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**Current Job Title:** Directeur de Recherche DR1 (CNRS)

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**ORCID ID:** <https://orcid.org/0000-0001-6437-5942>



## Professional Experience

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- 2021-present** *Directeur*, CP2M/CNRS UMR 5128, Villeurbanne, France
- 2014-present** *Directeur de Recherche DR1*, C2P2/CNRS UMR 5265, Villeurbanne, France
- Responsible for Polymer Reaction Engineering programme
- 2013-2020** *Directeur*, C2P2/CNRS UMR 5265, Villeurbanne, France
- 2011-2013** *Directeur de Recherche DR2*, C2P2/CNRS UMR 5265, Villeurbanne, France
- Responsible for Polymer Reaction Engineering programme
  - Scientific coordinator for Chemistry and Processes of Polymerisation group
- 2007-2011** *Professor and CRC Tier-1 Research Chair* in Polymer Reaction Engineering
- 2002-2007** *Directeur de Recherche DR2*, LCPP UMR 140/C2P2 UMR 5265, Villeurbanne,
- Responsible for Polymer Reaction Engineering programme
- 1997-Present** *Professor, ESCPE-Lyon*
- Assigned to LCPP UMR 140 (precursor to C2P2 UMR 5265)
  - Responsible for the “Polymer Reaction Engineering” teaching (ESCPE) and research (LCPP)
- 1993-1997** *Associate Researcher*, CNRS UMR 140, Villeurbanne, France
- Creation of Polymer Reaction Engineering Group
- 1989-1992** *Research Engineer*, ELF-Aquitaine /ATOCHEM, Mont & Nancy, France
- Modelling of olefin polymerisation processes.

## Education

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- 1997** Habilitation à diriger des recherches (HDR) Université Claude Bernard Lyon1
- Title: “Génie des procédés de polymérisation”
- 1985-1990** Ph.D. (Chemical Engineering), University of Massachusetts, Amherst MA, USA
- Title: "The Conceptual Design of Polymerisation Processes" – Creation of an expert system for polymer process design.
- 1980-1985** B.Eng. (Chemical Engineering), McMaster University, Hamilton ON, Canada

## Scientific Production and Supervisory Work (Summary)

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Publications (Peer review): 272

Patents: 6

Book Chapters: 12

Books (authored): 1

Key Note Lectures : 38

Seminars and invited conferences: 71

Oral Presentations (Submitted abstracts): 115

Poster Presentations: 183

MSc (or eq.): 33

PhD (co-) supervised: 42 finished + 9 current

PDF supervised: 19

## Research Interests and Vision

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My research programme has its roots in Polymer Reaction Engineering: the application of fundamental Chemical Engineering tools to understand, quantify and control polymerisation reactions. Knowledge is used to improve existing processes, and to design new processes and materials that respond to the requirements of society as a whole and to our industrial partners. The major focus of my work is in the areas of polyolefins and specialised latex production:

- |                  |   |
|------------------|---|
| Polyolefins      | <ul style="list-style-type: none"><li>• Mass transfer mechanisms in catalytic olefin polymerisation;</li><li>• Heat transfer mechanisms;</li><li>• Particle morphology development and fragmentation;</li><li>• Specialised reactor design for experimental investigations</li></ul>  |
| Latex Production | <ul style="list-style-type: none"><li>• High solid content latex products;</li><li>• Complex particle size distributions and latex rheology</li><li>• Innovative processes for emulsion production;</li><li>• Miniemulsions and hybrid materials;</li><li>• Stabilisation and coagulation of latexes; coagulator design.</li><li>• Modelling of particle growth;</li><li>• Reactor scale-up</li></ul> |

## Major Research Contributions

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- 1. Strategies for High-Solid-Content Latex (HSLC).** We have produced latexes with solid contents above 75% v/v but with extremely low viscosities for high flow applications (Boutti, S. et al. *Polymer*, 46, (2005) 1211; *Polymer*, 46, (2005) 1223). This was made possible through the application of population balance models to understand the dynamics of particle nucleation (Fortuny, M. et al., *AIChE J.*, **51**, 2521 (2005)). These projects have formed the collaboration with other industrial partners on metal primers, paper coatings, paint binders, and PVC. Also done modelling for these systems (e.g. Vale and McKenna, *Prog. Polym. Sci.*, **30(10)**, 1019; *Ind. Eng. Chem. Res.*, **46**, 643 (2007); *Ind. Eng. Chem. Res.*, 48, 5193 (2009)).
- 2. Process Innovation in Emulsification.** Monomer emulsification is an extremely promising means of making high-value products with the same ingredients as standard emulsion polymers. Typically, a polymerisable dispersion of droplets is created using high intensity mixers (Lopez, A et al., *Ind. Eng. Chem. Res.*, 47, 6289 (2008)). We have looked at devices that can be used as industrial alternatives to ultrasonication (type lab scale approach), including rotor stators and static mixers (U. El-Jaby et al., *Macromol. React. Engng.*, **2**, 356 (2008)). In conjunction with in situ surfactants, static mixers consume less energy than a high pressure homogeniser (El-Jaby et al., *AIChE J.*, **57**, 1585 (2011))
- 3. Specialised reactor design for the study of olefin polymerisation.** We adapted the concept of stopped flow to polymerisation at very short times (40 ms) under pressure (15 bars) for the study of particle fragmentation process (Di Martino et al, *Macromol. React. Engng.*, 1, 284 (2007)) and showed that nascent polymer structures and kinetics are very different from those observed after a few seconds (Di Martino et al. *Macromol. React. Eng.*, 1, 165 (2007)). Further variations on this original concept (Silva et al., *Macromol. Rapid. Commun.*, 26, 1846 (2005)) have allowed us for the first time to directly measure the surface temperature of growing particles in realistic situation (Tioni et al., *AIChE J.*, 58, 256-67 (2012)).
- 4. Challenging the preconceived notion of how to model particle growth and transfer phenomena in olefin polymerisation.** For several years starting in the early 80s, researchers used relatively simplistic models that assumed instantaneous fragment, uniform particle growth and mass transfer by diffusion of monomer from the bulk phase to the active sites. We showed that morphology needs to be taken into consideration (e.g. Martin et al., *Chem. Eng. J.*, **87**, 89 (2002)) and that mass transfer can occur by convection inside the in

addition to the accepted diffusion mechanism (Kittelsen et al, Chem. Eng. Sci., 56, 3997, (2001)). In addition, and perhaps more importantly, we were the first group to begin to model particle morphology using a force balance inside the particles and to begin to relate the development of particle morphology to the rate of reaction, polymer properties and local conditions (Di Martino et al., Macromol. Reac. Engng., 1, 338 (2007)). This concept has now been taken up by a number of other groups to create some very powerful models.

**Awards**

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- **2020-22 Prime d'Encadrement Doctoral et de Recherche**  
CNRS
- **2013-15 Prime d'excellence scientifique**  
CNRS
- **2007 Tier 1 Canada Research Chair**  
Canada Research Chairs Programme – Government of Canada
- **2007 Ontario Research Fund**  
Ministry of Research and Innovation of Ontario:

**Expertise/Project Evaluation**

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- **STANFORD LINEAR ACCELERATOR**  
⇒ 2020 : Review of proposal for use of Stanford Synchrotron Radiation Lightsource
- **FONDS QUÉBÉCOIS DE LA RECHERCHE SUR LA NATURE ET LES TECHNOLOGIES,**  
Evaluation of research proposals for NanoQuebec  
⇒ 2014: Président du Comité d'experts- Évaluation infrastructure en nanotechnologies  
⇒ 2012: Président du comité thématique 803D – Chimie matériaux  
⇒ 2011: Membre du Comité d'experts- Évaluation infrastructure en nanotechnologies  
⇒ 2010: Président du comité sur les nanotechnologies du bois  
⇒ 2009: Membre du comité d'évaluation
- **AERES – Agence d'évaluation de la recherche et l'enseignement supérieur**  
⇒ 2011: Member of evaluation committee
- **ATLANTIC CANADA OPPORTUNITIES AGENCY**  
⇒ 2010: External evaluator for research proposals
- **KING FAHD UNIVERSITY OF PETROLEUM & MINERALS (KFUPM)**  
Dhahran, Saudi Arabia  
⇒ 2009-2011: Evaluation of scientific projects and requests for funding
- **AGENCE NATIONALE DE RECHERCHE**  
⇒ 2009, 2010: Evaluation of requests for funding
- **MINISTRY OF RESEARCH AND INNOVATION OF ONTARIO**  
2009, 2010: Early Research Awards
- **REGION LORRAINE**  
⇒ 2007-2010: Expert evaluator for Pôle : "MATERIAUX, ENERGIE, PROCEDES, PRODUITS"  
⇒ 2006: Evaluation of *Contrat Plan d'Etudes Régional*
- **COMMISSION EUROPEENNE**  
⇒ 2008: Expert for LARGE (7<sup>th</sup> Framework Program)  
⇒ 2007: Expert for SMALL (7<sup>th</sup> Framework Program)
- **IKERBASQUE: BASQUE FOUNDATION FOR SCIENCE**  
⇒ 2008: Evaluation of dossiers of candidates for research positions at Ikerbasque
- **Natural Science and Engineering Research Council**  
⇒ 2015: Canada Research Chair program  
⇒ 2003: Evaluation strategic research project proposals

- **SWISS NATIONAL SCIENCE FOUNDATION**  
⇒ 2013, 2003: Evaluation research proposals
- **THE RESEARCH COUNCIL OF NORWAY**  
⇒ 2002: Evaluation for program “Knowledge-building projects with user involvement”

## Conference Organisation and Other Service

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- **Conference/Symposium Chair, Organiser**

POLYMER REACTION XI

Conference Chair

⇒ Scottsdale AZ, 11-15 Dec 2022

EUROPEAN CONFERENCE on CHEMICAL ENGINEERING

Topic Manager – Polymer Reaction Engineering

⇒ Nice: 2015

WORKING PARTY ON POLYMER REACTION ENGINEERING

Cochair of 2012 PhD Workshop

⇒ Lyon: 2012

INCOREP/ECOREP ([www.incorep.org](http://www.incorep.org))

(International conference on the reaction engineering of polyolefins, *previous the* European conference on the reaction engineering of polyolefins).

Creator and principle organiser of ECOPEP/INCOREP conference series:

⇒ Lyon (ECOREP I, II, III): 2000, 2003, 2005

⇒ Montréal, Canada (INCOREP I): 2008

⇒ Ferrara, Italy (INCOREP II): 2013

⇒ Geleen, Netherlands: 2017

POLYMERS IN DISPERSED MEDIA (PDM, all events Lyon, France)

Chair and/or co-organiser of PDM in:

⇒ PDM 2012 with Bernadette Charleux, Elodie BOURGEAT-LAMI and Hamid ELASSAIRI

⇒ PDM 2004, with Elodie BOURGEAT-LAMI et Hamid ELASSAIRI

RENCONTRES du CENTRE JACQUES CARTIER

⇒ 2017: Fibres et revêtements avancés : du bécher au procédé, Montréal, QC, Canada. Co-Chair and Organiser

⇒ 2016: Changing TRL, Changing Scale in the Polymer Industry, Lyon, France; Co-Chair and Organiser

⇒ 2012: EMULSIFICATION, Modeling, Technologies and Applications. Member of the scientific committee (Lyon, France)

⇒ 2007: Properties, Monitoring and Control of Polymerisation Reactors. Co-Chairman with Dr. Nida Sh'eibat Othman (Lyon, France)

⇒ 2003: Modelling, Optimisation & Control of Polymer Reactors. Co-Chairman with Dr. Nida Sh'eibat Othman. (Lyon, France)

⇒ 1998: Polymer Reaction Engineering On-line. (Lyon, France)

WORLD CONGRESS on CHEMICAL ENGINEERING: WCCE8

⇒ 2009, Montreal, Canada: Chair of the Symposium on Advanced Polymer Composites and Hybrids

40TH IUPAC INTERNATIONAL SYMPOSIUM ON MACROMOLECULES, MACRO 2004

⇒ 2004, Paris, France: Co-chair (with Prof. W. Reed, Tulane U., New Orleans, LA) of the symposium Polymerization processes, control and monitoring, Paris, France

3rd WORLD CONGRESS on EMULSIONS

⇒ 2003, Lyon, France: Chair on symposium “Emulsions in polymer production”

## Scientific/Organising Committees

- ⇒ 2022, 7<sup>th</sup> International Conference on Population Balance Modeling (Scientific Committee), Lyon, France, 9-11 May
- ⇒ 2015, European Conference on Chemical Engineering (Scientific Committee), Nice, France
- ⇒ Congrès Francophone du Génie des Procédés (Scientific Committee): 2014, Agadir, Morocco; 2016, Safi, Morocco.
- ⇒ 2013, Congrès de la Société Française du Génie des Procédés (Organising, Scientific Committees), Lyon, France
- ⇒ 2008, 2014 Prague, Czech Republic: POLYMER COLLOIDS: FROM DESIGN TO BIOMEDICAL AND INDUSTRIAL APPLICATIONS:
- ⇒ 2006, Halifax, Nova Scotia, Canada: POLYMER REACTION ENGINEERING VI, (Technical Chairman, "Process Monitoring and Control / On-Line Sensors")
- ⇒ 2006, London, England: FLUID MIXING 8
- ⇒ 2003, Québec, QC, Canada: POLYMER REACTION ENGINEERING V

## Other Service

- ⇒ Séminaire Valorisation – SRH, Presentation on Valorisation of Research, Laboratory visits for the staff in Human Resources of the Regional Delegation of the CNRS DR07, 3 May, 2022
- ⇒ Chairman of the "WORKING PARTY ON POLYMER REACTION ENGINEERING" of the European Federation of Chemical Engineering (EFCE), 2006-2012

## Expert Witness

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- Finnegan, Henderson, Farabow, Garrett & Dunne (Washington D.C.), Patent Validity, 2013-14
- Hogan Lovells International LLP (Amsterdam), Trade secrets litigation, 2016
- Finnegan, Henderson, Farabow, Garrett & Dunne (London, UK.), Patent Validity, 2018-19

## Consulting

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|-----------------------------------|---------------------------------|
| • Dacilim Chemicals (SK)          | • INEOS/BP CHEMICALS (FR/UK)    |
| • ATOCHEM/ARKEMA (FR);            | • ECOPETROL (CO)                |
| • Total Petrochemicals (BE, USA); | • MITSUBISHI CHEMICALS (JP)     |
| • ExxonMobil Chemicals (USA);     | • BASF (DE)                     |
| • D.S.M. (NL);                    | • BASF (USA) - Catalysis        |
| • Sabic (NL, KSA);                | • TARGOR (DE)                   |
| • Sharq (KSA);                    | • DuPONT Canada (CA)            |
| • Borealis (NO);                  | • Integrated Lab Solutions (DE) |
| • Sherwin Williams (USA).         |                                 |

## Editorial Work

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- **Associate Editor, 2009 – 2015**  
Canadian Journal of Chemical Engineering
- **International Advisory Board,**  
Canadian Journal of Chemical Engineering, 2016 – present  
Polyolefin Journal, 2012 – present  
Chemical Ing. Tech., (Wiley-VCH Verlag GmbH) 2011- 2016  
Macromolecular Materials & Engineering (Wiley-VCH Verlag GmbH) 2005 – present  
Macromolecular Reaction Engineering (Wiley-VCH Verlag GmbH) 2006 – present  
Industrial & Engineering Chemistry Research (ACS) 2005-2007
- **Editorial Board**  
Polymer Reaction Engineering (Marcel Dekker, N.Y.) 2001-03.  
ChemBioEng Reviews (Wiley-VCH Verlag GmbH), 2014-
- **Guest Editor**  
Macromolecular Symposia, Volume 285, 2009  
Polymer, Special issue on Polymers in Dispersed Media, 2005  
Chemical Engineering Science, Special Issue ECOREP Conference, 2001

## Review Work

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- ACS Macroletters
- AIChE J
- Canadian J of Chemical Eng
- Chemical Engineering J
- Chemical Engineering Processing
- Chemical Engineering Science
- Chemical Engineering & Technology
- Colloid and Polymer Science
- Colloids Surfaces A: Physicochemical and Engineering Aspects
- European Polymer Journal
- Ind. & Engineering Chemistry Research
- J Applied Polymer Science
- J Catalysis Part A
- J Coatings Technology
- J Colloid and Interface Science
- J Plastic Film & Sheeting
- J Polymer Science Part A: Polym. Chem  
Langmuir
- Macromolecular Reaction Engineering
- Macromolecular Chemistry and Physics
- Macromolecular Materials and Engineering
- Macromolecular Rapid Communications
- Macromolecular Symposia
- Macromolecular Theory and Simulations
- Macromolecules
- Polymer
- Polymer Bulletin
- Polymer International
- Polymer J
- Polymer Reaction Engineering
- Polymers for Advanced Technology
- Polyolefins Journal
- Rheology
- Techniques de l'Ingenieur

## Teaching and Short Courses

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### *Graduate level courses*

#### **IFP School/ENSPM** – Rueil Malmaison, France

*Course:* Advanced Technology in Polymers, Petrochemicals and Plastics, Niveau Mastère

*Year(s):* 1994-present

*Hours:* 18-24 hours/year

#### **Queen's University** – Kingston, ON, Canada

*Course:* CHEE 807 - Advanced Topics in Chemical Engineering: From Petrochemicals to Plastics (with Dr. R Pelletier)

*Year(s):* 2009

*Hours:* 36 hours

*Course:* CHEE 807 - Advanced Topics in Chemical Engineering: Polymer Process Design

*Years(s):* 2008

*Hours:* 18 hours

*Course:* CHEE 903 - Polymerisation in Dispersed Media (MSc/PhD)

*Years(s):* 2009-2010

*Hours:* 18 hours/year

*Course:* CHEE 904 - Olefin Polymerisation Processes (MSc/PhD)

*Year(s):* 2010

*Hours:* 18 hours

#### **Université Claude Bernard Lyon-I** - Villeurbanne, France

*Course:* Génie de la polymérisation

*Years(s):* 1996-2004

*Hours:* 15-30 hours/year

### *Undergraduate courses*

#### **Queen's University** – Kingston, ON, Canada

*Course:* CHEE 330 - Heat and Mass Transfer

*Year(s):* 2010

*Hours:* 36

*Course:* CHEE 317 - Mass Transfer and Mass Transfer Unit Operations

*Year(s):* 2009-2010

*Hours:* 36 hours/year

### **ESCPE-Lyon**

Course: Génie de la polymérisation

Years(s): 1996-present

Hours: 14-28 hours/year

### **Intensive short courses for professionals (\* "In-house" course)**

31. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) October 3-7, 2022, PTT GC, Rayong, Thailand.
30. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) June 20-23, 2022, Repsol, Sines Portugal.
29. \*Condensed mode cooling for gas phase polyethylene reactors, June 02, 2022, Daelim Chemicals, South Korea, On-line course.
28. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) April 04-07, 2022, Lyon, France.
27. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) March 07-09, 2022, Braskem On-line course.
26. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) October 28-30, 2019, Houston, TX, USA
25. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Dr C. Boisson, C2P2; Dr P. Des Lauriers, CPChem, USA) Nov. 19-22, 2018, Lyon, France
24. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Waterloo, Canada), Oct. 2-4, 2017, SABIC, Geleen, NL
23. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) September 20-22, 2017, Houston, TX, USA
22. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) September 19, 2017, La Porte, TX, USA
21. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) April 14-15, 2016, La Porte, TX, USA
20. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) April 11-13, 2016, Houston, TX, USA
19. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) May 18-21, 2015, Lyon, France
18. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada) Nov 18-21, 2013, Houston, Texas, U.S.A.
17. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Alberta, Canada), Nov 11-13, 2013, SABIC/Lanxess/DSM, Geleen, NL
16. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Waterloo, Canada), May 25-28, 2013, SABIC SRT, Riyadh, Kingdom of Saudi Arabia
15. Polyolefin Reaction Engineering (with Prof. JBP Soares U. Waterloo, Canada), May 28-30, 2012, DUBAI, UAE
14. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Waterloo, Canada), Dec 28-30, 2011, ECOPETROL, Piedecuestra, Columbia
13. \*Polyolefin Reaction Engineering, Nov 16-17, 2011, Borealis, Linz, Austria
12. Polyolefin Reaction Engineering (with Profs. JBP Soares and LC Simon of U. Waterloo, Canada), May 23-27, 2011, Lyon, France.
11. \*Polyolefin Reaction Engineering (with Prof. JBP Soares U. Waterloo, Canada), May 18-20, 2011, SABIC/Lanxess/DSM, Elsloo, LN
10. Polyolefin Reaction Engineering (with Profs. JBP Soares and LC Simon of U. Waterloo, Canada) April 12-16, 2010, Houston, Texas, U.S.A.
9. \*Polyolefin Reaction Engineering, (with Prof. JBP Soares of U. Waterloo, Canada) Dec. 13-17, 2008 SHARQ, Al-Jubayil Industrial City, Kingdom of Saudi Arabia.
8. Polyolefin Reaction Engineering (with Profs. JBP Soares and LC Simon of U. Waterloo, Canada) April 19-23, 2008, Dubai, United Arab Emirates.
7. \*Procédés de Polymérisation et Applications, ARKEMA, Lacq, France, 5-7 Dec 2007
6. \*Procédés de Polymérisation, ARKEMA, Lacq, France, November 20-22, 2006.
5. Polyolefin Reaction Engineering (with Profs. J Soares and LC Simon of U. Waterloo, Canada) November 15-17, 2006, Lyon, France.
4. Polyolefin Reaction Engineering (with Profs. J Soares and LC Simon of U. Waterloo, Canada) July 10-15, 2006, Porto Alegre, Brazil.
3. Polyolefin Reaction Engineering (with Profs. J Soares, L Simon, U. Waterloo; C. Kiparissides, Aristotle University Technology, Greece) 17-19 June, 2005, Lyon, France.

2. Polymer Reaction Engineering. Short Courses for the Professional Education Department (Formation Continue) of the ESCPE-Lyon (2002, 2005)
1. Polyolefin Reaction Engineering. OSPT Short Course, Twente University, Enschede, Netherlands (2002 and 2003)



## Appendix 1. Funding Sources

### Public Sector Projects

#### 1. ANR – Agence Nationale de Recherche (France)

2018-2022 – CleanPoly: Elimination of fouling and coagulum in polymerisation reactors

- Role: Project Leader (with LAGEP – UCB, Arkema, Kemone) ANR Funding 583 722 €

2016-2020 – Thermpoly: Experimental and modeling study of ethylene polymerization in gas phase reactors: impact of thermodynamics

- Role: Project Partner (with ETH Zurich, LAGEP – UCB), ANR Funding 265,477 €

2016-2019 – Photo-B: Développement de nouveaux systèmes photoamorceurs borés pour une photopolymérisation durable

- Role: Project partner

2016-2019 – LISIP : Laboratory for Innovation, Scale-Up and intensification of Polymerisation. Projet LabCom with Activation, S.A.

- Role: Project partner

2013-2017 – SCALE-UP: Innovative approaches to process scale-up and scale-down for latex production

- Role: Project leader, ANR Funding 874 630 €

2007-2011 – REACT-OP: Reactors, Reactions and Structures in Olefin Polymerisation: A novel investigation of the world's most important polymers

- Role: Project partner

#### 2. Région Auvergne Rhône Alpes

2020-2024 – *IFLEM* : Innovations en Fluoropolymères pour l'Énergie et les Matériaux

- Role : Project leader

#### 3. Dutch Polymer Institute

2018-2022 – *Disentangled*: Control of crystallisation, chain entanglement and rheology via process conditions

- Role: Project leader

2016-2018 – *G4P*: Gas Phase Propylene (Pre)Polymerisation: Impact of catalyst activation, prepolymerisation and support morphology on polypropylene production

- Role: Project leader

2013-2017 – *HIPSTER*: High Impact Polypropene: Structure Evolution and impact on Reaction

- Role: Project leader, coinvestigator with V. MONTEIL (C2P2)

2012-2016 – *GEOCAT* : Investigation of the impact of the geometry of catalyst supports on olefin polymerisation

- Role: Project leader, coinvestigator with V. MONTEIL (C2P2)

2009-2013 – *IMPOR* : Improved Models for Polyolefin Reactors

- Role: Project leader, coinvestigator with Professor J. Kuipers (TU Eindhoven)

2008-2012 – *SITE COUNT*: Measuring active site concentration of olefin polymerization catalysts

- Role: Project leader, coinvestigator with Dr. C. BOISSON (C2P2), Professor V. Busico, (U. Naples)

2008-2011 – *START-UP*: The study of the role of the support, support preparation and initial conditions on olefin polymerisation

- Role: Project leader, coinvestigator with V. MONTEIL (C2P2)

#### 4. Canada

2010-2012 – MITACS Accelerate : Innovative coagulator design for the production of advanced composite materials

- Role: Principle Investigator

2009-2011 – Ministère de la recherche et Innovation de l'Ontario fonds post doctoraux

2009 – Conseil de recherches en sciences naturelles et en génie du Canada, Infrastructure et Outis de recherche

- Role: Principle Investigator

2007-2011 – Canada Research Chair - Tier 1

- Role: Chair Holder

2007-2011 – NSERC Discovery grant

- Role: Principle Investigator

2007 – Canadian Foundation for Innovation: Infrastructure grant

- Role: Principle Investigator

2007 – Queen’s University : Start-up grant

- Role: Principle Investigator

2007 – Ministry of Research and Innovation of Ontario: Ontario Research Fund

- Role: Principle Investigator

## 5. **European Commission**

2005-2007 - Integrated Project (FP6) 2005-2009. NAPOLEON: Nanostructured Waterborne Polymer Films with Outstanding Properties.

- Role: Project partner and investigator

2001-2005 – Cost-Shared Research and Technical Development (FP5): "POLYPROP - Polyolefins: Improved Properties, reactor Control and Operability

- Role: Project coordinator and coinvestigator

1997-2000 – BRITE-EURAM (FP4): "CATAPOL : The Reaction Engineering of Heterogeneously Catalysed Polymerisations".

- Role: Project coordinator and coinvestigator

## 6. **Fonds France-Canada pour la Recherche (Ambassade de France au Canada)**

2004-2005 – University of Waterloo: "Development of Hybrid Polyolefin-clay Nanocomposites"

- Role: Coinvestigator with Prof. J. Soares, Prof L. Simon (U. Waterloo)

2001-2002 – University of Ottawa: "High Quality Latex Dispersions

- Role: Coinvestigator with Prof. M. Dubé (U. Ottawa)

## 7. **France-Brazil**

2001-2003 – CNRS-CNPq: FAENQUIL, Universidad de Lorena, SP: "Latex à Haut Taux de Solide: Production, suivie en ligne et mise au point de tensioactifs réactifs" (1 PhD co-supervised with Prof. J.C.C. Pinto, UFRJ Rio de Janeiro)

- Role: Coinvestigator with Prof. A.M. dos Santos (U. Lorena)

1998-2000 – CAPES-Cofecub: “Capteurs en ligne pour reacteurs de polymerisation” (2 doctorants cosupervisés avec le Brésil)

- Role: Coinvestigator with. Profs. G. FEVOTTE (France) and J.C. Pinto (Brasil)

## **Industrial/Private Sector Financing**

2022 SABIC (Geleen, NL)

2021 Arkema (Colombes, Pierre Bénite, FR)

2019 SABIC (Geleen, NL)

2019 SCG (Bangkok, TH)

2019 Arkema (Serquigny, FR; Colobmes FR)

2018 ExxonMobil Chemicals (Baytown, TX, USA)

2017 European Organic Coatings (Brussels, BE)

2017, 2018 Asahi Glass Company (Tokyo, Japan)

2016 INEOS (Lavera, France)

2016 Arkema (Serquigny, France)

2016 SNF Floerger (Andrézieu, France)

2016 Manufacture Française des Pneumatiques MICHELIN (Clermont Ferrand, France)

2016 Braskem (Trionfo, RS, Brazil)

2014 Toray Plastics Europe (Saint-Maurice-de-Beynost, France)

2013 Sherwin Willimas Company (Cleveland, OH, USA)

2012 Toray Plastics Europe (Saint-Maurice-de-Beynost, France)

2011 Kaplan Energies (Pierre Bénite, France)

- 2010 SABIC KSA (Ryadh, Kingdom of Saudi Arabia) : Role of support properties on metallocene performance
- 2009 DuPont Canada (Kingston, ON, Canada) : Structured Latexes
- 2008 BASF (Ludwigshafen, DE) : High solid content latexes
- 2007 Larfage (St Quentin Falavier, France) : Additives for concrete and plaster
- 2007 Arkema (Lacq, France) : Modelling of MMA cast sheet polymerisation
- 2006 Toray Plastics Europe (Saint-Maurice-de-Beynost, France) : Adhesives for PET films
- 2005 ATOFINA (Lacq, France) : High solid content acrylic latexes
- 2005 Xerox Research Centre of Canada (Mississauga, CA) : Emulsification for polymerisable dispersions
- 2003 TOTALFINA (Feluy, BE) : Polymerisation of olefins on supported catalysts
- 2003 CRAY VALLEY (Villers St Paul, France) : Bimodal latex for paint binders
- 2003 INEOS(Lavera, France) : Nascent polymerisation of olefins
- 2003 SOLVIN (Tavaux, France) : High Solid Content PVDC latex
- 2002 ATOFINA (Pierre Bénite, France) : Emulsion polymerisation of vinyl chloride
- 2002 ATOFINA (Lacq, France): calorimetry for pilot plant reactor control
- 2001 Japan Polychem (Mitsushima, JP) : High impact polypropylene copolymers
- 1999 ATOCHEM (Serquigny, France) : Modelling of High solid content acrylic latexes
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## Appendix 2. Peer-reviewed publications cited in the ISI Web of Knowledge

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- A. Ben Mrad, N. Sheibat-Othman, T.F.L. McKenna, "Polyethylene Slurries: Swelling and Solubility,"

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4. AQUEOUS PRIMER DISPERSION AND ITS USE TO PRODUCE MULTILAYER FILM, K. Ouzineb, T.F.L McKenna, B. Rezende Lara, PCT/FR2017/052873
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## Appendix 4. Conférences, Séminaires et Participation au Congrès

### Plenary Lectures/Key Note addresses/Invited Oral Presentations (Conferences)

#### 2020

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#### 2019

37. Club Emulsion, Sept.30-Oct. 01, Colombes, France, “Particle stability and coagulation - A solved problem?” T.F.L. McKenna, N. Sheibat-Othman, D. Cheng
36. DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, 11-14 June, 2019, “Condensing agents in ethylene polymerisation: It’s not just the heat!”, Timothy F.L. McKenna
35. SPE Polyolefins, *Houston, TX, U.S.A. 24-27 February, 2019*, “Improved understanding of the impact of alkanes when using condensed mode cooling for PE production, Timothy F.L. McKenna\*, Arash Alizadeh, Rita Alves, Fabiana N. Andrade

#### 2018

34. Polymer Reaction Engineering X, 19-23 May 2018, Punta Cana, DR, “Impact of induced condensing agents on reactor performance for ethylene polymerisation in the gas phase.”

#### 2017

33. Entretiens du Centre Jacques Cartier: Fibres et Revêtements, B. Rezende-Lara, T.F.L. McKenna, K. Ouzineb, Improvement of barrier property by reformulation of acrylic latexes,” 1§-17 October, 2017, Montréal, PQ, Canada
32. Canadian Conference on Chemical Engineering, 22-25 October, 2017, “Towards a better understanding of condensed mode cooling.”
31. Advances in Polyolefins, Santa Rosa California, 24-27 Sept 2017, “Towards a better understanding of condensed mode cooling.”
30. Hangzhou International Polymers Forum, Hangzhou, China, 22-25 May, 2017, “Condensed mode cooling for ethylene polymerisation reactors.

#### 2016

29. Lyon-Polymer Science and Engineering Workshop, Lyon, France, 7-8 April, 2016, “An integrated approach to the scale up of emulsion polymerisation”

#### 2015

28. World Polyolefin Congress 2015, Tokyo, Japan, 23-27 November 2015, “Impact of condensable compounds on the gas phase polymerisation of ethylene”
27. Advances in Polyolefins, Santa Rosa California, 20-24 Sept 2015, “Impact of Induced Condensing Agents in the Gas Phase Polymerisation of Ethylene”
26. Polymer Reaction Engineering IX, Cancun, MX, 10-15 May, 2015, “Impact of Induced Condensing Agents in the Gas Phase Polymerisation of Ethylene”

#### 2014

25. Canadian Conference on Chemical Engineering 2014, Niagara Falls, ON, Canada, 2014, 20-23 October, “Polymer Reaction Engineering: Still alive and kicking”.
24. Frontiers of Polymer Colloids: From Synthesis to Macro-Scale and Nano-Scale Applications, Prague 2014, 21-24 July, 2014, Prague, Czech Republic, “A combined CFD-PBM approach to the scale-up of emulsion polymerisation processes”

#### 2013

23. Advances in Polyolefins, Santa Rosa California, 13-16 Octobre, “Effect of the inert condensing agent (ICA) during gas phase ethylene polymerisation”

#### 2012

22. ChemReactor XX, Luxembourg City, Luxembourg, 3-7 December, 2012, “Olefin Polymerisation Reactors: What kind of problems do we face in olefin polymerisation reactors, and what kind of lab tools can we use to study them?”

21. Chemelot International Polyolefins Symposium 2012, Maastricht, The Netherlands, "Specialised tools for the study of the first instants of catalysed olefin polymerisations. Some conclusions and speculations on what's next."
20. 8th International Workshop on Heterogeneous Ziegler-Natta Catalysis, JAIST, Kanazawa, Japan, Keynote Address, "The study of olefin polymerisation at short times: gas and solution phase studies using specially adapted reactors,"
- 2011**
18. 61st CSChE Conference, London, Ontario, Canada, Keynote Address, "The study of olefin polymerisation at short times: Studies using specially adapted reactors."
17. 61st CSChE Conference, London, Ontario, Canada, "Continuous Miniemulsification Using Static Mixers,"
16. International Polymer Colloids Group Conference, Durham, NH, Keynote Address, "Options for Efficient Miniemulsification and Continuous Processes."
15. UK Colloids Forum, London, UK, "Continuous Miniemulsification Using Static Mixers."
14. Advances in Polymer Science and Technology II, Linz, Austria, "The study of olefin polymerisation at short times: Studies using specially adapted reactors."
- 2008**
13. 47th Microsymposium of Polymer Colloids: from Design to Diomedical and Industrial Applications, Prague, Czech Republic, "Emulsification for latex production."
- 2007**
12. 5th International Workshop on Heterogeneous Ziegler-Natta Catalysis, JAIST, Kanazawa, Japan, "Growth and evolution of particle morphology: an experimental & modelling study."
11. Advances in Polyolefins: 2007, Santa Rosa CA, USA "Particle Growth & Evolution of Morphology: A survey and some open questions."
- 2006**
10. World Polymer Congress, 41st International Symposium on Macromolecules (IUPAC MACRO 2006), Rio de Janeiro, Brazil, "High Solid Content Latex Systmes."
- 2005**
9. CHEMPOR 9, Coimbra, Portugal, Keynote Address, "High Solid Content Latexes: Process development via experiments supported by modelling."
- 2004**
8. METCON 4, Houston, Texas, USA, "Toward a Morphological Model of Polyolefin Particle Growth."
7. 40th World Polymer Congress/IUPAC, Paris, France "Use of conductivity measurements to monitor particle formation in emulsions."
- 2003**
6. Gordon Research Conference on Polymer Colloids, Tilton, NH, Etats-Unis, "High Solids Content Latexes."
- 2002**
5. Journée Thématique de la Fédération des Polyméristes Lyonnais, Lyon, France, "Nouveau Modèle pour la croissance des particules pendant la polymérisation des olefins."
- 2001**
4. Leuven Summer School on Catalysis, Ostend, Belgique, "Modelling of particle growth in olefin polymerisation"
3. NASCRE: North American Symposium on Chemical Reaction Engineering, Houston, TX, USA, "Progress and Challenges in Describing Particle Growth for Polyolefins."
- 2000**
2. Conference on Insertion Polymerization at BASF Aktiengesellschaft, Ludwigshafen, Germany, "Modelling Transfer Phenomena in Heterogeneous Catalysts for Polyolefins," Sept. 28-29, 2000.
1. Polymer Reaction Engineering IV, Palm Coast, Florida, USA "Reaction Engineering Aspects of Polyolefins."

### **Invited Presentations (Industrial groups)**

#### **2019**

33. ExxonMobil Chemicals, Understanding the impact of condensing agents on gas phase PE processes, Baytown, TX, USA, 25 October, 2019

#### **2017**

32. Integrated Lab Solutions, Berlin DE, Reactor Design: Improved tools for laboratory investigation of gas and slurry phase polymerisation of olefins, 6 February, 2017

**2016**

31. ExxonMobil Chemicals, Baytown, TX, "Impact of Induced condensing agents on the behaviour of gas phase ethylene polymerization," 24 October 2016
30. Total Petrochemicals Ltd., Deerpark TX, "Reaction engineering of olefin polymerisation," 20 April

**2015**

29. Michelin, Clermont-Ferrand, France, 2 April, 2015, "Polymers: products by process. The interaction of chemistry and reaction engineering in determining polymer properties".

**2014**

28. INEOS France, Lavéra, November 5, "The impact of ICA on ethylene polymerization,".

**2013**

27. ExxonMobil Chemicals, Baytown, TX, "Condensed mode cooling in polyethylene reactors," November 21
26. SABIC Technical Centre, Riyadh, Kingdom of Saudi Arabia, "New perspectives in polyolefin research – Reaction Engineering"

**2012**

25. INEOS France, Scientific Day, "Specialised reactor technology for the study of polyolefins."

**2011**

24. Polymer Latex, Marl, Germany, "Different technologies for miniemulsification."

**2010**

23. Sherwin Willimans Company, Cleveland OH, USA, "High Polymer Content Dispersions: A review and some recent results."
22. Xerox Research Centre of Canada, Mississauga, ON, Canada, "Technologies for high solid content latex."

**2009**

21. Cytec Surface Specialties, Drogenbos, BE, "Miniemulsification technologies."

**2008**

20. Sherwin-Williams Company, Cleveland, OH, "Different Routes to High Solid Content Latexes."
19. GRUPO KUO, S.A.B, Mexico, " High Solid Content Latex Systems."
18. BASF GmbH, Ludwigshafen, Germany, "Emulsions, miniemulsions and reactors for latex production."
17. SulzerChemTech, Winterthur, Switzerland, "Emulsification for latex production: Static Mixers, Rotor Stators, Nanocomposites and Future Directions."
16. Xerox Research of Canada, Mississauga ON, " Emulsification for latex production: Rotor Stators, Static Mixers, Nanocomposites and Future Directions."

**2005**

15. SABIC Europetrochemicals, Geleen, Pays Bas, "Polyolefin Research at the LCPP: Single particle growth and morphology."
14. SABIC Europetrochemicals, Geleen, Pays Bas, "Study of Impact copolymer particle growth."
13. Innovene NOH, Bruxelles, Belgique, "Polyolefin Reaction Engineering: Fundamental Particle Level Research."
12. BCC-SINOPEC, Beijing, China, "Study of Impact Copolymer Growth."

**2004**

11. Xerox Research Centre of Canada, Mississauga, Canada, "Miniemulsion Polymerisation: A look at fundamentals, static mixing and some interesting (potential) end-uses."
10. Borealis OY, Porvoo, Finland, "The Morphology of Polyolefin Particles."
9. Borealis OY, Porvoo, Finland, "Improvements in the production of high impact polypropylene,"

**2003**

8. Rhodia Recherches, Aubervilliers, France, "Génie de la polymérisation en milieu divisé."

**2002**

7. Centre de Recherche Fina, Feluy, BE, "Vers une meilleure modélisation de la croissance des particules pendant la polymérisation des olefins."
6. Statoil, Trondheim, Norway, "Production of High Solids Content, Low Viscosity Latex for Pressure Sensitive Adhesives."
5. BP Chimie, Lavéra, France, "Modeling of Particle Growth, Fragmentation and final Morphology."
4. EUROFORUM Latex synthétiques et artificiels – Propriétés, Applications et Innovations, "Comment fabriquer des latex à haut taux de solide et à faible viscosité."

**2001**

3. "Improved Particle Growth Models for Olefin Polymers," Invited Seminar, ExxonMobil Chemicals, Baytown, Texas, 5 January, 2001.

**2000**

2. Targor GmbH, Ludwigshafen, Allemagne, "Future directions for research in polyolefins,"
1. Exxon Chemicals, Baytown Texas, "Modelling of heat transfer on polymerising particles: an overview with CFD."

**Invited Presentations (Academic Institutions)**

**2015**

25. Institut de Chimie de Clermont-Ferrand, Clermont-Ferrand, France, 2 April, 2015, "Polymers: products by process. The interaction of chemistry and reaction engineering in determining polymer properties".

**2013**

24. University of Houston, Chemical Engineering Department, "Polyolefin Reactors," November 22.
23. KAUST, Jeddah, Saudi Arabia, "Chemical Engineering Tools for a Better Understanding of the Polymerisation of Olefins on Supported Catalysts."

**2011**

22. Université de Strasbourg, Strasbourg, France, "Miniemulsification: Options for Efficient Miniemulsification and Continuous Processes."

**2009**

21. Ecole Polytechnique de Montreal, Montreal QC, Canada, "Emulsification using static mixers."
20. International Polymer Colloids Group Master Class Series, Il Ciocco, Italy, "An introduction to Polymer Reaction Engineering."

**2005**

19. Japan Advanced Institute for Science and Technology, Nomi, Ishikawa, Japan, "Single particle growth and morphology for polyolefins."
18. LGC, Toulouse, France, "A look at fundamentals, static mixing and some interesting (potential) end-uses of miniemulsion polymerization."
17. Chinese Academy of Forestry, Nanjing, China, "Recent Advances in Emulsion Polymerisation."
16. Zhe Jiang University, Hangzhou, China, "Single Particle Growth and Morphology Modelling for Polyolefins."
15. Heriot Watt University, Edinburgh, Scotland, "Challenges in Polymerisation in Dispersed Media."

**2004**

14. Universidad Politecnico de Madrid, Madrid, Spain, "Polymer Reaction Engineering: What is it? Why Bother? A "Forest Talk."
13. University of Porto, Porto, Portugal, "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization: A New Nucleation Profile."
12. Instituto Superior Tecnico, Lisbon, Portugal "High Solid Content Latices."
11. Journée SFGP sur l'application des MFN aux Réacteurs, Paris, France, "Applications de CFD en génie de la polymérisation: Quelques exemples et beaucoup d'ouvertures."
10. Queen's University, Kingston, Ontario, Canada, "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization: A New Nucleation Profile."

**2003**

9. University of Ottawa, Ottawa, Canada, University of Ottawa Research Seminar, "Latex production via emulsions and miniemulsions,"

**2000**

7. Group on Reactor Technology in Petrochemistry and Polymer Industry, SINTEF, NTNU Gloschaugen, Trondheim, Norvège, "Progress and Challenges in the study of Heat and Mass Transfer during the Production of Polyolefins."
6. University of Western Ontario, "Heat and Mass Transfer during Olefin Polymerisation."
5. Queen's University, Kingston, Ontario, Canada, "Improved Models for Mass Transfer in Heterogeneous Catalysts."

**1999**

4. University of Sao Paulo, SP, Brazil, "Applications of Non-linear State Estimators in Free Radical Polymerisation."
3. Faculdade de Engenharia Quimica de Lorena, Lorena/SP, Brazil, "Recent Developments in Heat and Mass Transfer during the Polymerisation of Olefins."

**1998**

2. University of Twente, Enschede, Pays Bas, "State of the art in the modelling of heat and mass transfer during the gas and slurry polymerisation of olefins."

**1994**

1. University of Twente, Enschede, Pays Bas, "Transport phenomena during the catalysed polymerisation of olefins."

**Conferences: Oral Presentations (Selection via Abstract Submissions)**

**2019**

114. Juliete SILVA, Angelo Henrique de Lira Machado, Muriel Lansalot, Franck D'Agosto, Fabricio Machado Silva e Timothy McKenna, "Synthesis of Monomodal Latex with high solid content through semi-batch emulsion polymerization," Congresso Brasileiro de Polimeros, Bento Gonçalves (RS), Brésil, 27-31 October 2019.
113. Yue YU, Timothy F.L. McKenna, "Gas Phase Propylene (Pre)Polymerization: A mechanistic elucidation of the effects of mineral oil," Blue Sky Conference on Olefin Polymerization, Sorrento, Italy, June 24-28, 2019
112. Timothy F.L. McKenna, "Condensed Mode Cooling: The Impact of Induced Condensing Agents on Gas Phase Polymerisation of Ethylene," Blue Sky Conference on Olefin Polymerization, Sorrento, Italy, June 24-28, 2019
111. Amel Ben M'RAD, Timothy F.L. McKenna, "Experimental and modeling study of ethylene polymerization in gas phase reactors : Impact of thermodynamics," DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, 11-14 June, 2019
110. Timothy F.L. McKenna, "Condensing agents in ethylene polymerisation: It's not just the heat!," DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, 11-14 June, 2019

**2018**

109. T.F.L. McKenna, "Evaluation of catalyst performance in gas phase polymerization of ethylene on metallocene catalysts," Can. Conf. Chem. Eng., 28-31 Oct., 2018, Toronto, ON, Canada
108. B. Rezende-Lara, M.A. Bashir, T.F.L. McKenna, "Evaluation of catalyst performance in gas phase polymerization of ethylene on metallocene catalysts," Can. Conf. Chem. Eng., 28-31 Oct., 2018, Toronto, ON, Canada
107. R. Alves, T.F.L. McKenna, "Condensed Mode Cooling: The Impact of Induced Condensing Agents on the Behaviour of Fluidised Bed Reactors," Can. Conf. Chem. Eng., 28-31 Oct., 2018, Toronto, ON, Canada

**2017**

106. A. Cancelas Sanz, V. Monteil, T.F.L. McKenna, Impact of Catalyst Injection Conditions in the Gas Phase Polymerization of Propylene, International Conference on the Reaction Engineering of Polyolefins, Geleen, The Netherlands, 6-9 June, 2017
105. M.A. Ahsan Bashir, V. Monteil, Ch. Boisson, T.F.L. McKenna, International Conference on the Reaction Engineering of Polyolefins, Geleen, The Netherlands, 6-9 June, 2017

**2016**

104. T.F.L. McKenna, N. Sheibat-Othman, Scale-up/Scale-Down of Emulsion Polymerisations, Entretiens du Centre Jacques Cartier, Lyon, FR, 21 Novembre 2016
103. S. Aryafar, N. Sheibat-Othman, T.F.L. McKenna, Coupling of Computational Fluid Dynamics and Population Balance Modelling for Emulsion Polymerization Process, Can. Conf. Chem. Eng., Laval, PQ, Canada, 16-20 October 2016.
102. T.F.L. McKenna, Challenges for ICA use in olefin polymerisation, Blue Sky Conference, Sorrento IT, 27-30 June, 2016.
101. T.F.L. McKenna, Impact of Induced Condensing Agents in the Gas Phase Polymerisation of Ethylene, Workshop on Polymer Reaction Engineering, Hamburg DE, 17-20 May, 2016

**2015**

100. M.A. Bashir, C. Boisson, V. Monteil, T.F.L. McKenna "The effect of silica dehydroxylation temperature on catalytic performance of supported (n-BuCp)<sub>2</sub>ZrCl<sub>2</sub> in ethylene polymerisation" European Conference on Chemical Engineering – ECCE 10, 27-31 Sept., 2015, Nice, France.
99. M.A. Bashir, V. Monteil, M. Al-Haj Ali, V. Kannelopoulos, T.F.L. McKenna, "Cosolvent effects in Multicomponent Penetrants/polymer Systems assessed by estimating partial molar volumes of penetrants



- in polymers,” European Conference on Chemical Engineering – ECCE 10, 27-31 Sept., 2015, Nice, France.
98. T.F.L. McKenna, “Condensed mode cooling of ethylene polymerisation: the influence of inert condensing agent on polymerisation,” European Conference on Chemical Engineering – ECCE 10, 27-31 Sept., 2015, Nice, France.
- 2014**
97. M. Namkajorn, A. Alizadeh, T.F.L. McKenna, “Condensed mode cooling of ethylene polymerisation: the influence of inert condensing agent on polymerisation,” Canadian Conference on Chemical Engineering 2014, Niagara Falls, ON, Canada, 2014, 20-23 October.
96. J. Pohn, T.F.L. McKenna, “Extrapolation des procédés de production de latex polymère: réacteurs et coagulateurs,” Congrès Francophone du Génie des Procédés, 28-30 May, 2014, Agadir Morocco
95. A. Alizadeh, T.F.L. McKenna, “Une étude du rôle du condensate “inerte” dans des réacteurs à lit fluidisés pour la production de polyoléfines” Congrès Francophone du Génie des Procédés, 28-30 May, 2014, Agadir Morocco
94. T. McKenna, V. Monteil, C. Boisson, S. Norsic, C. Ngodi, Lab scale gas phase reactors for the study of olefin polymerisation, Nextlab 2014, IFPEN Rueil-Malmaison, 2-4 April, 2014
- 2013**
93. J. Pohn, M. Cunningham, T.F.L. McKenna, “Scale-up de procédés de polymérisation et de coagulation,” Club Emulsion, Montpellier, France, 26 September
92. A. Alizadeh, M. Namkajorn, E. Somsook, T. F. L. McKenna, “Cosolubility effect during gas phase ethylene polymerisation on supported catalyst: from experimental to modelling analysis,” Advances in Polymer Science and Technology, Johannes Kepler University, September 9-11, Linz, Austria
91. M.A. Bashir, M. Al-Haj Ali, V. Kannelopoulos, T.F.L. McKenna, “Modeling of  $\alpha$ -olefins Solubility in Semi-crystalline Polyolefins by Combining the Sanchez-Lacombe Equation of State with Elastic Constraints Models”, International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy.
90. A. Alizadeh, M. Namkajorn, E. Somsook, T.F.L. McKenna, “Effect of n-hexane as inert condensing agent (ICA) during gas phase ethylene polymerization on supported catalyst: from experimental to modeling analysis”, International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy.
89. T.F.L. McKenna, “Specialised tools for a better comprehension of olefin polymerisation reactors,” DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, May 21-24, 2013
88. T.F.L. McKenna, “Novel technologies for waterborne coatings,” Waterborne, High-Solids, and Powder Coatings Symposium, New Orleans LA, USA, Feb 4-8, 2013
- 2012**
87. N.M.B. Smeets, T.F.L. McKenna “Catalytic Chain Transfer in Microemulsion Polymerization,” Polymers in Dispersed Media, PDM-2012, April 16-19, 2012, Lyon, France
86. E. Bourgeat-Lami, G.A. Farzi, L. David, J.L. Puteaux, T.F.L. McKenna, “Miniemulsion polymerization of silica-loaded monomer nanodroplets: insight into droplet morphology and nucleation,” PDM-2012, April 16-19, 2012, Lyon, France
85. J. Pohn, M. Heniche, L. Fradette, M. Cunningham, T.F.L. McKenna, “Using a Computational Framework to Model the Scale-Up of Polymer Latex Reactors,” PDM-2012, April 16-19, 2012, Lyon, France
- 2011**
84. E. Tioni, V. Monteil, T.F.L. McKenna, R. Spitz, “Morphological explanation for unusual PE crystallization behavior at polymerization start-up.,” COGEPRA 2011, Grenoble, France
- 2010**
83. E. Tioni, V. Monteil, T.F.L. McKenna, R. Spitz, J.P. Broyer, “Gas phase stopped flow polymerization of ethylene on packed bed: start up kinetics of supported metallocene catalysts and characterization of nascent polymers under realistic and controlled conditions” 3rd Blue Sky Conference on Catalytic Olefin Polymerization. 20-23 June 2010 - Hilton Sorrento Palace, Sorrento, Italy
82. J. Pohn, M. Heniche, L. Fradette, M. Cunningham, T.F.L. McKenna, “Computational Analysis of Mixing and Scale-up in Emulsion Polymerization Reactors,” 10th International Workshop on Polymer Reaction Engineering, Oct 10-13, 2010, Hamburg, Germany
81. E. Tioni, V. Monteil, T.F.L. McKenna, R. Spitz, J.P. Broyer, “Packed bed minireactor for pulsed gas phase catalytic polymerization: complex interactions between heat transfer and activity in stopped flow ethylene polymerization,” 10th International Workshop on Polymer Reaction Engineering, Oct 10-13, 2010, Hamburg, Germany
- 2009**

80. T.F.L. McKenna, "High Solid Content Polyacrylic Latexes via Emulsion and Miniemulsion Polymerisation," Waterborne Coatings Conference, February 19, 2009, New Orleans.
79. Bourgeat-Lami, E., V. Mellon, F. Pardal, J.-L. Puteaux, T.F.L. McKenna, A. Bonnefond, M. Micusik, M. Paulis, J.R. Leiza, E. Schreider, K. Landfester, B. Lohmeijer, "Acrylic/Clay Nanocomposite Latexes: Synthesis, Structure and Properties," European Coatings Congress – 31 March- 2 April 2009, Nüremberg, Germany
78. C. Creton, E. DeGrandi, L. Sonnenberg, R. Udagama, E. Bourgeat-Lami, T.F.L. McKenna, A. Lopez, J.M. Asua, "Mechanical and adhesive properties of nanostructured waterborne pressure-sensitive adhesive films," European Coatings Congress – 31 March- 2 April 2009, Nüremberg, Germany
77. T.F.L. McKenna, U. El-Jaby, M.C. Cunningham, Static mixers for the production of miniemulsions, PRE VIII, Niagara Falls, May 2009.
76. U. El-Jaby, M. Cunningham, T.F.L. McKenna, Progress towards high solid content miniemulsions: Formulation and Process Investigation, IPCG 2009 Conference, July 3-9, 2009

#### 2008

75. G.A.Farzi, E. Bourgeat-Lami, T.F.L. McKenna, "Preparation of silica/polyacrylate nanocomposite latexes", 2d Conference on nanostructured materials – 11-14 March 2008, Kish university, Kish Island, Iran
74. V. Mellon, N. Negrette-Herrera, J.L. Puteaux, T.F.L. McKenna, E. Bourgeat-lami, "Incorporation of Laponite clay platelets into polymer latexes: evidence of clay localization by cryo-TEM imaging", Particles 2008 – 12-14 May 2008, Orlando, USA
73. Sang-Young Shin, T.F.L. McKenna, L.C. Simon, J.B.P. Soares, G. Scholz, "Gas-Phase Polymerization at High Pressure with MMT/TIBA/UOH/ Cp<sub>2</sub>ZrCl<sub>2</sub>", INCOREP, 22-27 June 2008, Montreal, Canada.
72. E. Degrandi, C. Creton, A. Lopez, J.M. Asua, R. Udagama, E. Bourgeat-Lami, T.F.L. McKenna, E. Canetta, J.L. Keddie, "Waterborne polyurethane-acrylic hybrid nanoparticles by miniemulsion polymerization: mechanical properties of nanostructured films", 48th Micro symposium on Polymer Colloids – 20-24 July 2008, Prague, Czech Republic.
71. E. Degrandi, C. Creton, A. Lopez, J.M. Asua, R. Udagama, E. Bourgeat-Lami, T. McKenna, E. Canetta, J.L. Keddie, "Waterborne polyurethane-acrylic hybrid nanoparticles by miniemulsion polymerization: Design and production of nanocomposite materials" 48th Micro symposium on Polymer Colloids – 20-24 July 2008, Prague, Czech Republic.
70. G.A.Farzi, E. Bourgeat-Lami, T.F.L. McKenna, "Miniemulsions using static mixers: 2. Polymer/silica nanocomposite latexes using static mixers." Club Emulsion, Lyon, France 22-23 September, 2008.

#### 2007

69. U. El-Jaby, T.F.L. McKenna, M. Cunningham, "Miniemulsification: An analysis of the use of rotor stators as emulsification devices," 9th International Workshop on Polymer Reaction Engineering, 7-9 October, 2007, Hamburg, Germany.
68. G.A.Farzi, E. Bourgeat-Lami, T.F.L. McKenna, "Miniemulsion polymerization of methyl methacrylate nanodroplets created by a novel homogenization device: Static mixer" ISPST 8th International Seminar on Polymer Science and Technology, Tehran, Iran, 2007.

#### 2006

67. T.F. McKenna, C. Graillat, S. Boutti, K. Ouzined, "High Solid Content Latexes with Low Viscosity," Waterborne and High Solid Content Coatings – PRA Technology Conference, 7-8 March 2006, Hotel Mercure Royal Crown, Brussels, Belgium.
66. K. Ouzineb, C. Lord, N. Lesauze, C. Graillat, Ph. Tanguy, T.F.L. McKenna, "Homogenisation Devices for the Production of Miniemulsions," Fluid Mixing VIII, 10-12 April 2006, Kings College, London, U.K.
65. N. Negrete-Herrera, M. Pizzone, G. Mouzet, V. Mellon, E. Bourgeat-Lami, T.F.L. McKenna, "Preparation of Styrene/Clay nanocomposites by miniemulsion polymerization," U.K. Polymer Colloids, U. Manchester, Manchester U.K., 11-12 Sept. 2006

#### 2005

64. Ouzineb, K., N. LeSauze, A. Farzi, C. Graillat, T. McKenna, "Generation of miniemulsions with static mixers," 2nd International Conference on Polymeric Microspheres, Fukui, Japan, 29-31 March, 2005.
63. D. Bouzid, F. Gaboriaud, T.F. McKenna, "Atomic force microscopy as a tool to study the distribution of rubber in high impact polypropylene particles," ECOREP III, Lyon, France, June 20-24, 2005.
62. V. Tisse, T.F. McKenna, "Calorimétrie réactionnelle pour suivre la réaction de polymérisation en suspension de l'éthylène," Congres de la Société Française du Génie des Procédés, Toulouse, France, September 2005.
61. Sang-Young Shin, T.F. McKenna, L.C. Simon, J.B.P. Soares, G. Scholtz, "Gas Phase Polyolefin Nanocomposites, 55<sup>th</sup> Canadian Chemical Engineering Conference, 17-20 October, 2005.

#### 2004

60. F. Farshchi, A.F. Santos, S. Othman, H. Hammouri, T. F. McKenna, "In Situ Monitoring of Emulsion Polymerisation using Conductimetry Measurements," 40th IUPAC International Symposium on Macromolecules, World Polymer Congress, Macro 2004, July 4-9, 2004, Paris, France
59. Fortuny, M., A.F. Santos, P. Araujo, T.F. McKenna, "MODELAGEM DA COALESCÊNCIA DE EMULSÕES POLIMÉRICAS INDUSTRIAIS," Congresso Brasileiro de Engenharia Química, XV COBEQ, Curitiba (Paraná) Brésil, 26- 29 September.
58. Boutti, S., T.F. McKenna, "High Solid Content Latexes without Intermediate Seeds," 8th International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany.
57. DiMartino, A., T.F. McKenna, J.P. Broyer, G. Weickert, D. Scwweich, C. De Bellefon, "A Quenched-flow reactor for the observation of polyolefin morphology under industrial conditions at short times (<1s)," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany

### 2003

56. Fortuny, M., Christian Graillat, Pedro H. H. Araújo, José C. Pinto, T.F. McKenna, "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization : A New Nucleation Profile," Polymer Reaction Engineering: Modelling, Optimisation and Control, 16èmes Entretiens Jacques Cartier, Lyon, France, 1-3 December, 2003.
55. Ouzineb, K., C. Graillat, T.F. McKenna, H.Hua, R. Jovanovic, M.Dubé, "Compartmentalisation in miniemulsions: A fundamental study and some interesting (potential) end-uses," 53rd Conference of the Canadian Society of Chemical Engineering, Hamilton, Ontario, Canada, 26-29 October, 2003.
54. Boutti, S., C. Graillat, T.F. McKenna, "High Solid Content Emulsions," 53rd Conference of the Canadian Society of Chemical Engineering, Hamilton, Ontario, Canada, 26-29 October, 2003.
53. Jovanovic, R., Dubé, M.A., McKenna, T.F., "A constrained mixture design for the modeling of pressure sensitive adhesives," 53rd Conference of the Canadian Society of Chemical Engineering, Hamilton, Ontario, Canada, 26-29 October, 2003.
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182. M. Gheghiani, N Caillol, S. Henrot, T.F.L. McKenna, N. Sheibat-Othman, "On-line monitoring of emulsion polymerization by SRS," 12<sup>th</sup> European Cngress of Chemical Engineering, Florence, IT, 15-19 September, 2019.
181. Rita Alves, T.F.L. McKenna, "Estimation of Diffusion Coefficients for Multiple Penetrant/Polymer Systems Based on Sorption Data," Blue Sky Conference on Olefin Poymerization, Sorrento, Italy, June 24-28, 2019

180. Rita Alves, T.F.L. McKenna, "Condensed Mode Cooling: The Impact of Induced Condensing Agents on the Behaviour of Fluidised Bed Reactors," Blue Sky Conference on Olefin Polymerization, Sorrento, Italy, June 24-28, 2019
179. Ben M'Rad, T.F.L. McKenna, "Experimental and Modeling Study of Ethylene Polymerization in Gas Phase Reactors" Blue Sky Conference on Olefin Polymerization, Sorrento, Italy, June 24-28, 2019
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167. A. Cancelas Sanz, V. Monteil, T.F.L. McKenna, High Impact Polypropylene: Influence of copolymerization conditions on powder and polymer properties, European Polymer Federation, July 3-7, 2017, Lyon, FR
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152. M.A. Bashir, V. Monteil, C. Boisson, T.F.L. McKenna, The Effect of Polymerization Protocol on Catalyst Leaching & Reactor Fouling in Ethylene Polymerization, Blue Sky Conference, Sorrento, IT, 27 June – 01 July, 2016
151. M.A. Bashir, V. Monteil, C. Boisson, T.F.L. McKenna, Experimental evidence for the existence of mass transfer resistance during the early stages of ethylene polymerisation via silica supported catalysts, Blue Sky Conference, Sorrento, IT, 27 June – 01 July, 2016
150. L. Medeiros Santos, M. Amaral, E. Franceschi, A. Santos, O. Boyron, T.F.L. McKenna, "Generation, stabilization and monitoring of polymerization in miniemulsion of the styrene and butyl acrylate using near infrared spectroscopy," Workshop on Polymer Reaction Engineering, Hamburg DE, 17-20 May 2016
149. F. Nascimento de Andrade, A. Alizadeh, T.F.L. McKenna, "Impact of condensing agents in the gas phase polymerisation of ethylene – Part II. Effects of Temperature and comonomers," Workshop on Polymer Reaction Engineering, Hamburg DE, 17-20 May 2016
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145. A. Mendez Ecoscia, T.F.L. McKenna, N. Sheibat-Othman, "Vinylidene fluoride emulsion polymerization: Experimental study" Workshop on Polymer Reaction Engineering, Hamburg DE, 17-20 May 2016
144. B. Rezende-Lara, T.F.L. McKenna, K. Ouzineb, Improvement of barrier property by reformulation of acrylic latexes," Workshop on Polymer Reaction Engineering, Hamburg DE, 17-20 May 2016
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143. A. Cancellas-Sanz, V. Monteil, T.F.L. McKenna, "Impact of Catalyst Injections Conditions in Gas Phase Polymerization of Propylene", European Conference on Chemical Engineering – ECCE 10, 27-31 Sept., 2015, Nice, France.
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132. N. Amiar, D. Bouzid, T.F.L. McKenna, "Influence of iPP morphology and EPR content on HiPP mechanical properties" International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy
131. M.A. Bashir, T.F.L. McKenna, V. Monteil, "A New Approach for the Estimation of Partial Molar Volumes of Chemical Compounds in Macromolecular Mixtures" International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy
130. T.F.L. McKenna, "Specialised tools for a better comprehension of olefin polymerisation reactors," International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy.
129. A. Alizadeh, T.F.L. McKenna, "Condensed mode cooling in ethylene polymerisation: droplet evaporation," International Conference on the Reaction Engineering of Polyolefins, Sept. 2-5, 2013, Ferrara, Italy
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126. N. Sheibat-Othman, S. Othman, T.F.L. McKenna, "Optimisation of the process of production of bimodal latex" DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, May 21-24, 2013
125. N.M.B. Smeets, R.A. Cockburn, R.A. Hutchinson, "Determination of the critical chain length of oligomers in dispersion polymerisation" DECHEMA Workshop on Polymer Reaction Engineering, Hamburg, Germany, May 21-24, 2013
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121. S. Campbell, N.B. Smeets, T.F.L. McKenna, "Miniemulsification by Catastrophic Phase Inversion" Polymers in Dispersed Media, PDM-2012, April 16-19, 2012, Lyon, France
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4. Barudio, I., G. Févotte, T.F. McKenna, "Utilisation de la calorimétrie, la densimétrie et la modélisation pour le contrôle des copolymérisations," (V<sup>ième</sup> Congrès du Groupe Français du Génie des Procédés, les 19-21 September, 1995)
3. McKenna, T.F., G. Févotte, "Problèmes Rencontrés dans l'Utilisation de Capteurs en Ligne: Cas de la Densimétrie, Calorimétrie et Gravimétrie pendant une Copolymérisation en Solution," (Réunion du G.F.P., Nancy, 21-23 Nov., 1995)
2. McKenna, T.F., B. Billy, A. Guyot "Elaboration d'un Procédé Membranaire pour la Production de Suspensions Monodisperses," (Réunion du G.F.P., Nancy, 21-23 Nov., 1995)
1. McKenna, T.F., W. Ramirez, A. Guyot "Polymérisation du Styrène: Optimisation du mélange et de la taille des particules," (Réunion du G.F.P., Nancy, 21-23 Nov., 1995)

## Appendix 5. Supervision of Students

### Postdoctoral Fellows

19. **A. Medeiros**, “Production of XSBR latexes” 2017-2018
18. **T. Chaparro**, “” 2017-2018
17. **B. Rezende Lara** “Impact of Catalyst Geometry on Polymerisation Kinetics” 2017-2018
16. **M.A. Bashir** “Prepolymerisation of propylene in the gas Phase” 2017
15. **Y. Yue**, “Gas Phase Polymerisation of Ethylene,” 2016-18
14. **D. Cheng**, “Scale-up of Emulsion polymerisation Processes,” 2016-17
13. **A. Alizadeh**, “Condensed mode cooling for polyolefins,” 2014
12. **R Udagama**, “High Solid Content Paint Binders,” 2013-2014
11. **J. POHN**, “Scale-up of emulsion polymerisation processes,” 2013
10. **Raul P. MORAES**, “High solid content paper coatings,” 2011
9. **Niels M.B. SMEETS**, “Creation of dispersions using novel technologies,” 2009-2011
8. **Salima BOUTTI**, “Emulsification of acrylic monomers,” 2009
7. **Yahya BANAT**, “Oscillating polymer structures,” 2007 (Co- direction with Professor Guenter Weickert, U Twente)
6. **Audrey Di MARTINO**, “Kinetics of the nascent polymerisation of ethylene in the gas phase,” 2006
5. **Erik ERIKSSON**, “Oscillating polymer structures,” 2005-2006 (Co- direction with Professor Guenter Weickert, U Twente/PRT GmbH).
4. **Norma NEGRETE** “Clay-acrylic composite films via Miniemulsion Polymerisation,” 2005-2006 (Co-direction with Mme Elodie BOURGEAT-LAMI).
3. **Djallel BOUZID**, “Use of Atomic Force Microscopy for the Study of High Impact Polypropylene” 2004-2005.
2. **Selwa BEN AMOR** "Suivie Calorimétrique et Commande des Réacteurs de Polymérisation, 1999-2000.
1. **Amilton MARTINS dos SANTOS**, " Commande des Réacteurs de Polymérisation," 1997

### PhD Students

#### Current

51. **Felipe BOLNER**, Iron catalysts for PE, *coencadré avec J. Raynaud*, 2020-2023
50. **Mariana Guadalupe Torres**, "High solid content PVDF latexes," *coencadrée avec F. D'Agosto, M. Lansalot*, 10.2019-09.2022
49. **AbdulRahman Al-Beladi**, “Kinetics and morphology of gas phase polypropylene,” 09.2019-09.2022
48. **Kusuma Kalajanpeng**, "Modelling of gas phase multizone PP reactors," 09.2019-09.2022
47. **Igor Monteiro**, "Coagulation of PVC microsuspensions," *coencadrée avec N. Sheibat-Othman (LAGEP)*
46. **Estela GELINSKI** “Coagulation in PVDF Emulsion Polymerisation” *coencadrée avec N. Sheibat-Othman (LAGEP)*
45. **Roberta LOPES do ROSARIO** “Chain Entanglement in UHMWPE”

#### Defended

44. **Niyi ISHOLA**, “Gas Phase Polymerisation of ethylene – Thermodynamics and modelling,”
43. **Rita ALVES**, “Condensed mode cooling of ethylene gas phase polymerisations”
42. **Amel BEN M’RAD**, “Thermodynamic aspects of olefin polymerisation,” *coencadrée avec N. Sheibat-Othman (LAGEP)*, Defended Dec 2020.
41. **Yashmin BLAZZIO**, “Specialised reactors for the study of olefin polymerisation,” Defended May 2020
40. **Juliet SILVA**, “High solid content latex via PISA/conventional emulsion”, *cotutelle avec University of Brazilia*, Defended Dec 2020
39. **Fabiana ANDRADE**, “The influence of complex gas phase compositions on the polymerisation of ethylene,” 2015-2019
38. **Aaron CANCELAS**, “High Impact Polypropene: Structure Evolution and impact on Reaction,” UCB-Lyon 1, Lyon, France, Soutenance October 26, 2017
37. **Anderson MADEIROS**, “Magnetic nanoparticles by Miniemulsion Polymerisation,” Federal University of Brazilia, 2017 (co-direction, Prof. F. Machado Silva, UFB, Brazil)
36. **Barbara REZENDE LARA**, “Adhesive films,” UCB-Lyon 1, Lyon, France, April 2017
35. **Muhammad Ahsan BASHIR**, “Study of the impact of the geometric parameters of catalyst support on olefin polymerisation,” *UCB-Lyon 1, Lyon, France*, November 2016
34. **Solmaz ARYAFAR**, “Scale-up/Scale-down of latex production processes,” *UCB-Lyon 1, Lyon, France*, Sotenu 10 Nov 2016
33. **Ana Carolina MENDEZ**, “Scale up of vinylidene fluoride emulsion polymerisation,” UCB-Lyon 1, Lyon, France, Soutenu Octobre 18, 2016
32. **Leila SANTOS**, “On-line monitoring of miniemulsions,” Universidade Tridente, Aracaju, Brésil, June 2015 (co-supervision with A. Santos, Brésil)

31. **Arash ALIZADEH**, "Advanced morphological models for olefin polymerisation," *Queen's University, Kingston, Canada*, Soutenance juin 2014
30. **Montree NAMKAJORN**, "Olefin polymerisation during condensed mode operation," Madihol University, Bangkok, Thailand, 2014 (co-supervision with Prof. E. Somsook).
29. **Barbara BROWNING**, "Modelling and Experimental Study of a Fixed Bed Stopped Flow Reactor for Polyolefins," *UCB-Lyon 1, Lyon, France*, 2013
28. **Elena RANIERI**, "Kinetics of metallocene polymerisation," (Co-direction with Dr. Christophe Boisson) Soutenu 2012
27. **J. POHN**, "Modelling and experimental study of latex Stability," (Co-direction with Professor Michael Cunningham) *Queen's University, Kingston, Canada*, Soutenu 2012
26. **Estevan TIONI**, "The study of the role of the support, support preparation ad initial conditions on olefin polymerisation," (Co-direction with Dr. Vincent Monteil), *UCB-Lyon 1, Lyon, France*, Soutenu 2011
25. **Raul MORAES**, "High solid content latex for paper coatings." *Queen's University, Kingston, Canada*, Soutenu 2011
24. **Gabriela FONSECA**, "Miniemulsion polymerisation for adhesives," (Cosupervised with Prof. Marc. A. Dube, University of Ottawa) Soutenu 2010
23. **Ravindra UDAGAMA** "Acrylic-Alkyd Hybrids via Miniemulsion Polymerisation," *UCB-Lyon 1, Lyon, France*, Soutenu 2010.
22. **Ula EL-JABY** "Advanced applications of miniemulsions," (Co-direction with Professor Michael Cunningham), *Queen's University, Kingston, Canada*, Soutenu 2010
21. **Véronique MELLON** "Clay-acrylic composite films via Miniemulsion Polymerisation," (Co- direction with Mme Elodie BOURGEAT-LAMI), *UCB-Lyon 1, Lyon, France*, Soutenu 2009
20. **Ali FARZI** "Nanocomposite films from miniemulsions," (Co- direction with Mme Elodie BOURGEAT-LAMI), *UCB-Lyon 1, Lyon, France*, Soutenu 2008
19. **Hugo VALE**, "Modelling of the evolution of the PSD during emulsion polymerisation," *UCB-Lyon 1, Lyon, France*, Soutenu 2007
18. **Virginie TISSE**, "Ethylene polymerisation on silica-supported catalysts," *UCB-Lyon 1, Lyon, France*, Soutenu 2006.
17. **Fabricio MACHADO** "Polymerisation of propylene and butene on supported catalysts," (Co-direction with José Carlos PINTO) *COPPE/UFRJ Rio de Janeiro, Brazil*, Soutenu 2006
16. **Audrey DIMARTINO**, "Modelling of particle fragmentation, growth and morphology for polyolefins," *UCB-Lyon 1, Lyon, France*, Soutenu 2006
15. **Malihae PISHVAIE**; "Latex Rheology", (Co-direction with Philippe CASSAGNAU LMPBM), *UCB-Lyon 1, Lyon, France*, Soutenu 2005
14. **Audrey COSYNS**, "Dispersions de polymères à granulométrie multimodale : application aux revêtements aqueux," *UCB-Lyon 1, Lyon, France*, Soutenu 2005
13. **Erik ERIKSSON**, "Validation of transport models for the gas and slurry phase polymerisation of olefins," *UCB-Lyon 1, Lyon, France*, Soutenu 2005.
12. **Farschad FARSCHID**, "Commande de réacteurs de polymérisation en émulsion," (Co- direction with Professor Hassan HAMMOURI) *UCB-Lyon 1, Lyon, France*, Soutenu 2004
11. **Djallal BOUZID**, "Morphologie des particules de copolymères d'éthylène et de propylène," *UCB-Lyon 1, Lyon, France*, Soutenu 2004
10. **Thomas LYS**, "Mechanism of particle formation and growth in bimodal PVC latexes," *UCB-Lyon 1, Lyon, France*, Soutenu 2004
9. **Fabio BENTES FREIRE** "Advanced State Estimation for Emulsion Polymerisation," t(hèse en co-tutelle avec le professeur Reinaldo GIUDICI) *Universidade de Sao Paolo, Sao Paolo, Brasil*, Soutenu 2003
8. **Salima BOUTTI**, "Synthesis of High Solid Content Latexes," *UCB-Lyon 1, Lyon, France*, Soutenu 2003
7. **Alexandre SANTOS**, "Emulsion polymerisation: sensors and control," (Co-direction with Professor José Carlos PINTO), *Universidade federal de Rio de Janeiro*, Soutenu 2003
6. **Keltoum OUZINEB**, "Emulsion and Miniemulsion Polymerization : Stabilization, tubular reactors and practical applications," *UCB-Lyon 1, Lyon, France*, Soutenu 2003
5. **Montserrat FORTUNY**, "Modélisation de la polymérisation en émulsion de latex multipopulés," *UCB-Lyon 1, Lyon, France*, Soutenu 2002.
4. **Martine SCHNEIDER**, "Etude de Procédés de Synthèse de Latex Multipopulés à Haut Extrait Sec," *UCB-Lyon 1, Lyon, France*, Soutenu 2000
3. **Nida OTHMAN**, "Advanced Strategies for Composition Control in Semi-continuous Emulsion Polymerization," *UCB-Lyon 1, Lyon, France*, Soutenu 2000
2. **Christine MARTIN**, "Transport phenomena during polymerisation on heterogeneous catalysts." *UCB-Lyon 1, Lyon, France*, Soutenu 2000
1. **Virginie MATTIOLI**, "Aspects génie chimiques de la polymérisation polyphasiques" *UCB-Lyon 1, Lyon, France*, Soutenu 2000



**Master of Science (or equivalent)**

35. **Ana Paula Alves Amorim**, "Swelling of polyethylene in slurry systems," *Federal University of Bahia*, Brasil, 2021-2022
34. **Yesmin Bel Hadj Hassine**, "Experimental Measurement and Modeling of the Solubility of Multicomponent Mixtures in Polyolefins," *INSAT Tunis, Tunisia*, 2022
33. **Felipe Bolner**, "Nascent Polymerization of Ethylene in the Gas Phase," *Federal University of Goiás, Brailia*, BR 2019-2020
32. **Igor Stefanichen Monteiro** "Copolymeris of VF2" *University of Sao Paulo*, 2017
31. **Amel Ben M'Rad** "Thermodynamics in the suspension polymerisation of ethylene" *MSc INSAT Tunis* 2017
30. **Rita Alveres**, "Modelling of ethylene polymerisation," *MSc IST Lisbon*, 2015
29. **Duarte Morais CECILIO**, "Modelling of the impact of gas phase conditions on ethylene polymerisation," *MSc IST Lisbon*, 2015
28. **André Filipe Prates PEREIRA**, "Experimental study of latex coagulation," *MSc IST Lisbon*, 2015
27. **Ana Rita MARTINS**, "Effect of inert condensing agent on olefin polymerisation," *MSc IST Lisbon*, 2015
26. **Cyntich NGODI**, "A miniature fluidised bed reactor for olefin polymerisation," *M2 UCB Lyon 1, Génie des Procédés*, 2015-2015
25. **Margarida MARQUES**, "Coagulation of emulsion polymerisations," *IST Lisbon*, 2015-2015
24. **Ana Cristina OLIVEIRA**, "Kinetic model of metallocene polymerisation," *IST Lisbon*, 2015-2015
23. **Pedro RAIHNO**, "Ternary PC-SAFT Model of Olefin Solubility in Polyolefins," *IST Lisbon*, 2015-2015
22. **Cyntich NGODI**, "Microcalorimetry for the evaluation of the heat of sorption of inert condensing agents in polyethylene," *Université de Nantes, MI Génie des Procédés*, 2013
21. **Jiranan WONGCHANOI**, "Encapsulation of phase change materials," *UCB Lyon 1, Génie des Procédés*, 2012
20. **Abdulrahman ASHRI**, "Influence of Silica Properties on the Behaviour of Catalysts for Olefin Polymerisation," *Queen's University, Kingston, Canada, Chemical Engineering*, 2012
19. **Robert COCKBURN**, "Polymerisation of Biosource monomers." (co-direction with Prof. Robin Hutchinson) *Queen's University, Kingston, Canada, Chemical Engineering*, 2011.
18. **Arash ALIZADEH**, "Modelling ZN polymerisation," *IFP School, ENSMP, Rueil-Malmaison, France*, 2009
17. **Sondes BOURIGA**, *UCB Lyon 1, Génie des Procédés*, 2007
16. **Zha LI**, "Production de Miniémulsions," *UCB Lyon 1, Génie des Procédés*, 2007
15. **Thomas GEREZ**, "Role of the support morphology of silica based metallocenes," *ESCPE-Lyon, Génie des Procédés*, 2006.
14. **Ravindra UDAGAMA** "Emulsion Polymerisation of Butyl Acrylate – process intensification," *Polymer Science and Technology, University of Sri Jayawardanapura, Sri Lanka*, 2005
13. **Rémi BRIQUEL** "Le rôle du support dans la polymérisation d'éthylène avec des catalyseurs metallocenes," *ESCPE-Lyon, Génie des Procédés*, 2005
12. **Sebastien FERRERO** "L'application de la calorimétrie à la suivi de réacteurs de polymérisation" *ESCPE-Lyon, Génie des Procédés*, 2004
11. **Cristina ABRIL SANCHEZ** "Etude de la polymérisation de l'éthylène sur des catalyseurs à base de chrome," 2001
10. **Floran PRADES** "Etude d'une cascade de réacteurs agités pour la polymérisation en emulsion," *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 2000
9. **Djallel BOUZID** "Morphologie des particules de polyoléfines" *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 2000
8. **Kamel MAHFOUDI** "Phénomènes de transport de matière pendant la polymérisation des oléfines" *UCB Lyon 1, DEA Génie des Procédés*, 2000
7. **Sandrine MOREAU** "Production of multipopulated latices in stirred tank reactors" *ESCPE-Lyon, Génie des Procédés*, 1999
6. **Béatrice RENARD** "Methods for polymerisation of acrylic acid in inverse suspension" *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 1998.
5. **Jérôme TORRES** "Emulsion copolymerisation in continuous stirred tank reactors" *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 1997
4. **Alvaro VILLANEUVA** "Cinétique de la polymérisation radicalaire en solution" *ENSPM Rueil-Malmaison*, 1997
3. **Nora GHERIB** "Elaboration of a reaction calorimeter for free radical polymerisation." *UCB Lyon 1, DEA Génie des Procédés*, 1996
2. **Boris BILLY** "A metallic membrane process for the suspension polymerisation of styrene." *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 1996
1. **Barbara GANTILLON** "Process for the production of PET in divided media." *UCB-Lyon 1, DEA Matériaux Macromoléculaires*, 1996

### **Undergraduate Projects**

38. **Sherry Mikail**, "Sorption and Swelling of Polyethylene in Slurry Processes," INSA de Lyon, 2021
37. **Paulo ASSIS**, "High Solid Content Latexes with PISA," USP – Lorena, BR, 2018
36. **Abilio Augusto José Forni**, "Shear Induced Coagulation," USP – Lorena, BR, 2018
35. **Paulo ASSIS**, "Lattices for drag reduction application," USP – Lorena, BR, 2016
34. **Brian ZHONG**, "The impact of alkanes on the softening of polyethylenes," MIT 2015
33. **José Carlos JIMENEZ MENDOSA**, "Miniemulsion polymers for hybrid latexes," ESCPE-Lyon 2013
32. **Wenhui HUA**, "L'évolution de la morphologie des poudres de polyéthylène (PE) produites sur des catalyseurs supportés", ESCPE-Lyon, 2012
31. **Barbara REZENDE LARA**, "Elaboration of a latex aimed to promote the adhesion between PET substratum and Aluminium vacuum deposited, for the production of metalized films pasteurizable, sterilizable and with gas barrier dedicated to the flexible packaging of foodstuffs," Engineering School of Lorena, University of São Paulo, EEL/USP, 2012
30. **Ester SANCHEZ**, "Conductivity probes for the monitoring of emulsion polymerisation," Escuela Técnica Superior de Ingeniería Industrial de Barcelona, 2012
29. **Mireia Soy FLORIDIA**, "Encapsulation of phase change materials," Escuela Técnica Superior de Ingeniería Industrial de Barcelona, 2012
28. **Rachel LAM**, "Microemulsions using CCT" Queen's University, Canada, 2011 *ChEE 421*,
27. **Michael FREEMAN**, "Hyperbranched water-soluble polymers," *Queen's University, Canada*, 2011
26. **Scott CAMPBELL**, "Catastrophic Phase Inversion for Miniemulsification," *Queen's University, Canada*, 2010
25. **Natalie MACKENZIE**, "Grafting of styrene and PHA resins," (co-direction with Juliana Ramsay), *Queen's University, Canada*, 2010
24. **Andrew W.T. WONG**, "Coagulation of polymeric latex," (co-direction with Robin Hutchinson), *Queen's University, Canada*, 2010
23. **Kevin PAYNE**, "Use of biorenewable monomers for adhesives product," (co-direction with Robin Hutchinson), *Queen's University, Canada*, 2010
22. **Jessica ALBANESE**, "Products and processes of miniemulsions". *Queen's University, Canada*, 2010
21. **Todd LARSON**, "Rotor Stator Mixers for Miniemulsions," *Queen's University, Canada*, 2009
20. **Nathan HORDY**, "Structured latexes in tubular reactors," *Queen's University, Canada*, 2009
19. **Michael GRETTON**, "Synthesis of Triblock Copolymers by Polymerization of Acrylates and Methacrylates in Miniemulsion," (co-direction with Michael Cunningham) *Queen's University, Canada*, 2009
18. **Robert COCKBURN**, "Polymerisation of Biosource monomers." *Queen's University, Canada*, 2009
17. **Philippe LAUVERNIER**, "Microemulsions," *Queen's University, Canada et ESCPE-Lyon*, 2009.
16. **Sarah HAW**, "HASE thickeners via miniemulsions," *Queen's University, Canada*, 2009
15. **Beatriz OLALLA**, "Polyolefin morphologies using stopped flow reactors," *ESCPE-Lyon*, 2007.
14. **Flavia OLIVEIRA**, "Formulation of high temperature adhesives," *ESCPE-LYON et U. Lorena, SP Brazil*, 2007.
13. **Jaime CAETANO**, "Hollow core-shell emulsions," *ESCPE-LYON et U. Lorena, SP Brazil*, 2006
12. **Rafael JARDIM PINTO da MACHADO**, "Partitioning of acid comonomers during emulsion polymerisation," *ESCPE-LYON et U. Lorena, SP Brazil*, 2005
11. **Raul MORAES**, "Rheological Modifiers and Thickeners," *ESCPE-LYON et U. Lorena, SP Brazil*, 2005
10. **Rocio DIEZ**, "Bimodal latexes for low viscosity applications," *Escuela Técnica Superior de Ingenieros Industriales*, 2005
9. **Christophe LeBARON**, "Bimodal latexes for PVDC products," *ESCPE-LYON*, 2003
8. **Sohinee MAZUMDAR**, "Miniemulsification using Rotor Stator Mixers – influence of process conditions," *ESCPE-LYON et University of Calgary, Canada*, 2003
7. **Catharine LORD**, "Miniemulsification using rotor stator mixers," *ESCPE-LYON et Ecole Polytechnique de Montréal, Canada*, 2002
6. **Isadora IGLESIAS** "Application des estimateurs d'état à un réacteur pilote adiabatique," *l'Université Polytechnique de Madrid*, 2001
5. **Cesar ALVAREZ**, "The use of calorimetry to monitor the production of core-shell latexes" *ESCPE-Lyon*, 2001
4. **Susanne LOW**, "Monitoring of emulsion polymerisation using conductivity," *Erasmus Mondus University of Newcastle, UK*, 2001
3. **Yon ALVAREZ** "Nucléation des particules dans des latex acryliques", *Universidad del Pais Vasco, San Sebastian, Espagne*, 2001
2. **Sanna SEVERINS**, "Production de polymères de type cœur-écorce dans un réacteur tubulaire," *l'Eindhoven University of Technology, Pay-Bas*, 2001.
1. **Montserrat FORTUNY HEREDIA** "Solution polymerisation of acrylates: influence of svents on the rate constants," *Escuela Técnica Superior de Ingeniería Industrial de Barcelona*, 1998