed poly(methyl acrylate) (AP-g-H-PMA) in dewatering of oil sands mature fine tailings. *67th Canadian Chemical Engineering Conference*, Edmonton, AB, Canada, October 22-25, **2017**.

5. DV Dixon, SR Stoyanov, Y Xu, JBP Soares, H Zeng. Oil soluble polymer flocculants for the removal of fine solids in organic media. *67th Canadian Chemical Engineering Conference*, Edmonton, AB, Canada, October 22-25, **2017**.

6. DA Moran, A Gaffer, JBP Soares. Mechanical and thermal properties of high density polyethylene/cellulose nanocrystal composites prepared by in-situ polymerization and melt-blending extrusion. *67th Canadian Chemical Engineering Conference*, Edmonton, AB, Canada, October 22-25, **2017**.

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16. R Gaikwad, S Gumfekar, L Botha, DL Vedoy, JBP Soares. Effect of fugitive bitumen on flocculation of synthetic oil sands tailings. *65th Canadian Chemical Engineering Conference*, Calgary, Alberta, Canada, November 4-7, **2015**.
17. JBP Soares, ALT Brandão, JC Pinto, AL Alberton. Monte Carlo simulation of ethylene/diene copolymerization with single-site catalysts. *Polymer Reaction Engineering IX*, Cancun, Mexico, May 10-15, **2015**.
18. L Botha, DRL Vedoy, JBP Soares. Development of clay models for oil sands tailings. *2015 COSIA Oil Sands Clay Workshop and Conference*, Edmonton, AB, Canada, April 28-29, **2015**.
19. L Botha, M Islam, M Serpe, JBP Soares, D Vedoy. Effect of PNIPAM dosage, charge density and topology on oil sands tailings flocculation. *COSIA Innovation Summit*, Banff, Alberta, Canada, March 31 – April 1, **2015**.
20. D Vedoy, A Swarnakar, O Shynkaruk, E Rivard, J Soares, L Botha. Novel functionalized hyperbranched polyethylenes (HBPEs) for the treatment of oil sands tailings. *COSIA Innovation Summit 2015*, Banff, AB, Canada, May 31 – April 2, **2015**.
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22. A Al-Khazaal, JBP Soares. Effect of operation conditions and column type on the fractionation of polyolefins by HT-TGIC. 5th *International Conference on Polyolefin Characterization*, Valencia, Spain, September 21-24, **2014**.
23. N Inwong, S Anantawaraskul, JBP Soares, A Al-Khazaal. Mathematical model of high temperature thermal gradient interaction chromatography (HT-TGIC) for ethylene/1-octene copolymers. 5th *International Conference on Polyolefin Characterization*, Valencia, Spain, September 21-24, **2014**.
24. N Chokputtanawuttilerd, S Anatawaraskul, JBP Soares. Mathematical model of crystallization elution fractionation of ethylene/1-octene copolymers. 5th *International Conference on Polyolefin Characterization*, Valencia, Spain, September 21-24, **2014**.
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28. AA Alghyamah, JBP Soares. Effect of CEF run parameters on the CCD of metallocene LLDPE blends. 3rd *International Conference on Polyolefin Characterization*, Shanghai, China, November 7-10, **2010**.

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44. L D'Agnillo, JBP Soares and GHJ van Doremaele. Olefin copolymerization with a 'two-site' vanadium catalyst. *Blue Sky Conference*, Sorrento, Italy, June 26-29, **2005**.

45. M Al-Harthi, LC Simon and JBP Soares. Mathematical model for block and random copolymers using ATRP. *3rd European Conference on the Reaction Engineering of Polyolefins - Ecorep III*, Lyon, France, June 20-24, **2005**.

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Conference and Exhibit, London, Ontario, Canada, May 29-June 1, **2004**.

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56. L D'Agnillo and JBP Soares. Structure-property relationships for EPDM. *Polymer Reaction Engineering V*, Quebec City, Quebec, Canada, May 18-23, **2003**.

57. M Haag, LC Simon and JBP Soares. Simulating the structure of thermoplastic elastomers made with combined single-site catalysts. *Polymer Reaction Engineering V*, Quebec City, Quebec, Canada, May 18-23, **2003**.

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63. D Beigzadeh, JBP Soares and TA Duever. Study on long chain branching in ethylene polymerization using combined metallocene catalysts. *1st North American Symposium on Chemical Reaction Engineering*, Houston, Texas, USA, January 6-9, **2001**.

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65. DM Sarzotti, WE Ripmeester, JBP Soares and A Penlidis. Heterogeneous metallocene catalysts: effects of support materials and methods on microstructure. *30th Canadian High Polymer Forum*, Aylmer, Quebec, Canada, August 13-16, **2000**.

66. C Li Pi Shan, JBP Soares and A Penlidis. Structure-property characteristics of ethylene/1-hexene copolymers with tailored short chain branching distribution. *30th Canadian High Polymer Forum*, Aylmer, Quebec, Canada, August 13-16, **2000**.

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68. LC Simon, RF de Souza and JBP Soares. Olefin polymerization with Ni-diimine catalysts: *in-situ* spectroscopic investigation and the effect of cocatalyst type. *16th Canadian Symposium on Catalysis*, Banff, Alberta, Canada, May 23-26, **2000**.

69. D Beigzadeh, JBP Soares and TA Duever. Combined metallocene catalysts: an efficient technique to manipulate long-chain branching frequency of

polyethylene. *Polymer Reaction Engineering IV*, Palm Coast, Florida, USA, March 18-24, **2000**.

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71. D Beigzadeh, JBP Soares, TA Duever and AE Hamielec. Mathematical modeling of long chain branching in olefin polymerization using combined metallocene catalyst systems. *1st Waterloo Workshop on Materials Technology*, University of Waterloo, Waterloo, Ontario, Canada, June 13, **1998**.

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74. JBP Soares, RF Abbott, JN Willis and X Liu. New methodologies for studying multiple-site-type catalysts for the copolymerization of olefins. *ISPAC-10: Polymer Analysis and Characterization*, Toronto, Ontario, Canada, August 11-13, **1997**.

75. L D'Agnillo, JBP Soares and A Penlidis. A hierarchical data analysis of a replicate experiment in polyethylene synthesis with high temperature gel permeation chromatography. *ISPAC-10: Polymer Analysis and Characterization*, Toronto, Ontario, Canada, August 11-13, **1997**.

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7. Other Publications

1. JBP Soares. Advances in polyolefins conference. *The Metallocene and Single-Site Catalyst Monitor* **XVI** (5), 4-10, **2008**.
2. JBP Soares. The first international conference on polyolefin characterization – Part I. *The Metallocene and Single-Site Catalyst Monitor* **XV** (11), 4-9, **2007**.
3. JBP Soares. The first international conference on polyolefin characterization – Part II. *The Metallocene and Single-Site Catalyst Monitor* **XV** (12), 4-10, **2007**.
4. JBP Soares. Monte Carlo simulation techniques for single site catalysts. *The Metallocene and Single-Site Catalyst Monitor* **XV** (3), 4-16, **2006**.
5. JBP Soares. Use of combined metallocene catalysts to produce polyolefins with controlled microstructural distributions – Part I. *The Metallocene and Single-Site Catalyst Monitor* **XIV** (1), 4-11, **2005**.
6. JBP Soares. Use of combined metallocene catalysts to produce polyolefins with controlled microstructural distributions – Part II. *The Metallocene and Single-Site Catalyst Monitor* **XIV** (2), 4-8, **2005**.
7. JBP Soares. Long chain branch formation with metallocene catalysts – A brief survey of mathematical models – Part I.

The Metallocene and Single-Site Catalyst Monitor **XIII** (2), 4-9, **2004**.

8. JBP Soares. Long chain branch formation with metallocene catalysts – A brief survey of mathematical models – Part II. *The Metallocene and Single-Site Catalyst Monitor* **XIII** (3), 4-12, **2004**.

8. Invited Seminars and Lectures

2017

1. JBP Soares. Tips on how to write and submit a successful paper. *Department of Chemical Engineering, University of Waterloo*, Waterloo, ON, December 6, **2017**.
2. JBP Soares. Novel hyperbranched functionalized polyethylene for the densification of oil sands tailings. *Tailings Project Stewardship Review*, Imperial Oil Quarry Park Campus, Calgary, November 9, **2017**.
3. JBP Soares. Early career publishing workshop. *67th Canadian Chemical Engineering Conference,* Edmonton, AB, Canada, October 22, **2016**.
4. JBP Soares. Polymerization reaction engineering: An overview of research activities. *Total*, La Porte, TX, September 19, **2017**.
5. JBP Soares. Interfacial polymer engineering: Applications to polymer flocculants and polymeric solidifiers. *Memorial University*, St John's, NF, Canada, July 13, **2017**.
6. JBP Soares. An overview of polyolefin technology: Needs and challenges of on-line polyolefin monitoring and control. *Workshop on Smart Manufacturing for Chemical Processes,* Tulane University, New Orleans, LA, USA, July 11, **2017**.
7. JBP Soares. An overview of polyolefin technology: Needs and challenges of on-line polyolefin monitoring and control. *Fluence,* New Orleans, LA, USA, July 11, **2017**.
8. JBP Soares. Understanding polyolefins with a multi-scale approach. *Total*, Feluy, Belgium, June 15, **2017**.
9. JBP Soares. How to integrate olefin polymerization kinetics, polyolefin reaction engineering, and microstructure characterization to better understand your polyolefins. *Borealis*, Linz, Austria, June 12, **2017**.
10. JBP Soares. Interfacial polymer engineering: Applications to polymer flocculants and polymeric solidifiers. *CanmetENERGY*, Devon, AB, May 1, **2017**.
11. JBP Soares. Polyolefin reaction engineering – An overview of research activities. *Chevron-Phillips*, Kingwood, TX, USA, March 2, **2017**.
12. JBP Soares. Modelling olefin polymerization kinetics with multiple-site catalysts – A microstructural deconvolution approach. *Dow Chemical*, Freeport, TX, USA, March 1, **2017**.

2016

13. JBP Soares. Polyolefin reaction engineering at the University of Alberta. *East China University of Science and Technology*, Shanghai, China, November 10, **2016.**
14. JBP Soares. Metallocene polymerization kinetics and polyolefin characterization by HT-TGIC and CFC. *ExxonMobil Shanghai Technology Center*, Shanghai, China, November 10, **2016**.
15. JBP Soares. Polyolefin reaction engineering: An overview of research activities. *LG Chemical*, Daejeon, South Korea, November 4, **2016**.
16. JBP Soares. Early career publishing workshop. *66th Canadian Chemical Engineering Conference,* Quebec City, QC, Canada, October 16, **2016**.
17. JBP Soares. Structure-property relationships of bimodal polyethylenes, *Chevron*-Phillips, Bartlesville, Oklahoma, USA, August 2, **2016**.

2015

18. JBP Soares. Flocculation of mature fine tailings: Is there a solution in sight for the Canadian oil sands environmental challenge? *Department of Chemical Engineering, University of Waterloo*,

Waterloo, ON, Canada, November 12, **2015**.

19. JBP Soares. Tips on how to write and submit a successful paper. *Department of Chemical Engineering, University of Waterloo*, Waterloo, ON, Canada, November 10, **2015**.
20. AZ Al-Khazaal, JBP Soares. Polyolefin Fractionation by high-performance liquid chromatography (HT-TGIC and CGC). *Dow Chemical*, Freeport, TX, USA, October 26, **2015**.
21. JBP Soares. Flocculation of mature fine tailings: Is there a solution in sight for the Canadian oil sands environmental challenge? *Queen's University*, Kingston, ON, Canada, October 15, **2015**.
22. JBP Soares. The scientific publishing process: Useful tips on how to write and submit a successful paper. *65th Canadian Chemical Engineering Conference*, Calgary, AB, Canada, October 4, **2015**.
23. JBP Soares. Polyolefins/CNC composites. *FPInnovations*, Vancouver, BC, Canada, July 15, **2015**.
24. JBP Soares. The importance of polymer reaction engineering in developing new polymer products. *Annual General Meeting of the Chemical Institute of Canada, Edmonton Section*, Edmonton, AB, Canada, May 5, **2015**.
25. JBP Soares. Ethylene/α-olefin polymerization in mineral oils. *Bostik*, Milwaukee, WI, USA, March 18, **2015**.
26. JBP Soares. An overview of polyolefin reaction engineering and characterization research at Soares's labs in the University of Alberta. *Brakem America*, Pittsburgh, PA, USA, March 16, **2015**.
27. JBP Soares. Mathematical modeling of long chain branch formation during olefin polymerization with coordination catalysts. *ExxonMobil*, Clinton, NJ, USA, March 9, **2015**.

2014

28. JBP Soares. Effect of reactor residence time on the microstructure of polyolefins made with dual single-site catalysts. *DBR Technical Series*, DBR Technology Centre – Schlumberger, Edmonton, AB, Canada, June 18, **2014**.
29. JBP Soares. Enhancing the industry's development process to accelerate performance improvements and growth in PP copolymers. *Industry Workshop on PPC Industry Development Process*, Longboat Key, FL, USA, January 20, **2014**.

2013

30. JBP Soares. Mathematical modeling of olefin polymerization and polyolefin characterization techniques. *Braskem*, Pittsburgh, PA, USA, December 9, **2013**.
31. JBP Soares. Polyolefin reaction engineering. A personal perspective on current status and future developments. *SABIC*, Riyadh, Saudi Arabia, May 29, **2013**.
32. JBP Soares. The importance of having detailed ethylene/α-olefin polymerization kinetics with metallocene catalysts for developing new polyolefin products. *ExxonMobil*, Baytown, TX, USA, March 21, **2013**.

2012

33. JBP Soares. The Canadian Journal of Chemical Engineering. *Department of Chemical Engineering, Dalhousie University*, Halifax, NS, Canada, December 5, **2012**.
34. JBP Soares. The scientific publishing process: A few important tips on how to write and submit a successful paper. *Department of Chemical Engineering, Dalhousie University*, Halifax, NS, Canada, December 5, **2012**.
35. JBP Soares. The scientific publishing process: A few important tips on how to write and submit a successful paper. *Department of Chemical Engineering, University of New Brunswick*, Fredericton, NB, Canada, December 4, **2012**.
36. JBP Soares. The Canadian Journal of Chemical Engineering. *Department of Chemical Engineering, University of New Brunswick*, Fredericton, NB, December 4, Canada, **2012**.

37. JBP Soares. Research methodology and scientific publication. A personal perspective. *Department of Chemical Engineering, McMaster University*, Hamilton, ON, Canada, April 19, **2012**.
38. JBP Soares. The scientific publishing process: A few important tips on how to write and submit a successful paper. *Department of Chemical Engineering, Laval University*, Quebec City, QC, Canada, April 18, **2012**.
39. JBP Soares. The scientific publishing process: A few important tips on how to write and submit a successful paper. *Department of Chemical Engineering, Ecole Polytechnique*, Montreal, QC, Canada, April 17, **2012**.
40. JBP Soares. The scientific publishing process: A few important tips on how to write and submit a successful paper. *Department of Chemical Engineering, Sherbrooke University*, Sherbrooke, QC, Canada, April 17, **2012**.
41. JBP Soares. The "perfect molecule": From commodity to specialty polyolefins. *Faculty of Chemical Engineering, UNICAMP*, Campinas, SP, Brazil, March 6, **2012**.

2011

42. JBP Soares. Using polymerization reaction engineering principles to produce polyolefins with tailor-made microstructures. *Department of Chemical Engineering, University of Alberta,* Edmonton, AB, Canada, November 1, **2011**.
43. JBP Soares. An overview of polyolefin reaction engineering at the University of Waterloo, Lummus-Novolen, Mannheim, Germany, January 25, **2011**.
44. JBP Soares. A review of differentiated commodity specialty, and hybrid polyolefins, Wiley-VCH, Weinheim, Germany, January 24, **2011**.
45. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of Alberta, Edmonton, AB, Canada, January 12, **2011**.
46. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of British Columbia, Vancouver, BC, Canada, January 11, **2011**.

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47. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. *Department of Chemical Engineering, Ryerson University*, Toronto, ON, Canada, December 10, **2010**.
48. JBP Soares. Synthesis of polyolefins with combined single site catalysts. *Department of Chemical Engineering, Ryerson University*, Toronto, ON, Canada, December 10, **2010**.
49. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of Saskatchewan, Saskatchewan, Canada, SK, October 6, **2010**.
50. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. *Department of Chemical Engineering, University of Calgary*, Calgary, AB, Canada, October 5, **2010**.
51. JBP Soares. Polymer reaction engineering and new polymeric materials. Bostik, Milwaukee, WI, USA, August 23, **2010**.
52. JBP Soares. Mathematical modeling of olefin block copolymer microstructure. Department of Chemical Engineering, Kasetsart University, Bangkok, Thailand, August 4, **2010**.
53. JBP Soares. Crystallization elution fractionation. Department of Chemical Engineering, Kasetsart University, Bangkok, Thailand, August 4, **2010**.
54. JBP Soares. Advances on polyolefin production and characterization techniques. SCG, Rayong, Thailand, August 3, **2010**.
55. JBP Soares. Mathematical modeling of polyolefin microstructures. LATEP 2010

Workshop, University Rey Juan Carlos, Madrid, Spain, May 27, **2010**.

56. JBP Soares. Mathematical modeling of polyolefin microstructures. Chevron-Phillips, Kingwood, Texas, USA, April 14, **2010**.
57. JBP Soares. Synthesis of linear and branched polyolefins with controlled microstructures using two single-site catalysts, JAIST, Kanazawa, Japan, March 24, **2010**.
58. JBP Soares. Mathematical modeling of polyolefin microstructures. Dow Chemical, Freeport, Texas, USA, March 2, **2010**.

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59. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. *Department of Chemical Engineering, Queen's University*, Kingston, ON, October 23, **2009**.
60. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. *Department of Chemical Engineering, Royal Military College*, Kingston, ON, October 23, **2009**.
61. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, École Polytechnique, Montreal, Que, October 22, **2009**.
62. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of Ottawa, Ottawa, ON, October 22, **2009**.
63. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, McGill University, Montreal, Que, October 21, **2009**.
64. BP Soares. Research methodology, scientific publications, and the status of the CJChE. Department of Chemical Engineering, University of Western *Ontario*, London, ON, October 8, **2009**.
65. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of Western Ontario, London, ON, October 8, **2009**.
66. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, University of Toronto, Toronto, ON, October 7, **2009**.
67. JBP Soares. Production of ethylene/α-olefin/1,9-decadiene copolymers with complex microstructures using a two-stage polymerization process. Department of Chemical Engineering, McMaster University, Hamilton, ON, October 1, **2009**.
68. JBP Soares. The Canadian Journal of Chemical Engineering. Current status and new initiatives. Department of Chemical Engineering, McMaster University, Hamilton, ON, October 1, **2009**.
69. JBP Soares. Polyolefin reaction engineering research at the University of Waterloo. Ineos, Lisle, IL, USA, August 19, **2009**.
70. JBP Soares. Measurement of the chemical composition distribution of olefin copolymers by TREF, Crystaf, and CEF. *Symposium on Polyolefin Crystallization*, *ExxonMobil*, Clinton, NJ, USA, July 21, **2009**.
71. JBP Soares. Olefin polymerization kinetics with metallocene catalysts. Department of Chemical Engineering-University Rey Juan Carlos, Madrid/Mostoles, Spain, March 18, **2009**.
72. JBP Soares. A graduate short course on olefin polymerization catalysts and processes. Department of Chemical Engineering. University Rey Juan Carlos, Madrid/Mostoles, Spain, March 16-17, **2009**.

2008

73. JBP Soares. How to improve MI catalyst batch consistency: Manufacturing, testing and processing. Sharq, Jubail, Saudi Arabia, December 16, **2008**.

74. JBP Soares. Reactor sensitivity and load limitation during low MI grade production. *Sharq*, Jubail, Saudi Arabia, December 16, **2008**.

75. JBP Soares. Mathematical modeling of polyolefin microstructure: An overview. V Foro Regional, Instituto Mexicano de Ingenieros Químicos, Coatzacoalcos, Vera Cruz, Mexico, September 3-5, **2008**.

76. JBP Soares. Polyolefins: State-of-the-art on mathematical modeling, novel molecular architectures, and characterization. *CIQA: Centro de Investigation en Quimica Aplicada*, Saltillo, Mexico, September 3, **2008**.

77. JBP Soares. Differentiated commodity, specialty and hybrid polyolefins. CID: Centro de Investigation y Desarollo Tecnologico SA de CV, Lerma, Mexico, September 2, **2008**.

78. JBP Soares. Differentiated commodity, specialty and hybrid polyolefins. Department of Chemical Engineering, Rey Juan Carlos University, Móstoles, Spain, July 9, **2008**.

79. JBP Soares. On the mathematical modeling of polyolefin microstructures. Department of Chemical Engineering, Kasetsart University, Bangkok, Thailand, June 6, **2008**.

80. JBP Soares. A review of differentiated commodity, specialty and hybrid polyolefins. Thai Institute of Chemical Engineering (TIChE), Bangkok, Thailand, June 5, **2008**.

81. JBP Soares. Graduate lectures on coordination polymerization. *King Fahd University of Petroleum and Minerals*, Dhahran, Saudi Arabia, April 26 and 28, **2008**.

2007

82. JBP Soares. Microstructural modeling of branched-block and linear-block polyolefins made with two single-site catalysts. *Queen's University*, Kingston, ON, November 16, **2007**.

83. JBP Soares. Microstructural modeling of polyolefins made with two single-site catalysts: Resins with bimodal MWD and CCD, branched-olefin and linear-olefin block copolymers. Symyx, Santa Clara, CA, USA, September 26, **2007**.

84. JBP Soares. Polyolefin reaction engineering. Current status and future challenges. Petrobras, Rio de Janeiro, RJ, Brazil, June 21, **2007**.

85. JBP Soares. Challenges in polymer reaction engineering. The Polyolefin Scenario. Total Petrochemicals, Deer Park, Texas, USA, May 31, **2007**.

86. JBP Soares. Microstructural details of branched- and linear-olefin block copolymers: A comparison of BOBC vs. LOBC using Monte Carlo simulation, ExxonMobil, Baytown, Texas, USA, May 8, **2007**.

87. JBP Soares. Modeling the microstructure of block and graft-block copolymers using dynamic Monte Carlo simulation. Dow Chemical, Freeport, Texas, USA, March 29, **2007**.

88. JBP Soares. Analysis and synthesis of olefin block copolymers. Dow Chemical, Freeport, Texas, USA, March 29, **2007**.

89. JBP Soares. Polymer reaction engineering at the University of Waterloo: An overview of projects and methods. Braskem, Triunfo, RS, Brazil, March 26, **2007**.

2006

90. JBP Soares. Modelling the microstructure of polyolefins made with dual single-site catalysts: From bimodal MWD polyethylene to thermoplastic elastomers, *ESCPE*, Lyon, France, November 13, **2006**.

91. JBP Soares. A comparative study of characterization techniques for polyolefins, *ExxonMobil Chemical Company*, Baytown Polymers Center, Baytown, Texas, USA, November 3, **2006**.

92. JBP Soares. Simulation of polymerization processes, University Rey Juan Carlos, Madrid, Spain, June 30, **2006**.

93. JBP Soares. A Monte Carlo model for the synthesis of branch-block copolymers in semi-batch and continuous stirred-tank reactors, ExxonMobil Chemical Company,

Baytown Polymers Center, Baytown, Texas, USA, March 1, **2006**.

2005

94. JBP Soares. Polymer reaction engineering at the University of Waterloo: an overview of research projects and methods, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, December 7, **2005**.
95. JBP Soares. Mathematical modeling methods for polyolefin reactors: current status, challenges and future, SABIC, Riyadh, Saudi Arabia, December 4, **2005**.
96. JBP Soares. Active site identification for heterogeneous Ziegler-Natta catalysts – An integrated approach involving mathematical modeling, polymerization kinetics and polymer characterization, *Engelhard*, Pasadena, TX, USA, March 18, **2005**.

2004

97. JBP Soares. Modeling long chain branch formation in polyolefins made with coordination catalysts. *Federal University of Rio Grande do Sul* (UFRGS), Department of Chemical Engineering, Porto Alegre, RS, Brazil, November 11, **2004**.
98. JBP Soares. Analysis and mathematical modeling of polyolefin microstructures using Tref and Crystaf. *Braskem*, Triunfo, RS, Brazil, November 10, **2004**.
99. JBP Soares. How to use Monte Carlo models to predict polymer microstructures – Applications in polymer reaction engineering. *AspenWorld 2004*, Orlando, Florida, USA, October 10-15, **2004**.
100. JBP Soares. How to use Monte Carlo models to predict polymer microstructures – Applications in polymer reaction engineering. *Degussa*, Röhm Kolloquium, Darmstadt, Germany, April 19, **2004**.
101. JBP Soares. How to use Monte Carlo models to predict polymer microstructures – Applications in polymer reaction engineering. *BASF*, Ludwigshafen, Germany, April 20, **2004**.
102. JBP Soares. Fractionation of semi-crystalline polymers by crystallization analysis fractionation (Crystaf) and temperature rising elution fractionation (Tref). *ExxonMobil World Wide Characterization Meeting*, Houston, Texas, USA, March 23, **2004**.
103. JBP Soares. How to use mathematical models to predict and design the microstructure of polyolefins made with multiple single-site catalysts in single or multiple reactors. *ExxonMobil Chemical Company*, Baytown Polymers Center, Baytown, Texas, USA, March 23, **2004**.

2003

104. JBP Soares. Control of long chain branching in polyolefins – Mathematical modeling strategies. Bayer, Leverkusen, Germany, August 1, **2003**.
105. JBP Soares. Modelling the microstructure of polyolefins made with dual single-site catalysts: From bimodal MWD polyethylene to thermoplastic elastomers. *Equistar, Spring Polymer Symposium*, Cincinnati, USA, April 3, **2003**.
106. JBP Soares. Production of thermoplastic elastomers using mixed metallocene catalysts. A mathematical modeling study of chain structures and polymerization conditions. *Université de Montreal*, Montreal, Quebec, Canada, April 2, **2003**.
107. JBP Soares. Can metallocene catalysts be used to produce LDPE-like resins? *AT Plastics*, Brampton, Ontario, Canada, February 4, **2003**.
108. JBP Soares. Challenges in polymer reactor engineering. The polyolefins scenario. *Technical University of Berlin*, Berlin, Germany, January 10, **2003**.

2002

109. JBP Soares. Mathematical modelling of branch-block polyolefinic thermoplastic elastomers. *Dow Chemical*, Freeport, Texas, USA, December 9, **2002**.
110. JBP Soares. Mathematical modelling of Crystaf, TREF and solution DSC. *Dow Chemical*, Freeport, Texas, USA, December 9, **2002**.

111. JBP Soares. Mathematical modelling and control of polymer microstructure. An overview of polymer reaction engineering at the University of Waterloo. *DSM Research*, Geleen, The Netherlands, October 3, **2002**.

112. JBP Soares. Mathematical modelling and control of polymer microstructure with emphasis on polyolefins. *Dow Chemical*, Schkopau, Germany, September 27, **2002**.

113. JBP Soares. From homopolymer to graft copolymer: a case study on modeling and control of polymer structure. *Ticona*, Kelsterbach, Germany, August 29, **2002**.

114. JBP Soares. Mathematical modelling and control of polymer microstructure. an overview of polymer reaction engineering at the University of Waterloo. *Degussa*, Hanau, Germany, May 7, **2002**.

115. JBP Soares. Mathematical modelling and control of polymer microstructure with emphasis on polyolefins. *BASF*, Ludwigshafen, Germany, May 6, **2002**.

116. JBP Soares. Polymer reaction engineering of polyolefinic systems. Modelling MWD and LCB. *Technical University of Berlin*, Berlin, Germany, May 3, **2002**.

117. JBP Soares. Engineering the microstructure of polyolefins made with dual single-site catalysts: a polymer reaction engineering perspective. *Technical University of Berlin*, Berlin, Germany, May 2, **2002**.

118. JBP Soares. Modelling the synthesis of thermoplastic elastomers through olefin macromers synthesized in and ex situ. *ExxonMobil Chemical Company*, Baytown Polymers Center, Baytown, Texas, USA, February 28, **2002**.

119. JBP Soares. Microcalorimetry of polymer solutions: A complementary characterization technique to TREF and Crystaf. *McGill University*, Department of Chemical Engineering, Montreal, Quebec, Canada, February 21, **2002**.

120. JBP Soares. Mathematical models for metallocene-polyolefins containing long-chain branches: recent developments for dual catalyst systems. *McGill University*, Department of Chemical Engineering, Montreal, Quebec, Canada, February 21, **2002**.

121. JBP Soares. Engineering the microstructure of polyolefins made with single-site catalysts: a polymer reaction engineering perspective in this brave new world. *University of Ottawa*, Department of Chemical Engineering, Ottawa, Ontario, Canada, February 1, **2002**.

2001

122. JBP Soares. Synthesis and mathematical modelling of polyolefins with controlled microstructures. *University of Alberta*, Department of Chemical Engineering, Edmonton, Alberta, Canada, November 26, **2001**.

123. JBP Soares. Controlling the microstructure of polyolefins made with metallocene catalysts: an overview of different techniques. *The Dow Chemical Company*, Innovation Recognition Program, Charleston, West Virginia, May 3, **2001**.

124. JBP Soares. Controlling the microstructure of polyolefins made with metallocene catalysts: an overview of different techniques. *McGill University*, Department of Chemical Engineering, March 15, **2001**.

125. JBP Soares. Controlling the microstructure of polyolefins made with metallocene catalysts: an overview of different techniques. *Exxon Chemical Company*, Baytown Polymers Center, Baytown, Texas, USA, March 7, **2001**.

126. JBP Soares. Mathematical models for polyethylene long chain branch formation with metallocene catalysts. A review. *Friedrich-Alexander-Universität Erlangen-Nüremberg*, Lehrstuhl für Polymerwerkstoffe, Erlangen, Germany, January 16, **2001**.

127. JBP Soares. Control of LCB and MWD of polyethylene made with combined metallocene catalysts. *Dow Chemical Iberica*, Tarragona Technical Center, Tarragona, Spain, January 18, **2001**.

128. JBP Soares. New advances in olefin polymerization technology. *Polymer Char*, Paterna, Spain, January 19, **2001**.

2000

129. JBP Soares. Synthesis of polyolefins with designed chain architectures. A challenging new area in polymer reaction engineering. *University of Wisconsin*, Madison, Wisconsin, USA, November 7, **2000**.

130. JBP Soares. Production of polyolefins with controlled long chain branch and molecular weight distributions using mixed metallocene catalysts. *Dow Chemical*, Midland, Michigan, USA, October 12, **2000**.

131. JBP Soares. Production of polyolefins with controlled long chain branch and molecular weight distributions using mixed metallocene catalysts. *BASF Conference on Insertion Polymerization*, Ludwigshafen, Germany, September 28, **2000**.

132. JBP Soares. General modelling approaches for olefin polymerization. *Equistar Chemicals*, Equistar Technology Center, Cincinnati, Ohio, USA, July 20, **2000**.

133. JBP Soares. Mathematical models for ethylene polymerization with Ni-diimine catalysts. *Equistar Chemicals*, Equistar Technology Center, Cincinnati, Ohio, USA, July 20, **2000**.

134. JBP Soares. Long chain branching in polyethylene. *University of Leeds*, Department of Physics, Leeds, UK, June 30, **2000**.

135. JBP Soares. Recent advances on polyolefin production technology. Oxford Instruments, Oxford, UK, June 29, **2000**.

136. JBP Soares. Control of molecular weight, chemical composition and long chain branching of polyolefins made with combined metallocene catalysts. *University of Twente*, Department of Chemical Engineering, Enschede, The Netherlands, June 15, **2000**.

137. JBP Soares. Polyolefins made with Ni-diimine catalysts: Monte-Carlo modelling and experimental results. *University of Twente*, Department of Chemical Engineering, Enschede, The Netherlands, June 15, **2000**.

138. JBP Soares. Use of fundamental polymerization models to understand polymerization of olefins with single-site catalysts. *DSM Research*, Geleen, The Netherlands, June 13, **2000**.

139. JBP Soares. Use of fundamental polymerization models to understand polymerization of olefins with single-site catalysts. *Union Carbide Corporation*, Charleston, West Virginia, USA, May 11, **2000**.

1999

140. JBP Soares. Control of polyolefin microstructure with metallocene catalysts: using mathematical models to better understand polymerization results. *Université Laval/CERSIM*, Quebec City, Quebec, November 29, **1999**.

141. JBP Soares. Production of polyolefins with controlled microstructure using mixed metallocenes. *Exxon Chemical Company*, Baytown Polymers Center, Baytown, Texas, USA, October 14, **1999**.

142. JBP Soares. Synthesis of polyolefins with controlled distributions of molecular weight and chemical composition using binary metallocenes. *Exxon Corporate Research Center*, Clinton, NJ, USA, February 17, **1999**.

143. JBP Soares. Synthesis of polyolefins with controlled distributions of molecular weight and chemical composition using binary metallocenes. *Union Carbide/Univation*, Bound Brook, NJ, USA, February 16, **1999**.

1998

144. JBP Soares. Control of polyolefin microstructure using combined metallocene catalysts. An overview of theoretical and experimental results. *DSM Research*, Geleen, The Netherlands, December 11, **1998**.

145. JBP Soares. Modelling of industrial Ziegler-Natta and metallocene polymerization reactors. An overview of

the activities of the polymer group at the University of Waterloo. *DSM Research*, Geleen, The Netherlands, December 11, **1998**.

146. JBP Soares. Synthesis, characterization and mathematical modelling of polyolefins. OPP Petroquímica S.A., Triunfo, RS, Brazil, September 11, **1998**.

147. JBP Soares. Synthesis of polyolefins with controlled microstructure using bi-metallic metallocene catalysts. *BASF/Targor*, Ludwigshafen, Germany, June 8, **1998**.

1997

148. JBP Soares. Analysis and control of the molecular weight and chemical composition distribution of polyolefins made with metallocene and Ziegler-Natta catalysts. *Exxon Chemical Company*, Baytown, TX, USA, July 24, **1997**.

149. JBP Soares. Analysis and control of the molecular weight and chemical composition distribution of polyolefins made with metallocene and Ziegler-Natta catalysts. *Paxon Polymer Company*, Baton Rouge, LA, USA, July 23, **1997**.

150. JBP Soares. Analysis and control of the molecular weight and chemical composition distribution of polyolefins made with metallocene and Ziegler-Natta catalysts. *Uniroyal Chemical*, Naugatuck, CT, USA, July 22, **1997**.

151. JBP Soares. Metallocene catalysts - revolution in polyolefin properties. *University of São Paulo*, São Paulo, SP, Brazil, May 15, **1997**.

152. JBP Soares. New advances in polyolefin synthesis and characterization. *OPP Petroquímica*, Triunfo, RS, Brazil, May 14, **1997**.

1996

153. JBP Soares. Analysis and control of the molecular weight, chemical composition and long chain branch distributions of polyolefins made with Ziegler-Natta and metallocene catalysts. *Paxon Polymer Company*, Baton Rouge, Louisiana, USA, December 6, **1996**.

1995 - 1992

154. JBP Soares. Characterization of polyolefins by temperature rising elution fractionation. *Federal University of Rio de Janeiro*, Rio de Janeiro, RJ, Brazil, November 1, **1995**.

155. JBP Soares. State of the art in mathematical modelling, characterization and production of polyolefins. *State University of Campinas*, Campinas, SP, Brazil, October 27, **1995**.

156. JBP Soares. State of the art in mathematical modelling, characterization and production of polyolefins. *University of São Paulo*, São Paulo, SP, Brazil, October 27, **1995**.

157. JBP Soares. General dynamic mathematical modelling of homogeneous and heterogeneous Ziegler-Natta copolymerization. *Union Carbide*, Polyolefins Division, Bound Brook, New Jersey, USA, June, **1994**.

158. JBP Soares. Mathematical modelling of TREF for polyolefin fractionation. *Union Carbide*, Polyolefins Division, Bound Brook, New Jersey, USA, June, **1994**.

159. JBP Soares. Characterization of polyolefins by TREF, GPC and ^{13}C NMR. *Polibrasil*, Mauá, São Paulo, Brazil, July, **1992**.

160. JBP Soares. Influence of mass and heat transfer resistances in olefin polymerization - A novel mathematical model. *Polibrasil*, Camaçari, Ba, Brazil, July, **1992**.

9. Post Graduate Students: PhD

Ongoing PhD Projects

1. Seongdae Kan. Novel Conductive Polymers for Electronic Applications, University of Alberta, Winter **2017**-present.
2. Daniel Dixon. Flocculants for non-aqueous oil extraction, University of Alberta, Fall **2017**-present.
3. Zahra Rostami Najafabadi. Water-Soluble Polymers for Oil Sands

Remediation, University of Alberta, Winter **2015**-present.

Completed PhD Theses

4. Sarang Gumfekar. Water-Soluble Polymers for Oil Sands Remediation, University of Alberta, Winter **2014**-Winter **2018**.
5. Ibrahim Maafa. Linear Block Olefin Copolymers, University of Waterloo, **2016**.
6. Abdulaal Al-Khazal. Advanced Polyolefin Fractionation Techniques, University of Waterloo, **2016**.
7. John T McCoy. Development of Computationally Efficient Model for the Control of Ziegler-Natta Catalysed Industrial Production of High Density Polyethylene, University of Cape Town (R Rawatlal, co-supervisor), **2016**.
8. Abdulaziz Alghyamah. Comparison between CEF and HT-TGIC of Polyolefins Made by Ziegler-Natta and Metallocene Catalysts, University of Waterloo, **2012**.
9. Suad Al-Adwani. Predicting the Effect of Catalyst Axial Active Site Distributions on a Diesel Oxidation Catalyst Performance, University of Waterloo, **2012**.
10. Mohammad Al-Saleh. Nonlinear Parameter Estimation for Multiple Site-Type Polyolefin Catalysts Using an Integrated Microstructure Deconvolution Methodology, University of Waterloo, **2011**.
11. Ahmad Al-Shaiban. Propylene Polymerization Using 4th Generation Ziegler-Natta Catalysts: Polymerization Kinetics and Polymer Microstructural Investigation, University of Waterloo, **2011**.
12. Yiyoung Choi. Polymerization of Ethylene with Supported Early and Late Transition Metal Catalysts, University of Waterloo, **2011**.
13. Saeid Mehdiabadi. Synthesis and Modeling of Branched Polyolefins with Complex Structures, University of Waterloo, **2011**.
14. Abolfazl Maneshi. In-Situ Ethylene Polymerization with Organoclay-Supported Metallocenes for the Preparation of Polyethylene-Clay Nanocomposites, University of Waterloo, **2010**.
15. Anthony Shin. In-Situ Preparation and Characterization of Polyethylene-Clay Nanocomposites, University of Waterloo, **2008**.
16. Mamdouh Al-Harthi. Mathematical Modelling of Atom Transfer Radical Polymerization, University of Waterloo, **2007**.
17. Siripon Anantawaraskul. Chemical Composition Distribution of Binary and Multicomponent Copolymers, University of Waterloo, **2004**.
18. Fabio Mota. Dual Metallocene Catalysts for the Synthesis of Olefin Comonomer Copolymers, University of Waterloo, **2004**.
19. Luigi D'Agnillo. Production Technologies of EPDM Elastomers: Metallocenes, Microstructure-Property Relationships, and Kinetic Modeling of a Vanadium-Based CSTR Process, University of Waterloo, **2003**.
20. Colin Li Pi Shan. Approaches to Tailoring the Structures and Properties of Polyethylene, University of Waterloo, **2002**.
21. Leonardo Simon. Novel Olefin Polymers: Control of Polyethylene Microstructure Made with Ni-diimine Catalysts, University of Waterloo, **2002**.
22. Daryoosh Beigzadeh. Long Chain Branching Formation in Polyethylene Made with Metallocene Catalysts, University of Waterloo, **2000**.
23. Jung Dae Kim. Synthesis of Polyolefins with Controlled Distributions of Molecular Weight and Chemical Composition by Selective Combination of Metallocene/ MAO Catalysts in Supported Systems, University of Waterloo, **1999**.

10. Post Graduate Students: MASc

Ongoing MASc Projects

1. Benjamin Nguyen. Novel Linear and Branched Cationic Polymers for Dewatering of Oil Sands Tailings, University of Alberta, Fall **2017** – present.
2. Stephaney Davey. Grafted Natural Polymers for Enhanced Treatment of Oil Sands Tailings, University of Alberta, Fall **2017** – present.
3. Harrish Chakrapani. Novel Polymers for Controlled Drug Release, University of Alberta, Fall **2017** – present.
4. Raunil Raj. Structure-Property Relationships for Polymer Flocculants, University of Alberta, Fall **2017** – present.
5. Amirezza Badri. Fundamental Studies of High-Temperature Thermal Gradient Interaction Chromatography, University of Alberta, Fall **2017** – present.
6. Anuar Caldera. Usign Cross-Fractionation to Establish Property-Structure Relationships for Ethylene/1-Olefin Copolymers, University of Alberta, Spring **2016**-present.
7. Christopher Afacan. Nanorod Polymer Flocculants for Oil Sands Tailings Remediation, University of Alberta, Fall **2015**-present.
8. Gregory Afacan. Large-Scale Preparative Fractionation of Polyolefins, University of Alberta, Fall **2015**-present.

Completed MASc Theses

9. Behnaz Bazoubandi. Water-Soluble Polymers for Oil Sands Remediation, University of Alberta, Fall **2017**.
10. Sahar Saadat. Property-Structure Relationships for Bimodal Ethylene/1-Olefin Copolymers, University of Alberta, Fall **2017**.
11. Leonardo Penneta. Chitosan-Based Flocculants for Mature Fine Tailings Treatment, University of Alberta, Fall **2017**.
12. Atreya Nittala. Water-Soluble Polymers for Oil Sands Remediation, University of Alberta, Spring **2017**.
13. Daniel Moran. Starch-Based Composites Using Mature Fine Tailings as Fillers, University of Alberta, Fall **2016**.
14. Dominic Thompson. Novel Methods for Treating Oil Sands Waste Water, University of Alberta, Fall **2016**.
15. Abdulaal Al-Khazal. Crystallization Elution Fractionation of Polyolefins, University of Waterloo, **2011**.
16. Ahmad Al-Shaiban. Propylene Polymerization with Ziegler-Natta Catalysts, University of Waterloo, **2008**.
17. Ibrahim Maafa. Dynamic Modeling and Simulation of Styrene Free-Radical Polymerization with Mono- and Bifunctional Initiators, University of Waterloo, **2006**.
18. Catherine Cho. Structure-Property Relationships for Propylene/ α-Olefin Copolymers, University of Waterloo, **2001**.
19. Spencer Miniely. Environmental Stress Crack Resistance in Semi-Crystalline Polyolefins, University of Waterloo, **2001**.
20. William E Ripmeester. Heterogeneous Metallocene Catalysts for Olefin Polymerization: Effects of Supporting Methods on Microstructure, University of Waterloo, **2001**.
21. Deborah M Sarzotti. Heterogeneous Metallocene Catalysts for Olefin Polymerization: Effects of Support Material on Microstructure, University of Waterloo, **2001**.
22. Sarah Chung. Mathematical Modelling of Molecular Weight Distributions of Polyolefins Synthesized with Heterogeneous Ziegler-Natta Catalysts, University of Waterloo, **2001**.
23. Adilson A da Silva. Microstructural Characterization of Ethylene and α-Olefin Copolymers and Reactor Blends, University of Waterloo, **1999**.
24. Luigi D'Agnillo. Control of Molecular Weight Distributions of Polyethylene by

Combining Soluble Metallocene/MAO Catalysts, University of Waterloo, **1997**.

25. Lucas JD Britto. Polyolefin Analysis by Single-Step Crystallization Fractionation, University of Waterloo, **1997**.

11. Post-Doctoral Fellows and Research Associates

Ongoing Projects

1. Fernanda Lopes Motta, PDF. Flocculants for oil sands tailings. Spring **2016**-present.
2. Marco da Silva, PDF. Model asphaltenes, Spring **2015**-present.
3. Vahid Vajihinejad, Research Assistant. Composites of polyurethane and mature fine tailings clays, Fall **2014**-present.
4. S Mehdiababi, Research Associate. Detailed solution polymerization kinetics with single-site catalysts, Summer **2011**-present.

Completed Projects

5. Jazmin Romero, PDF. Residence time distribution effects of polymerization reactors. Spring **2016**-Fall **2017**.
6. Linda Botha, PDF. Water-soluble polymers for Oil Sands Processing, Summer **2014**-Spring **2017**.
7. Rohankumar Gaikwad, Research Assistant. Effect of residual bitumen on model clays, Fall **2014**-Winter **2016**.
8. Tariq Mannan, Research Associate. Polyolefin/nanocrystalline cellulose nanocomposites made in-situ, Summer **2014**-present.D Vedoy, PDF. Water-soluble polymers for oil sands srocessing, Summer **2013**-Winter **2016**.
9. A Maneshi, PDF. Synthesis of Specialty Polyolefins with Supported Metallocenes, Winter **2011**-Summer **2013**.
10. SY Shin, Research Associate. Long Chain Branch Formation with CGC, Summer **2011**-Summer-**2013**.
11. Anthony Shin, PDF. Synthesis of LCB Polyethylene in Absence and Presence of Dienes, Winter **2008**-Summer **2010**.
12. Monica Haag, PDF. Synthesis of Branch-Block Thermoplastic Elastomers, **2002**-**2003**.
13. Marcio Nele de Souza, PDF. Synthesis of Polyolefins with Homogeneous and Heterogeneous Branches via In- and Ex-Situ Approaches, **2001**-**2002**.
14. Leonardo Simon, PDF. Engineering the Long Chain Branching Structure of Polyethylene Made with Metallocene Catalysts, **2001**.
15. M Yang, PDF. Supporting Techniques for Metallocene Catalysts, **1998**-**1999**.
16. Kung Jun Chu, PDF. Ethylene/α-olefin Copolymerization Using In-Situ Supported Metallocene Catalysts, **1997**-**1999**.

12. Visiting Scholars and Graduate Students

1. Angie P Castillo Guevara, University of Cartagena, Cartagena, Colombia. Factors Affecting PAM Microstructure and their Effect of MFT Flocculation. October-December **2017**.
2. Isis C Bustamante Pajaro, University of Cartagena, Cartagena, Colombia. Characterization of SEPS Membranes for CO_2 Separation. October-December **2017**.
3. Alana da Costa, Federal University of Bahia, Salvador, Bahia, Brazil. Effect of Supercritical CO_2 and Low Salinity Water Injection on Oil Extraction, May **2017**.
4. Amany Khalil, Egyptian Petroleum Research Institute. Mechanical Properties of Polyethylene/Crystalline Nanocellulose Composites made in an Extrusion Process, December **2016** – June **2017**.
5. Alvaro Padilla-Garcia, University of Cartagena, Cartagena, Colombia. Evaluation of removal of heavy metal water pollutants through flocculation using starch/Na-MMT, December **2016** – February **2017**.
6. Kariana Moreno-Sader, University of Cartagena, Cartagena, Colombia.

Evaluation of removal of heavy metal water pollutants through flocculation with PAM/Na-MMT, December **2016** – February **2017**.

7. Chat Hornchaiya, Kasetsart University, Bangkok, Thailand, Fall **2016** – Winter **2017**.
8. Voradon Voraruth, Kasetsart University, Bangkok, Thailand, Fall **2016** – Winter **2017**.
9. Teppei Ishikawa, Impact and Random Polypropylene Copolymers, Toho Titanium, Japan, Summer **2015** – Fall **2016**.
10. Keran Chen, Bimodal Polyolefin Modelling, East China University of Science and Technology T, Shanghai, China, Winter **2015**-**2016**.
11. Amanda Brandão, Ethylene/Diolefin Copolymerization, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil, Spring **2014** – Winter **2015**.
12. Tiprawee Tongtummachat, Kasetsart Universit, Bangkok, Thailand. Dynamic Monte Carlo Modelling of Olefin Polymerization Processes, Spring **2014** – Winter **2015**.
13. Thanutchoke Charoenpanich, Kasetsart Universit, Bangkok, Thailand. Mathematical Modeling of Heterogeneous Ziegler-Natta Catalysts using Artificial Neural Networks, Summer **2014** – Fall **2014**.
14. Otacilio Pereira, Federal University of Bahia, Salvador, Brazil. System Identification and Failure Detection Algorithms for Industrial Uses, Winter **2014**.
15. N Wong, Kasetsart University, Bangkok, Thailand. Mathematical Modeling of High-Temperature, Thermal Gradient Interaction Chromatography, Fall **2012** – Fall **2013**.
16. YA de Santiago-Rodriguez, CIQA, Saltillo, Mexico. Kinetic study of Ziegler-Natta neodymium-based catalyst aging, Spring **2012** – Summer **2012**.
17. T Cordova-Alonso, CIQA, Saltillo, Mexico. Ethylene polymerization with aluminohydride zirconocene catalysts activated with MAO or boron complexes in biphasic ionic liquids, Spring **2012** – Summer **2012**.
18. M Divandari, Royal Institute of Technology, Stockholm, Sweden. Estimation of reactivity ratios of ethylene/propylene copolymers made with heterogeneous Ziegler-Natta catalysts: A theoretical investigation, Winter **2012** – Summer **2012**.
19. SS Dehghani, Royal Institute of Technology, Stockholm, Sweden. Estimation of reactivity ratios of ethylene/propylene copolymers made with heterogeneous Ziegler-Natta catalysts: An experimental study, Winter **2012** –Summer **2012**.
20. N Chokputtanawuttilerd, Kasetsart University, Bangkok, Thailand. Modeling of Crystallization Elution Fractionation, Winter **2011** - Fall **2011**.
21. E Siriwongsarn, Kasetsart University, Bangkok, Thailand. Modeling of Temperature Rising Elution Fractionation, Fall **2010** – Summer **2011**.
22. AY Ashiri, Department of Chemical Engineering, Queen's University. Intraparticle Mass Transfer Resistances in Ethylene Polymerization with Heterogeneous Ziegler-Natta Catalysts, Spring **2010** – Fall **2011**.
23. John McCoy, Department of Chemical Engineering, University of Cape Town, Rondebosch, South Africa. Kinetics of Ethylene/1-Butene Copolymerization with a heterogeneous Ziegler-Natta Catalyst, Winter **2010** – Spring **2010**.
24. Kanokporn Suriya, Kasetsart University, Bangkok, Thailand. Crystaf Fractionation of Polyolefins: Molecular Weight Effects, Fall **2009** – Winter **2010**.
25. Mallika Narkchamnan, Kasetsart University, Bangkok, Thailand. Crystaf Fractionation of Polyolefins: Cocrystallization Effects, Fall **2009** – Winter **2010**.

26. Odilia Perez, CIQA, Saltillo, Mexico. Ethylene Polymerization with Single-Site Catalysts, Fall **2009** – Fall **2010**.
27. Fanny Dubut, Total Petrochemicals. Simulation of Industrial Impact Polypropylene Processes, Winter **2008** – Winter **2010**.
28. Jose M Bravo, Department of Chemical Engineering, Rey Juan Carlos University, Mostoles, Madrid, Spain. Ethylene Polymerization Kinetics with Silica-Supported Metallocene Catalysts, Spring **2008** – Fall **2008**.
29. Punnawit Somnukguande, Department of Chemical Engineering, Kasetsart University, Bangkok, Thailand. Mathematical Modeling of Crystaf Crystallization Kinetics, Spring **2008** – Fall **2008**.
30. Adriano Fisch, Department of Chemical Engineering, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil. Ethylene Polymerization with Metallocene Catalysts Supported on Nanostructured Silicas, Winter **2008** – Spring **2008**.
31. Wei Xia, JAIST, Ishikawa, Japan. Crystaf of HDPE Made on Chromium Catalysts, Fall **2006**.
32. Beatriz Paredes, Rey Juan Carlos University, Madrid, Spain. Crystaf and TREF of Polyethylene Made on Supported Catalysts, Fall **2006**.
33. Francisco Perez, Repsol YPF, Madrid, Spain. Mathematical Modeling of Metallocene and Ziegler-Natta Catalyzed Polymerizations, Winter **2006** – Winter **2007**.
34. Erik Eriksson, ESCPE, Lyon, France. Modeling of Polyolefin Microstructure with GPC, CRYSTAF and TREF, **2004**.
35. Ingvild Bruaseth, NTNU, Norway. Crystaf and TREF Fractionation of Polyolefins, **2002**.
36. Jerrie Vermuelen, University of Stellenbosch, South Africa. Crystaf Fractionation of Ethylene/α-Olefin Copolymers, **2001**.
37. Katia Tannous, UNICAMP, Brazil. Gas-Phase Ethylene Polymerization, **1999** – **2000**.
38. Mauricio Moreira, Polibrasil, Brazil. Propylene Polymerization and Polypropylene Characterization, **1999**.
39. C. Esperidião, UFBa, Brazil. Polyolefin Fractionation with TREF and Crystaf, **1997**.
40. Adilson da Silva, OPP, Brazil. Polyolefin Characterization Techniques, **1996**.

13. Teaching Activities

Undergraduate Courses

University of Alberta

1. CHE 318 – Mass Transfer
2. CME 483 – Colloquim II

University of Waterloo

3. ChE 102 – Chemistry for Engineers: Chemical principles with applications in engineering. Stoichiometry calculations, properties of gases, properties of liquids and solutions, gas phase chemical equilibrium, ionic equilibrium in aqueous solutions, oxidation-reduction reactions, chemical kinetics.
4. ChE 101 – Chemical Engineering Concepts 2: Energy balances in closed and open systems. Laboratory experiments illustrate the physical processes discussed.
5. ChE 23 – Physical Chemistry 1: Thermodynamics: work and heat as form of energy. First law, internal energy and enthalpy. Heats of chemical and physical changes. Cycles and the second law, entropy. Spontaneity and equilibrium, free energies. Systems of variable composition, chemical equilibrium and the phase rule. Ideal solution, colligative properties.
6. ChE 35 – Mass Transfer: Steady state and unsteady state mass transfer by molecular and turbulent motion. Heat-mass transfer analogies. Mass transfer models and applications: absorption, extraction, adsorption. Simultaneous

heat and mass transfer in gas-liquid contacting and solids drying.

7. ChE 36 – Chemical Reaction Engineering: Review of stoichiometry and chemical kinetics. Homogeneous reactors: isothermal operation, batch, semi-batch, continuous tank, plug flow reactor design. CSTRs in series, plug flow reactor with recycle. Multiple reactions in reactor networks. Temperature effects in adiabatic and non-isothermal reactors. Yield, selectivity and optimal operation of reactors. Heterogeneous catalysis and effectiveness factors in two-phase reactors.
8. ChE 37 – Advanced Mathematics in Chemical Engineering: Ordinary and partial differential equations useful in the analysis and modeling of chemical engineering processes. Problem formulation in fluid mechanics, heat and mass transport, and reaction engineering. Special functions.

Graduate Courses

University of Alberta

9. ChE 494/694 – Advanced Topics on Polymerization Reactions Engineering.
10. ChE 494/694 – Advanced Topics on Polymer Characterization.

University of Waterloo

11. ChE 737 Analysis and Design of Catalytic Chemical Reactors: Catalytic reaction kinetics, mass and heat transfer phenomena, reactor engineering of industrially relevant catalytic reactors.
12. ChE 7xx Special Topics on Polymer Science and Engineering: This course is offered on demand as a reading course, generally during the spring/summer terms for small classes of MASc and PhD students. Topics include polymerization reactor engineering, advanced mathematical modelling techniques for polymerization reactors, mass and heat transfer effects for solid-catalyzed polymerizations, polymer microstructural fractionation and analysis techniques.

Industrial Short Courses

1. 11th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Houston, Texas, USA, September 20-22, **2017**.
2. Short Course on Polyolefin Characterization Techniques. Shanghai, China, November 6, **2016**.
3. 10th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Houston, Texas, USA, April 11-13, **2016**.
4. 9th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Lyon, France, May 18-21, **2015**.
5. 8th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Houston, TX, USA, November 18-20, **2013**.
6. Polymer Reaction Engineering, *COBEQ 2012*, Buzios, RJ, Brazil, September 10-11, **2012**.
7. 7th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Dubai, UAE, May 28-30, **2012**.
8. 6th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Lyon, France, May 23-27, **2011**.
9. Short Course on Polyolefin Characterization Techniques. Shanghai, China, November 6, **2010**.
10. 5th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes. Houston, TX, USA, April 12-16, **2010**.
11. Polyolefin Reaction Engineering Topics. King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, April 26-29, **2008**.
12. 4th Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes, Dubai, United Arab Emirates, April 19-23, **2008**.
13. 3rd Polymer Reaction Engineering: An Industrial Short Course on Olefin

Polymerization Processes, ESCPE, Lyon, France, November 15-17, **2006**.

14. 2nd Polymer Reaction Engineering: An Industrial Short Course on Olefin Polymerization Processes, Blue Tree Towers Hotel, Porto Alegre, RS, Brazil, July 10-14, **2006**.
15. Polyolefin Reaction Engineering, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, December 3-7, **2005**.
16. 1st Polyolefin Reaction Engineering, Lyon, France, June 17-18, **2005**.
17. Polymer Reaction Engineering – Polymerization Chemistry and Reaction Engineering Featuring Metallocene Catalysis and Emulsion/Suspension Processes, Kalithea, Halkidiki, Greece, June 10-14, **2002**.
18. Polymer Reaction Engineering, Waterloo, ON, Canada, May 14-16, **2001**.
19. Polymer Reaction Engineering, Kalithea, Halkidiki, Greece, June 5-9, **2000**.
20. Polymer Reactor Engineering - An Intensive Short Course on the Technology of Polyolefins Manufacture Featuring Metallocene Catalysis, Porto Carras, Sithonia, Halkidiki, Greece, June 7-11, **1999**.
21. Polymer Reaction Engineering, Burlington, ON, Canada, May 4–6, **1999**.
22. Polymer Reactor Engineering - An Intensive Short Course on the Technology of Polyolefins Manufacture Featuring Metallocene Catalysis, Porto Carras, Sithonia, Halkidiki, Greece, June 1-5, **1998**.
23. Polymer Reaction Engineering, Burlington, ON, Canada, May 4-6, **1998**.
24. First South American Intensive Short Course on Polymer Reaction Engineering, São Paulo, SP, Brazil, March 30-April 2, **1998**.
25. Polymerization Chemistry and Reaction Engineering Featuring Metallocene Catalysis and Emulsion/Suspension Processes, Houston, TX, USA, November 19-21, **1997**.
26. Polymer Reactor Engineering - An Intensive Short Course on the Technology of Polyolefins Manufacture Featuring Metallocene Catalysis, Porto Carras, Sithonia, Halkidiki, Greece, June 2-6, **1997**.
27. Polymer Reaction Engineering, Burlington, ON, Canada, April 28-30, **1997**.
28. Polymer Reactor Engineering - An Intensive Short Course on the Technology of Polyolefins Manufacture Featuring Metallocene Catalysis, Porto Carras, Sithonia, Halkidiki, Greece, June 3-7, **1996**.
29. Polymer Reaction Engineering, Burlington, ON, Canada, April 29- May 1, **1996**.
30. Polymer Reaction Engineering, Burlington, ON, Canada, May 1-3, **1995**.
31. Production of Polyolefins by Ziegler-Natta and Metallocene Catalysts, São Paulo, SP, Brazil, September 12-13, **1994**.
32. Polymer Reaction Engineering, Burlington, ON, Canada, May 2-4, **1994**.
33. Polymer Reaction Engineering, Burlington, ON, Canada, May 3-5, **1993**.

In-House Short Courses

1. Polyolefin Reaction Engineering, SABIC, Geleen, Netherlands, October 2-4, **2017**.
2. Polyolefin Reaction Engineering, Total, La Porte, Texas, USA, April 14-15, **2016**.
3. Polyolefin Reaction Engineering, SABIC/DSM/LANXESS, Geleen, Netherlands, November 11-13, **2013**.
4. Polyolefin Reaction Engineering, SABIC, Riyadh, Saudi Arabia, May 26-29, **2013**.
5. Polyolefin Reaction Engineering, ExxonMobil, Baytown, TX, USA, May 7-9, **2012**.
6. Polyolefin Reaction Engineering. EcoPetrol, Bucaramanga, Colombia, November 28-30, **2011**.
7. Polyolefin Reaction Engineering. SABIC/DSM/LANXESS, Maastricht, The Netherlands, May 18-20, **2011**.

8. Mathematical Modeling of Propylene/Ethylene/α-Olefin Terpolymerization. SCG, Rayong, Thailand, August 2, **2010**.
9. Polyolefin Reaction Engineering, Sharq, Jubail, Saudi Arabia, December 13-15, **2008**.
10. Introduction to Polyolefin Reaction Engineering, Total Petrochemicals, Deer Park, Texas, USA, December 2-3, **2008**.
11. Polyolefin Reaction Engineering, Thai Polyethylene Co., Bangkok, Thailand, June 2-4, **2008**.
12. Polyolefin Reaction Engineering, Petrobras/CENPES, Rio de Janeiro, Brazil, May 19-21, **2008**.
13. Polyolefin Reaction Engineering, ExxonMobil, Baytown, Texas, USA, November 1-2, **2006**.
14. Polyolefin Reaction Engineering, Equistar, Cincinnati, Ohio, USA, August 23-25, **2005**.
15. Polyolefin Reaction Engineering, Engelhard, Pasadena, Texas, USA, July 13-14, **2005**.
16. Polyolefin Reaction Engineering, Repsol YPF, Madrid, Spain, March 7-9, **2005**.
17. Polymer Reaction Engineering for Polyolefin Production, Nova Chemicals, Red Deer, Alberta, Canada, June 9-11, **2003**.
18. Introduction to Polymer Reactor Engineering, BASF, Ludwigshafen, Germany, August 27-28, **2002**.
19. Polymer Reaction Engineering, Dow Chemical, Midland, MI, USA, April 9-10, **2002**.
20. Polymer Reaction Engineering, Nova Chemicals, Sarnia, ON, Canada, June 18–20, **2001**.
21. Polymer Reaction Engineering, Nova Chemicals, Calgary, AL, Canada, June 6–8, **2001**.
22. Polyolefin Manufacture, Modelling and Characterization with Metallocene and Ziegler-Natta Catalysts, Polibrasil, Camaçari, Ba, Brazil, July 29-31, **1998**.
23. Metallocene and Ziegler-Natta Polyolefins: Manufacture, Analysis and Mathematical Modelling, Union Carbide, South Charleston, WV, USA, September 29 -October 1, **1997**.
24. Technology for the Manufacture of Polyolefins with Ziegler-Natta and Metallocene Catalysts, Petroquimica Triunfo, Triunfo, RS, Brazil, May 12-13, **1997**.
25. Polyolefin Production Technology, Mathematical Modelling and Characterization, Exxon, Galveston, Texas, USA, November 6 – 8, **1996**.

14. Present and Past Research Sponsors

1. NSERC - Natural Sciences and Engineering Research Council of Canada.
2. Canadian Foundation for Innovation
3. Campus Alberta Innovates
4. ExxonMobil
5. Bostik
6. FPInnovations/Celluforce
7. Total Petrochemical
8. Chevron-Phillips
9. Sud Chemie
10. LyondellBasell
11. SABIC
12. KFUPM - King Fahd University of Petroleum and Minerals
13. KACST - King Abdulaziz City for Science and Technology
14. BASF
15. Ontario Innovation Trust.
16. MMO - Materials Manufacturing Ontario.
17. ESTAC – Environmental Science and Technology Alliance Canada.
18. PREA – Premier Research Excellence Award.
19. Imperial Oil
20. Union Carbide

15. Patent Litigations

1. *Dow Chemical* versus HRD Corporation, **2015**-**2016**.
2. *Dow Chemical Canada* versus Nova Chemicals, **2012**-**2014**.
3. *Dow Global Technologies* versus LG Chemical, **2011**.
4. *Dow Chemical Canada* versus HRD Corporation (Marcus Oil & Chemical), **2008**-**2009**.
5. *Dow Chemical Company* versus Nova Chemicals, **2005**-**2013**.
6. *3M Innovative Properties Company and Dyneon LCC* versus DuPont Dow Elastomers, **2004**-2**007**.