

**CONTACT AND PERSONAL DATA***Professional*

Queen's University  
 Department of Chemical Engineering  
 Dupuis Hall, 19 Division Street  
 Kingston, ON Canada  
 K7L 3N6

☎ +1 613 533 6582

📠 +1 613 533 6637

✉ tim.mckenna@chee.queensu.ca

<http://chemeng.queensu.ca/people/faculty/mckenna/index.php>

**Citizenship:** Canadian

*Personal*

531 Roosevelt Drive,  
 Kingston, ON  
 Canada  
 K7M 5Y3

☎ +1 613 389 1686

+1 613 484 3821 (cell)

**Languages:** English (Native); French (Bilingual)

**EDUCATION**

Habilitation à diriger des recherches (H.D.R.)  
 Université Claude Bernard Lyon 1 (Villeurbanne, France); July 1997.  
 Title: "Génie des procédés de polymérisation"

Ph.D. in Chemical Engineering  
 University Massachusetts, Amherst, MA, (1985-90).  
 Title: "*The Conceptual Design of Polymerisation Processes*"  
 Thesis Advisor: Professor Michael Malone.

B.Eng. in Chemical Engineering  
 McMaster University, Hamilton ON, Canada. (1985)

**RESEARCH INTERESTS AND VISION**

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:

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|---------------------|--|
| Polyolefins         | <ul style="list-style-type: none"> <li>• Mass transfer mechanisms (convection vs diffusion) in catalytic olefin polymerisation;</li> <li>• Heat transfer mechanisms – role of particle/particle interactions and of the interaction of particles and reactor internals;</li> <li>• Particle morphology development and fragmentation;</li> <li>• Specialised reactor design for experimental investigations</li> </ul> |
| Latex<br>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>          |

**RELEVANT PROFESSIONAL EXPERIENCE**

- 2007-Present    **Professor/** CRC Tier-1 Research Chair in Polymer Reaction Engineering  
Department of Chemical Engineering  
Queen's University,  
Kingston, ON, Canada
- 2006-2007    **Directeur**, C2P2 (UMR 5265)  
CNRS UMR 140, Villeurbanne, France
- Laboratory director;
  - Responsible for creation of new laboratory of Chemistry, Catalysis, Polymers and Processes.
- 2002-2006    **Directeur de Recherche DR2**,  
CNRS UMR 140, Villeurbanne, France
- Direction of Polymer Reaction Engineering Group
  - Responsible for PRE curriculum at ESCPE.
- 1998 -        **Professor\***  
Ecole Supérieure Chimie Physique et Electronique de Lyon  
Villeurbanne, France
- Development of teaching and research programmes in Polymer Reaction Engineering.
- 1993-1997    **Associate research scientist**  
CNRS UMR 140, Villeurbanne, France
- Creation and animation of new research group: Polymer Reaction Engineering
- 1989-1992    **Research Engineer**  
ELF-Aquitaine International/ATOCHEM  
Mont & Nancy (ENSIC), France
- Polyolefin process modelling.

\*Currently as adjunct professor

**RESEARCH STATISTICS** (see detailed list in Annex 1)

Publications (Peer-Review): 152	Publications (In preparation): 10
Book Chapters: 8	Patents: 1
Invited Seminars and Conferences: 53	Conference Proceedings: 45
Conference Presentations (Oral): 80	PhD Theses: 20 defended; 8 underway
MSc Theses: 17 defended; 1 Current	Post Doctoral Fellows Supervised: 7

**MAJOR RESEARCH CONTRIBUTIONS**

(see list of publications in annex for full references)

1. **Strategies for High-Solid-Content Latex (HSLC).** We are the first publicly-funded research group to have produced latexes with solid contents above 75% v/v but with extremely low viscosities for high-throughput applications (Boutti, S. et al. Polymer, 46, (2005) 1211; Polymer, 46, (2005) 1223). This was accomplished by carefully combining experiments with

advanced population balance models (Fortuny, M. et al., *AIChE J.*, **51**, 2521 (2005)). We also made extensive progress in predicting the rheological properties of such products (Pishvaie et al., *J. Rheology*, **51**, 51 (2007)) since this is absolutely necessary from the point of view of industrial exploitation. These projects have formed the basis for our current collaboration with BASF GmbH (Ludwigshafen, DE), and provided us with background for point 1.2. Several efforts in advanced modelling of 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 (e.g. Ouzineb et al., *Comptes Rendu de l'Académie des Sciences*, **2003**, 11-12, 1343). Typically, a polymerisable dispersion of droplets is created using high intensity mixers. Original laboratory studies used ultrasonication to generation droplets on the order of 100 nm in diameter. While this allowed us to demonstrate the high potential for making hybrid and composite materials (Lopez, A et al., *Ind. Eng. Chem. Res.*, **47**, 6289 (2008)) it is entirely unrealistic on an industrial scale. We have looked at other devices, including rotor stator mixers (U. El-Jaby et al., *Macromol. React. Engng.*, **2**, 356 (2008)). In addition, we are the first group to have demonstrated that this is an exploitable tool – and that it consumes roughly less energy than a homogeniser to make a similar product (Ouzineb et al., *Chem. Eng. Sci.*, **61**, 2994 (2006); El-Jaby et al., to appear *Macromol. Symp.*). This research is now integrated into a European Commission project to industrialise the production of nanocomposites via miniemulsions, and is supported by producers of static mixers.
- 3. Specialised reactor design for the study of olefin polymerisation.** Despite the economic significance of this type of product, and the fact that this initial step is known to be absolutely crucial to the development of “acceptable” production, there is still no quantitative description of the fragmentation step. We were the first group to adapt the concept of stopped flow to polymerisation at very short times (40 ms) under pressure (15 bars) for the study of particle fragmentation process and physical properties of the nascent polymer (Di Martino et al., *Macromol. React. Engng.*, **1**, 284 (2007)). We showed that nascent polymer structures and kinetics are very different from those produced 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 (Olalla et al., *Macromolecular Symposia* **271**, 1, (2008). This is significant since until this point, techniques like CFD allowed us to understand only order of magnitude effects (Eriksson et al., to appear *Macromol. React. Engng.*). In conjunction with 1.4 (below) we have been able to build on this specialised knowledge to obtain 1.2 million dollars in financing for 3 separate projects from the Dutch Polymer Institute.
- 4. Challenging the preconceived notion of how to model particle growth and transfer phenomena in olefin polymerisation.** Interesting modelling work has been done in this area since the 1970s, however, for several years starting in the early 80s to the mid-90s, people seemed happy to use a relatively simple model that assumed instantaneous fragment, uniform particle growth and mass transfer by diffusion of monomer from the bulk phase to the active sites. We were the first group to clearly indicate 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. React. Engng.*, **1**, 338 (2007)). This concept has now been taken up by a number of other groups to create some very powerful models.

**RESEARCH FUNDING (Current and past 4 years)**

	<b>Source and Partners</b>	<b>Amount \$CDN (% for McKenna)</b>
2005-2009	European Commission • Multiple Partners	539,000 (100%; total 27 MM\$)
2006-2009	Agence Nationale pour la Recherche et Technologie (France) • Drs. R. Spitz, D. Schweich; CNRS France	560,000 (25%)
2007-2011	NSERC Discovery	33,680 / yr (100%)
2007	Queen's University Start-up Grant	100,000 (100%)
2007	CFI Infrastructure	250,000 (100%)
2007	Ministry of Research and Innovation, Ontario	250,000 (100%)
2007-2011	BASF GmbH – Ludwigshafen DE	180,000 (100%)
2008-2011	Dutch Polymer Institute: • Prof. V. Busico (Italy); Dr. Ch. Boisson (France)	800,000 (25%)
2008-2001	Dutch Polymer Institute • Dr. V. Monteil (France)	800,000 (25%)
2009	NSERC: RTI (Type 1) • Profs. Hutchinson & Cunningham; Queen's Chem E.	150,000 (80%)
2009	NSERC: RTI (Type 1) • Profs. Simon and Soares; U. Waterloo	150,000 (10%)
2009-2013	Dutch Polymer Institute • Profs. van Sint Annaland, J. Kuipers, U. Twente, the Netherlands	800,000 (50%)
2009-2011	Dupont Canada – Dupont-Queen's Innovation Program	100,000 (100%)
2009-2011	Ministry of Research and Innovation Ontario Postdoctoral fund	50,000 (100%)
2009-2011	Queen's University MRI-PDF Fund	10,000 (100%)
2010-2012	MITACS Accelerate	167,000 (70%; APPLIED FOR)

**INTERNATIONAL PUBLICLY FUNDED RESEARCH PROJECTS**

- **European Commission Integrated Project (FP6):** NAPOLEON: Nanostructured Waterborne Polymer Films with Outstanding Properties (12 industrial & 10 academic partners; project budget 16 MM euros)

- Fonds France Canada pour la Recherche: With Drs. Léonardo SIMON and Joao SOARES, University of Waterloo) of "Development of Hybrid Polyolefin-clay Nanocomposites", (2004-2005).
  - International Creative Research Initiative of the University of Ottawa: With Dr. Marc Dubé, "Nanoparticles for Water-Borne Coatings " (01/2003-12/2004).
  - CNRS-CNPq (Brazil): Co-organiser (with Dr. Amilton Martins dos Santos, FAENQUIL, Universidad de Lorena, SP, Brésil) Scientific Collaboration "Latex à Haut Taux de Solide: Production, suivie en ligne et mise au point de tensioactifs réactifs" (2001-2003)
  - Fonds France Canada pour la Recherche: Co-organiser (with Dr. Marc Dubé, University of Ottawa) of "High Quality Latex Dispersions," (2001-2002).
  - European Commission Cost-Shared Research and Technical Development (FP5): Coordinator of project "Polyolefins: Improved Properties, reactor Control and Operability" (10/2001-10/2005) with DSM Research, Borealis, BP Chemicals, Fluent Europe Ltd., Repsol YPF, Aristotle University of Thessaloniki, University of the Basque Country, CNRS, Politecnico di Milano, University of Twente. Budget: 5.2 Million Euros.
  - European Commission BRITE-EURAM (FP4): Coordinator of project "The Reaction Engineering of Heterogeneously Catalysed Polymerisations". (01.02.97-30.06.2000 with 4 industrial/3 academic partners) Budget: 5.1 Million Euros/3.5 years.
  - CAPES-Cofecub (France-Brazil): Co-organiser of Project "Capteurs en ligne pour reacteurs de polymerisation", with Profs. G. FEVOTTE (France), A.M. dos Santos & J.C. Pinto (Brazil), 1998-2000.
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## EXPERT EVALUATION, CONSULTING AND INDUSTRIAL SHORT COURSES

### *Evaluations*

- **King Fahd University of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia**, Expert evaluation of scientific projects, 2009.
- **Agence Nationale de Recherche et de Technologie (France)**, Evaluation of major research awards, 2009.
- **Ministry of Research and Innovation of Ontario**, Evaluation of Early Research Awards, Jan. 2009.; Jan 2010
- **Region Lorraine**, Expert evaluator for Pôle : "MATERIAUX, ENERGIE, PROCEDES, PRODUITS" 2007-2008.
- **European Commission**, Expert for the 7<sup>th</sup> Framework Programme. Remote reviews April 2008; On-site reviews in Brussels October, 2008.
- **European Commission**, Expert for the 7<sup>th</sup> Framework Programme. Remote reviews April 2007; On-site reviews in Brussels October, 2007.
- **Region Lorraine**, Expert Evaluator for *Contrat Plan d'Etudes Regional*, 2006

### *Consulting*

- ATOCHEM/ARKEMA (FR);
- Total Petrochemicals (BE);
- Exxon (USA);
- D.S.M. (NL);
- Sabic (KSA);
- Sharq (KSA);
- Borealis (NO);
- Sherwin Williams (USA).
- INEOS/BP CHEMICALS (FR)

**Industrial Short courses** (\* Indicates in-house short course)

- Polyolefin Reaction Engineering (with Profs. JBP Soares and LC Simon of U. Waterloo, Canada) April 12-16, 2010, Houston, Texas, U.S.A.
- \*Polyolefin Reaction Engineering, (with Prof. JBP Soares of U. Waterloo, Canada) Dec. 13-17, 2008 SHARQ, Al-Jubyail Industrial City, Kingdom of Saudi Arabia.
- Polyolefin Reaction Engineering (with Profs. JBP Soares and LC Simon of U. Waterloo, Canada) April 19-23, 2008, Dubai, United Arab Emirates.
- \*Procédés de Polymérisation et Applications, ARKEMA, Lacq, France, 5-7 Dec 2007
- \*Procédés de Polymérisation, ARKEMA, Lacq, France, November 20-22, 2006.
- Polyolefin Reaction Engineering (with Profs. J Soares and LC Simon of U. Waterloo, Canada) November 15-17, 2006, Lyon, France.
- Polyolefin Reaction Engineering (with Profs. J Soares and LC Simon of U. Waterloo, Canada) July 10-15, 2006, Porto Alegre, Brazil.
- Polyolefin Reaction Engineering (with Profs. J Soares, L Simon, U. Waterloo; C. Kiparissides, Aristotle University Technology, Greece) 17-19 June, 2005, Lyon, France.
- Polymer Reaction Engineering. Short Courses for the Professional Education Department (Formation Continue) of the ESCPE-Lyon (2002, 2005)
- Polyolefin Reaction Engineering. OSPT Short Course, Twente University, Enschede, Netherlands (2002 and 2003)

**INTERNATIONAL CONFERENCE WORK****Organisation and Chairing**

- **WCCE8**: Co-Chair of the Symposium on Advanced Polymer Composites and Hybrids, Montreal QC, August 24-25, 2009.
- **INCOREP**: International Conference on the Reaction Engineering of Polyolefins Chair and Organiser, Montreal QC, June 22-27, 2008.
- **20ieme Recontres du Centre Jacques Cartier**: Properties, Monitoring and Control of Polymerisation Reactors. Co-Chairman with Dr. Nida Sh'eibat Othman; ESCPE –Lyon, France, 1-5 Dec, 2007
- **ECOREP III**: European Conference in the Reaction Engineering of Polyolefins. Chairman, ESCPE-Lyon, Villeurbanne, France, 20-24 June, 2005.
- **Polymerisation in Dispersed Media 2004**. Co-Chairman with Drs. Elodie BOURGEAT Lami and Hamid ELAISSARI Lyon, France, 03-08 April 2004.
- **16ieme Recontres du Centre Jacques Cartier**: Modelling, Optimisation & Control of Polymer Reactors. Co-Chairman with Dr. Nida Sh'eibat Othman; ESCPE –Lyon, France 1-3 Dec, 2003
- **ECOREP II**: European conference on the reaction engineering of polyolefin processes. Chairman and Organiser, Lyon France, 01 - 04 July, 2002.
- **ECOREP**: European conference on the reaction engineering of polyolefin processes. Chairman and Founder; 3-7 July, 2000, Lyon, France.
- **11ieme Recontres du Centre Jacques Cartier** PRE On-line. Chairman, Lyon, France, 07-09 December 1998

**Advisory Boards and Scientific Committees**

- **47th Microsymposium of Prague Meetings on Macromolecules**, POLYMER COLLOIDS: FROM DESIGN TO BIOMEDICAL AND INDUSTRIAL APPLICATIONS, Prague, Czech Republic: 20-24 July 2008. Member of the International Advisory Board.
- **Polymer Reaction Engineering VI**, Halifax, Nova Scotia, Canada, May 21-26, 2006. (Technical Chairman, "Process Monitoring and Control / On-Line Sensors")

- *Fluid Mixing 8*, London, England, 10-12 April, 2006 (Member of the Scientific Committee)
  - *MACRO 2004*, 40th IUPAC International Symposium on Macromolecules, Polymerization processes, control and monitoring, Paris, France, July 4-9, 2004 (Symposium Coordinator)
  - *Polymer Reaction Engineering V*, Québec, QC, Canada, May 18-23, 2003. (Coordinator Poster Sessions)
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## EDITORIAL WORK AND SERVICE

### Editorial Work

- *Canadian Journal of Chemical Engineering*; Associate Editor (Since 01 September 2009)
- *Macromolecular Symposia*; Editor, (2009)
- *Macromolecular Reaction Engineering*; International Advisory Board, (Wiley-VCH Verlag GmbH) since June 2006.
- *Industrial & Engineering Chemistry Research*; Editorial Board of (ACS) 2005-2007.
- *Macromolecular Materials & Engineering*; Editorial Board of (Wiley-VCH Verlag GmbH) since January, 2005.
- *Polymer Reaction Engineering* Editorial Board of (Macrel Dekker, N.Y.) 2001-03.
- *Polymer*; Guest Editor (2005) special issue on *Polymers in Dispersed Media*.
- *Chemical Engineering Science*; Guest Editor (2002)

### Other Service

- *Working Party on Polymer Reaction Engineering* of the European Federation of Chemical Engineering; Chairman since 2006.
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## TEACHING EXPERIENCE

### Graduate Courses

1. **CHEE 807**: Advanced Topics in Chemical Engineering:
  - Polymer Process Design (36 hours, Winter 2008)
  - From Petrochemicals to Plastics (36 hours, Spring 2009 – Coordinator with R. Pelletier)
2. **CHEE 903**: Polymerisation in Dispersed Media (18 hours, Winter 2009)
3. **Polymerisation Processes**. Course given for the diploma: "Advanced Technology in Polymers, Petrochemicals and Plastics," at the Ecole National Supérieure de Pétrole et des Moteurs (IFP School) Rueil-Malmaison (18-24 hours per year since 1994).
4. **Polymer Reaction Engineering**. M.Sc. Chemical Engineering, Université Claude Bernard Lyon-I (30 hours per year since 2004 ; 15 hours per year from 1996-2003; *en français*).

### Undergraduate Courses

1. **CHEE 317**: Mass Transfer and Mass Transfer Unit Operations (36 Hours, Winter 2009; 2010).
2. **Polymerisation Engineering**, Combined Chemistry/Chemical Engineering Programme (equivalent 3<sup>rd</sup> year in Canada) ESCPE-Lyon (32 h per annum, 1996→ present; *en français*).
3. **Introduction to Polymer Reaction Engineering for Chemists**, Combined Chemistry/Chemical Engineering Programme (equivalent 3<sup>rd</sup> year in Canada) at ESCPE-Lyon (4h per year 1996→ present).
4. **Formulation of Emulsion Polymers**, Final year B.Eng. Students in the Combined Chemistry/Chemical Engineering Programme at ESCPE-Lyon (4h per year 1996→ present).

## ANNEX 1. SCIENTIFIC PRODUCTION

## A1. PUBLICATIONS (Peer Review Journals)

1. Malone, M.F., T.F. McKenna, "Process design for polymer production," **Foundations of Computer-Aided Process Design**, J.J. Sirola, L.E. Grossman, G. Stephanopoulos (eds), 1989.
2. McKenna, T.F., M.F. Malone, "Polymer Process Design - 1. Continuous Production of Chain Growth Homopolymers," *Comp. Chem. Eng.*, **14(10)**, 1127-49Z, 1990.
3. McKenna, T.F., D. Schweich, "Modelling of Mass and Energy Transport During the Copolymerisation of Ethylene and Butene on Ziegler-type Catalysts", **Fourth Annual Workshop on Polymer Reaction Engineering**, K.H. Reichert, H.O. Moritz (eds), VCH Berlin (1992).
4. McKenna, T.F., "Design Model of a Wiped Film Evaporator. Application to the devolatilisation of polymer melts," *Chem. Engng. Sci.*, **50(3)**, pp 453-67, (1995.)
5. McKenna, T.F., J. DuPuy, R. Spitz, "Modelling of Transfer Phenomena on Heterogeneous Ziegler Catalysts: Differences between Theory and Experiment, an Introduction." *J. Appl. Polym. Sci.*, **57**, pp. 371-84, 1995.
6. McKenna, T. F., C. Graillat, J. Guillot, "Contributions to defining the rate constants for the homo- and copolymerisation of butyl acrylate and vinyl acetate." *Polym. Bull.*, **34**, pp. 361-69 (1995).
7. Ramirez, W., T.F. McKenna, A. Guyot, "Suspension Copolymerisation of Styrene and n-Cyclohexyl Maleimide Stabilised with Polyvinyl Alcohol: Optimisation of Particle Size Distribution," *DECHEMA Monographien*, **131**, pp.281-90, (1995)
8. McKenna, T. F., H. Benamouama, R. Spitz "Mass transfer resistance in Ziegler-catalysed slurry phase polymerisation: A new look at reaction modelling," *DECHEMA Monographien*, **131**, pp.223-34, (1995)
9. McKenna, T.F., M.F. Malone, "La conception de procédés assistée par ordinateur et le rôle de l'analyse de la sensibilité dans les systèmes dits experts," *Entropie* **197**, pp. 3-16, 1996
10. Févotte, G., I. Barudio, T. F. McKenna, "Computer-Aided Parameter Estimation and On-line Monitoring of Polymerisation Reactors.," *Comp. Chem. Eng.* **20(SA)** pp. 581-586, 1996.
11. McKenna, T.F., "Computer Aided Process Design: Short-cut design for polymer production.," *Comp. Chem. Eng.*, **20(SA)** pp. 237-243, 1996.
12. McKenna, T.F., G. Févotte, C. Graillat, and J. Guillot "Joint Use of Calorimetry, Densimetry and Mathematical Modelling for Multiple Component Polymerisations," *Trans. I. Chem. E.*, **74A**, pp. 340-348, 1996.
13. McKenna, T. F., F. Barbotin, R. Spitz "Modelling of Transfer Phenomena on Heterogeneous Ziegler Catalysts: Part 2. Experimental Investigation of Intraparticle Mass Transfer Resistance During the Polymerisation of Ethylene in Slurry.," *J. Appl. Polym. Sci.*, **62**, pp. 1835-41, 1997.
14. McKenna, T. F., J. DuPuy, R. Spitz, "Modelling of Transfer Phenomena on Heterogeneous Ziegler Catalysts: Part 3. Modelling of Intraparticle Mass Transfer Resistance," *J. Appl. Polym. Sci.*, **63**, pp. 315-22, 1997
15. Chu, F., T.F. McKenna, S. Lu, "Curing Kinetics of an Acrylic Resin/Epoxy Resin System Using Dynamic Scanning Calorimetry," *Eur. Polym. J.*, **33(6)**, 837-40 (1997).
16. Santos, A.M., T.F. McKenna, J. Guillot., "Emulsion Copolymerisation of Styrene and n-Butyl Acrylate in the Presence of Acrylic and Methacrylic Acids: Effect of pH on reaction kinetics and carboxyl group distribution," *J. Appl. Polym. Sci.*, **65**, 2343-55 (1997)
17. Chu, F.X., T.F. McKenna, Y. Jiang, S. Lu, "A Study of the Preparation and Mechanism of the Ambient Temperature Curing of Acrylic Latex with Epoxy Resins", *Polymer*, **38(25)**, pp. 6157-6165 (1997)
18. McKenna, T.F., R. Spitz, *Entropie*, "Le Génie des Procédés de la Polymérisation des Oléfines: Problèmes restant à résoudre," **204**, 31-41 (1997).

19. McKenna, T.F., "Solubility and Crystallinity Data for Ethylene/Polyethylene Systems," *European Polymer Journal*, **34(9)**, 1255-61 (1998).
20. Févotte, G., H. Hammouri, T. McKenna, S. Othman, "Non-linear tracking of glass transition temperatures for free radical emulsion copolymers," *Chem Engng. Sci.*, **53(4)**, 773-86 (1998).
21. Févotte, G., I Barudio, H. Hammouri, T. McKenna, S. Othman, "A New Approach to the Control of Glass Transition Temperatures of Free Radical Copolymers," *AIDIC Conference series*, **2**, pp. 51-56, 1997.
22. McKenna, T.F., A. Villanueva, "Cinétique de la polymérisation radicalaire: comportement non idéal en présence de solvant.," *Entropie*, **212/213**, 81-86 (1998)
23. Santos, A.M., G. Févotte, T. McKenna, "On-line monitoring of rapidly evolving polymerisation reactions," *Entropie*, **212/213**, 111-114 (1998)
24. Mattioli, V., C. Martin, T.F. McKenna, Phénomènes de transferts en synthèse des polyoléfines par catalyse Ziegler-Natta," *Entropie*, **212/213**, 105-110 (1998)
25. McKenna, T.F., D. Cokljat, P. Wild, "CFD Modelling of Heat Transfer during Gas Phase Olefin Polymerisation," *Comp. Chem. Eng.*, **22**, pp.S285-292 (1998)
26. Févotte, G., T.F. McKenna, S. Othman, A.M. Santos, "A combined Hardware/software sensing approach for on-line control of emulsion polymerisation processes," *Comp. Chem. Eng.*, **22**, pp.S443-450 (1998)
27. Santos, A.M., J. Guillot, T. F. McKenna, "Partitioning of styrene, butyl acrylate and methacrylic acid in emulsion systems," *Chem. Engng. Sci.*, **53**, pp. 2143-2151 (1998)
28. Févotte, G., T.F. McKenna, "Modelling of the glass transition temperature of free radical polymers: An approach for control purposes. ," *Chem. Engng. Sci.*, **53**, pp. 2241-2256(1998)
29. Weickert, G., T.F. McKenna, "Pulsed Injection - Fast Reaction PIFR: A method for the investigation of mixing in bulk polymerizations," *Entropie*, **212/213**, 25-30 (1998)
30. Geerts, J.W.M.H., T. F. McKenna, "Modelling at the University: An industrial point of view," *Entropie*, **212/213**, 7-12 (1998)
31. Barudio, I., G. Févotte, T.F. McKenna, "Density data for copolymer systems: Butyl Acrylate/Vinyl Acetate Homo- and Copolymerisation in Ethyl Acetate," *European Polymer Journal*, **35**, 775-80 (1999).
32. McKenna, T. F., D. Cokljat, R. Spitz, D. Schweich, "Modelling of Heat and Mass Transfer during the Polymerisation of Olefins on Heterogeneous Ziegler Catalysts," *Catalysis Today*, **48(1-4)**, 101-108 (1999).
33. Othman, S., I. Barudio, G. Févotte, T. McKenna, "On-line Monitoring and Modelling of Free Radical Copolymerisations: Butyl Acrylate and Vinyl Acetate," *Polym. React. Engng.* **7(1)**, 1-42, 1999
34. McKenna, T. F., A. Villanueva, A.M. Santos, "Effect of Solvent on the Rate constants in Solution Polymerisation. Part I: Butyl Acrylate," *J. Polym. Sci., Part A: Polym. Chem.*, **37(5)**, 571-588 (1999).
35. McKenna, T. F., A. Villanueva "Effect of Solvent on the Rate constants in Solution Polymerisation. Part II: Vinyl Acetate," *J. Polym. Sci., Part A: Polym. Chem.*, **37(5)**, 589-601 (1999).
36. Fortuny, M., T.F. McKenna, "Effect of Solvent on the Rate constants in Solution Polymerisation. Part III: Copolymerisation," *Polymer Journal*, **31(1)**, 7-12 (1999).
37. McKenna, T.F. S. Othman, G. Févotte, A.M. Santos, H. Hammouri, "Integrated approach to monitoring, state estimation and control of polymer reactors," 6th International Workshop on Polymer Reaction Engineering, DECHEMA Monographien, Vol. 134, 567-576, 1998, Wiley-VCH, Berlin.
38. Hammouri, H., T.F. McKenna, S. Othman, "Applications of non-linear observers and control: Improving Productivity and Control of Free Radical Solution Copolymerisation, " *Ind. Eng. Chem. Res.*, **38(12)**, 4815 (1999)
39. McKenna, T. F., Davor Cokljat, Roger Spitz, "Heat Transfer from Heterogeneous Catalysts: An Exploration of underlying Mechanisms using CFD.," *AICHE J*, 45(11), 2392-2410 (1999).

40. Fortuny Heredia, M., M. Schneider, C. Graillat, T. McKenna "A new look at kinetics and stabilisation phenomena in emulsion polymerisation," *Macromol. Chem., Macromol. Symp.*, **150**, 95-100 (2000)
41. Renard, B., T.F. McKenna, "Kinetics of Polymerisation of Partially Neutralised Acrylic Acid in INVERSE Suspensions," *Macromol. Chem., Macromol. Symp.*, **150**, 251-258 (2000)
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162. R. Udagama, E. Bourgeat-Lami, T.F.L. McKenna, "Acrylic-alkyd hybrids via Miniemulsion Polymerisation," (In Preparation for *Macromolecules*)
163. G.A.Farzi, E. Bourgeat-Lami, T.F.L. McKenna, "Miniemulsions using static mixers: 2. Polymer/silica nanocomposite latexes using static mixers." (In preparation)
164. A. Alizadeh, T.F.L. McKenna, A. Di Martino, G. Weickert, J.B.P. Soares. "Modelling of particle growth during the polymerisation of olefins on supported catalysts. A follow-up review on single particle models, and the development of particle Morphology. Part II. Recent Advances in Modelling (in preparation)
165. V.F. Tisse, C. Boisson, F. Prades, T.F.L. McKenna, "Activation/deactivation behaviour during polymerisation with EtInd<sub>2</sub>ZrCl<sub>2</sub> with different activators" (In preparation)
166. A. Cosyns, S. Boutti, C. Graillat, T.F.L. McKenna, "High Solids Content Emulsions Without Intermediate Seeds. Part VI: Control of the Particle Size Distribution in the Presence of Water-soluble Functional Monomers" (In preparation)
167. Raul P. Moraes, Chistian Graillat, Guillaume Jeanson, Sarah Haw, Cédric Favero, Timothy F.L. McKenna, Evaluation of alternative comonomers for the production of HASE thickeners (Polymer, submitted)

### **A2. PUBLICATIONS (Book Chapters)**

168. McKenna, T.F., A.E. Hamielec, "Activation Energies of Propagation and Termination in Free Radical Polymerisation," **The Polymer Handbook**, 3rd Edition, J. Brandrup and E. Immergut (eds). 1989.
169. McKenna, T.F., A.M. Santos, "Activation Energies of Propagation and Termination in Free Radical Polymerisation," ppII.415-428, **The Polymer Handbook**, 4th Edition, J. Brandrup, E. Immergut and E. Grulke (eds). 1999 (Wiley Interscience).
170. McKenna, T.F., R. Spitz, "Activity Limits of Heterogeneous Catalysts," in *Organometallic Catalysts and Olefin Polymerization: Catalysts for a new Millenium*, Blom, R., Follestad, A., Rytter, E., Tilset, M., Ystenes, M. Eds, Springer-Verlag, Berlin, 2001, p.377-386.
171. McKenna, T.F., D. Schweich, "Réacteurs de polymérisation," Chapitre 13 dans *Génie de la Réaction Chimique*, D. Schweich (ed), 2001, Lavoisier, Paris
172. Guyot, A., M. Schneider, T.F. McKenna, "Characterisation of Polymer Colloids," Chapter 2 in *Microspheres, Microcapsules and Liposomes*, Vol. 4: Functional Polymer Colloids, A. Guyot et A. Arshady (eds), Citus Books, London, UK, 2002.
173. McKenna, T.F., M. Schneider, " Procédés de production de latex à haut taux de solide," Chapitre 30, 809-832, dans « Les latex synthétiques », Ch. Pichot et J.C. Daniel, eds., Lavoisier: Editions Tec & Doc, Paris 2006.

174. McKenna, T.F., N. Othman, "Suivi et commande de réacteurs de polymérisation en émulsion," Chapitre 27, p727-758, dans « Les latex synthétiques », Ch. Pichot et J.C. Daniel, eds., Lavoisier: Editions Tec & Doc, Paris 2006.
175. Soares, J.B.P., T.F.L. McKenna, C.P. Cheng, "Coordination Polymerisation", Chapitre 2 dans "Polymer Reaction Engineering," J.M. Asua (Ed), Blackwell, Oxford, UK, 2007

### A3. PATENTS

1. "Procédé de Fabrication de Polyester," Gantillon, B., J.-L. LePage, T.F. McKenna, V. Pasquet, R. Spitz, European Patent 99 973044.3-2102.

### A4. PEER-REVIEWED PROCEEDINGS

1. "Utilisation de la calorimétrie, la densimétrie et la modélisation pour le contrôle des copolymérisations," T.F. McKenna, G. Févotte, C. Graillat, et J. Guillot, *Récents Progrès en Génie des Procédés*, **9**(38), 49-54 (1995)
2. "Aspects du transfert d'énergie pendant la polymérisation des oléfines," T. F. McKenna, J. Dupuy, R. Spitz, *Récents Progrès en Génie des Procédés*, **9**(42), 45-50 (1995)
3. "Contrôle en ligne d'un réacteur de polymérisation," J. Guillot, T. F. McKenna, C. Graillat, *Récents Progrès en Génie des Procédés*, **9**(38), 13-18 (1995)
4. "Modèle simplifié d'un évaporateur à film raclé: équipement pour l'élimination des résidus volatils d'un polymère fondu," T. F. McKenna, *Récents Progrès en Génie des Procédés*, **9**(38), 19-24, (1995)
5. "Solubility and Crystallinity of Ethylene/Polyethylene Systems," T. McKenna, in *Proceedings First European Congress on Chemical Engineering*, Florence, Italy, May 4-7, 1997, pp. 309-312.
6. "A New Approach to the Control of Glass Transition Temperatures of Free Radical Copolymers," G. Févotte, I. Barudio, H. Hammouri, T.F. McKenna, S. Othman, in *Proceedings First European Congress on Chemical Engineering*, Florence, Italy, May 4-7, 1997, pp. 175-179.
7. "Free Radical Solution Polymerisation: Monitoring and Modelling of Solution Copolymerisations in Real Time," T.F. McKenna, I. Barudio, G. Févotte, in *Proceedings First European Congress on Chemical Engineering*, Florence, Italy, May 4-7, 1997, pp. 205-208.
8. "Developments in Suspension Polymerisation: A new method for creating polymerisable suspensions," T.F. McKenna, A. Guyot, in *Proceedings First European Congress on Chemical Engineering*, Florence, Italy, May 4-7, 1997, pp. 235-38.
9. "Une Approche pour le Contrôle des Distributions de Températures de Transition Vitreuse dans les copolymères en émulsion," I. Barudio, G. Févotte, H. Hammouri, T. McKenna, S. Othman, *Récents Progrès en Génie des Procédés*, **11** (56) pp.133-138. Lavoisier, Paris.
10. "Nonlinear observers with application to copolymerization," Hammouri, H., T.F. McKenna, S. Othman, *CESA '98 IMACS Multiconference*, Nabeul-Hammamet, Tunisia, April 1-4, 1998.
11. Rita, D.J., G. Févotte, T.F. McKenna, S. Othman, E.L. Lima, J.C. Pinto, "Modelling and observation of the emulsion copolymerisation of styrene with  $\alpha$ -methyl styrene," p 359-364 in *Advanced Control of Chemical Processes: Proceedings of ADCHEM 2000*, L.T Biegler, A. Brambilla, C. Scali, G. Marchetti (Eds.), Elsevier Science Ltd., Amsterdam (2001). ISBN 043558-0
12. Othman, N., G. Févotte, T.F. McKenna, "Nonlinear state estimation and control of a semibatch terpolymerisation reactor," p 515-524 in *Advanced Control of Chemical Processes: Proceedings of ADCHEM 2000*, L.T Biegler, A. Brambilla, C. Scali, G. Marchetti (Eds.), Elsevier Science Ltd., Amsterdam (2001). ISBN 043558-0

13. Le Sauze, N., Ouzineb, K., Ricard, A., McKenna, T., Xuereb, C., Apport des mélangeurs statiques lors d'une polymérisation en émulsion réalisée dans un réacteur en boucle," Proceedings du 8<sup>ème</sup> Congrès Francophone du Génie des Procédés, 17-19 October, 2001.
14. Mattioli, V., T.F. McKenna, Condensation capillaire dans des particules en croissance pendant la polymérisation des oléfines, Proceedings du 8<sup>ème</sup> Congrès Francophone du Génie des Procédés, 17-19 October, 2001.
15. Schneider, M., I. Bétrémieux, A. Guyot, T.F. McKenna, High solids content emulsions: product development and rheological characterisation, Proceedings du 8<sup>ème</sup> Congrès Francophone du Génie des Procédés, 17-19 October, 2001.
16. McKenna, T.F., P. Kittilsen, C. Martin, C. Novat, R. Spitz, "Vers un nouveau modèle pour la croissance des particules pendant la polymérisation des oléfines, Proceedings du 8<sup>ème</sup> Congrès Francophone du Génie des Procédés, 17-19 October, 2001.
17. Eriksson, E., Y. Banat, G. Weickert, T.F. McKenna, (2004) "CFD simulation of gas phase polyolefin microreactors," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 389-394
18. Di Martino A., T.F. McKenna, J.P. Broyer, G. Weickert, D. Scwweich, C. De Bellefon, (2004)"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, Dechema Monograph Vol 138, Wiley VCH, 173-180
19. Di Martino A., T.F. McKenna, G. Weickert, F. Sidoroff, (2004) "Toward a realistic model of particle fragmentation," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 395-400
20. Farshchi, F., A.F. Santos, S. Othman, H. Hammouri, T. F. McKenna, (2004) "Monitoring of Emulsion Polymerization Using Conductimetry," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 505-510
21. Boutti, S., T.F. McKenna, (2004) "High Solid Content Latexes without Intermediate Seeds," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 239-246
22. Bouzid, D., T.F. McKenna, (2004) "Effect of polypropylene particle size on the morphology of high impact polypropylene particles," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 429-434
23. Pishvaie, M., C. Graillat, T.F. McKenna, P. Cassagnau, (2004) "Rheological behaviour of highly concentrated polystyrene latex near the maximum packing fraction of particles," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, Dechema Monograph Vol 138, Wiley VCH, 499-504
24. 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
25. 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.

## A5. PRESENTATIONS AND CONFERENCES

### *Invited Presentations and Seminars*

1. "Transport phenomena during the catalysed polymerisation of olefins," Invited Seminar, University of Twente, Enschede, Pays Bas, Decembre, 1994.
2. "State of the art in the modelling of heat and mass transfer during the gas and slurry polymerisation of olefins," Invited Seminar, U. Twente, Enschede, Pays Bas, 15 Déc., 1998

3. "Modelling of heat transfer on polymerising particles: an overview with CFD," Invited Seminar, Exxon Chemicals, Baytown Texas, 14 March, 1999.
4. "Applications of Non-linear State Estimators in Free Radical Polymerisation," Invited Seminar, University of Sao Paulo, SP, Brazil, June 11, 1999.
5. "Recent Developments in Heat and Mass Transfer during the Polymerisation of Olefins," Invited Seminar, Faculdade de Engenharia Quimica de Lorena, Lorena/SP, Brazil, June 14 1999.
6. "Future directions for research in polyolefins," T.F. McKenna, Invited Seminar, Targor GmbH, Ludwigshafen, Allemagne, 03 Feb., 2000.
7. "Reaction Engineering Aspects of Polyolefins," T F. McKenna, Virginie Mattioli, Christine Martin, Pål Kittilsen, Invited Conference, Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
8. "Progress and Challenges in the study of Heat and Mass Transfer during the Production of Polyolefins," T.F. McKenna, Invited Conference, Group on Reactor Technology in Petrochemistry and Polymer Industry, SINTEF, NTNU Gloschaugen, Trondheim, Norvège, 6-7 April 2000.
9. "Modelling Transfer Phenomena in Heterogeneous Catalysts for Polyolefins," Invited Conference, Conference on Insertion Polymerization at BASF Aktiengesellschaft, Ludwigshafen, Sept. 28-29, 2000.
10. "Heat and Mass Transfer during Olefin Polymerisation," Invited Seminar, University of Western Ontario, 2 October, 2000.
11. "Improved Models for Mass Transfer in Heterogeneous Catalysts," Invited Seminar, Queen's University, Kingston, Ontario, Canada, 10 October, 2000.
12. "Improved Particle Growth Models for Olefin Polymers," Invited Seminar, ExxonMobil Chemicals, Baytown, Texas, 5 January, 2001.
13. "Progress and Challenges in Describing Particle Growth for Polyolefins," Invited Conference, NASCRE: *North American Symposium on Chemical Reaction Engineering*, Houston, TX, 8 January 2001.
14. "Vers une meilleure modélisation de la croissance des particules pendant la polymérisation des oléfines," Invited Seminar, Centre de Recherche Fina, 9 Feb., 2001.
15. "Production of High Solids Content, Low Viscosity Latex for Pressure Sensitive Adhesives," Invited Conference, Statoil, Trondheim, Norway, 24 April, 2001.
16. "Modeling of Particle Growth, Fragmentation and final Morphology", Invited Seminar, BP Chimie, Lavéra, France, 21 September, 2001.
17. "Modelling of particle growth in olefin polymerisation," Invited Conference, Leuven Summer School on Catalysis, Ostend, Belgique, 11-14 November, 2001
18. "Comment fabriquer des latex à haut taux de solide et à faible viscosité," Invited Conference, EUROFORUM *Latex synthétiques et artificiels – Propriétés, Applications et Innovations*, 4-5 December, 2001.
19. "Nouveau Modèle pour la croissance des particules pendant la polymérisation des oléfines," Invited Conference, Journée Thématique de la Fédération des Polyméristes Lyonnais, Lyon, France, 28 November 2002.
20. "High Solids Content Latexes," Invited Conference, Gordon Research Conference on Polymer Colloids, 30/06/2003-04/07/2003, Tilton, NH, Etats-Unis.
21. "Latex production via emulsions and miniemulsions," University of Ottawa Research Seminar, 16 May, 2003, Department of Chemical Engineering, University of Ottawa, Ottawa, Canada.
22. "Génie de la polymérisation en milieu divisé," Invited Seminar, Rhodia Recherches, Aubervilliers, France, 13 February, 2003.
23. "Polymer Reaction Engineering: What is it? Why Bother? A "Forest Talk"," Invited Seminar, Universidad Politecnico de Madrid, 3 March, 2004, Madrid, Spain
24. "Toward a Morphological Model of Polyolefin Particle Growth," Invited Conference, METCON 4, Houston, Texas, 14 May, 2004.

25. "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization: A New Nucleation Profile," Invited Seminar, University of Porto, 24 May, 2004, Porto, Portugal
26. "High Solid Content Latices," Invited Seminar, Instituto Superior Tecnico, 25 May, 2004, Lisbon, Portugal
27. "Use of conductivity measurements to monitor particle formation in emulsions," Invited Conference, 40<sup>th</sup> World Polymer Congress/IUPAC, 04/07-09/07/2004, Paris, France.
28. "Applications de CFD en génie de la polymérisation: Quelques exemples et beaucoup d'ouvertures..." Invited Seminar, Journée SFGP sur l'application des MFN aux Réacteurs, mardi 28 September 2004, Tour Total, Paris, France
29. "The Morphology of Polyolefin Particles," Invited Presentation, Borealis OY, Porvoo, Finland, October 7, 2004.
30. "Improvements in the production of high impact polypropylene," Invited Presentation, Borealis OY, Porvoo, Finland, October 7, 2004.
31. "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization: A New Nucleation Profile," Invited Seminar, Queen's University, Kingston, Ontario, Canada, 20 October, 2004.
32. "Miniemulsion Polymerisation: A look at fundamentals, static mixing and some interesting (potential) end-uses," Invited Seminar at Xerox Research Centre of Canada, Mississauga, Canada, 22 October, 2004.
33. "Polyolefin Research at the LCPP: Single particle growth and morphology," Invited Seminar, SABIC Europetrochemicals, Geleen, Pays Bas, 16 March, 2005.
34. "Study of Impact copolymer particle growth," Invited Seminar, SABIC Europetrochemicals, Geleen, Pays Bas, 16 March, 2005.
35. "Single particle growth and morphology for polyolefins," Invited Seminar, Japan Advanced Institute for Science and Technology, Nomi, Ishikawa, 923-1292, Japan, 28 March, 2005
36. "A look at fundamentals, static mixing and some interesting (potential) end-uses of miniemulsion polymerization," Invited Seminar, LGC, Toulouse, 8 April, 2005
37. "Polyolefin Reaction Engineering: Fundamental Particle Level Research," Invited Seminar, Innovene NOH, Bruxelles, Belgique, 21 April 2005.
38. "Study of Impact Copolymer Growth," Invited Seminar, BCC-SINOPEC, Beijing, China, 2 September, 2005.
39. "Recent Advances in Emulsion Polymerisation," Chinese Academy of Forestry, Nanjing, 5 September, 2005.
40. "Single Particle Growth and Morphology Modelling for Polyolefins," Zhe Jiang University, Hangzhou, China, 8 September 2005.
41. "High Solid Content Latexes: Process development via experiments supported by modelling," Invited Conference, CHEMPOR 9, Coimbra, Portugal, 21-23 September 2005.
42. "Challenges in Polymerisation in Dispersed Media," 16 November, 2005, Department of Chemical Engineering, Heriot Watt University, Edinburgh, Scotland.
43. "High Solid Content Latex Systemes," World Polymer Congress, 41<sup>st</sup> International Symposium on Macromolecules (IUPAC MACRO 2006), 16-21 July 2006, Rio de Janeiro, Brazil.
44. "Growth and evolution of particle morphology: an experimental & modelling study," 5<sup>th</sup> International Workshop on Heterogeneous Ziegler-Natta Catalysis, JAIST, Kanazawa, Japan, 18-21 March, 2007.
45. "Particle Growth & Evolution of Morphology: A survey and some open questions," Advances in Polyolefins: 2007, Santa Rosa CA, 23-26 Sept. 2007.
46. "Emulsification for latex production," 47<sup>th</sup> Microsymposium of P.M.M., POLYMER COLLOIDS: FROM DESIGN TO BIOMEDICAL AND INDUSTRIAL APPLICATIONS, Prague, Czech Republic: 20-24 July 2008.
47. Invited Seminar Xerox Research of Canada, Mississauga ON, March 28, 2008: Emulsification for latex production: Rotor Stators, Static Mixers, Nanocomposites and Future Directions

48. Invited Seminar at SulzerChemTech, Winterthur, Switzerland, May 6, 2008: Emulsification for latex production: Static Mixers, Rotor Stators, Nanocomposites and Future Directions
49. Invited Seminar at BASF GmbH, Ludwigshafen, Germany, May 13, 2008: Emulsions, miniemulsions and reactors for latex production
50. Invited Seminar at GRUPO KUO, S.A.B, Mexico, 14 August, 2008: High Solid Content Latex Systems
51. Invited Seminar at Sherwin-Williams Company, Cleveland, OH, 14 November, 2008: Different Routes to High Solid Content Latexes
52. Invited Seminar at Ecole Polytechnique de Montreal, Emulsification using static mixers, Montreal QC, June 3 2009.
53. Invited Lecture at International Polymer Colloids Group Master Class Series, An introduction to Polymer Reaction Engineering, Il Ciocco, Italy, July 5 2009.
54. Invited Lecture at Xerox Research Centre of Canada, Technologies for high solid content latex, Mississauga, ON, Feb 05, 2010

### ***Conferences: Oral Presentations (Submissions)***

1. **McKenna, T.F.**, M.F. Malone, "A systematic procedure for the design of polymer production processes," AIChE National Meeting, Washington D.C., Dec., 1988.
2. **McKenna, T.F.**, "Conception des Procédés de Polymérisation" Stage de Perfectionnement, Centre de Perfectionnement des Industries Chimiques, ENSIC, Nancy, 1991,
3. **McKenna, T.F.**, D. Schweich, "Copolymerisation of olefins on Ziegler-type catalysts: Heat and mass transfer during particle growth," 4th International Workshop on Polymer Reaction Engineering, Berlin, 13 October, 1992.
4. McKenna, T.F., M.F. Malone, "Process design for polymer production," Foundations of Computer-Aided Process Design, Snowmass CO, July, 1989.
5. **McKenna, T.F.**, "Conception des Procédés de Polymérisation," ESCPE, March, 1993
6. **McKenna, T.F.**, "Modelling of Transport Phenomena in Ziegler-type Catalysts: Olefin Polymerisation. Differences between Observations and Model Predictions," 2nd Meeting of European Federation of Chemical Engineering Working Party on Polymer Reaction Engineering, Loughborough, U.K., Sept. 14-15, 1994.
7. R. Spitz, J. DuPuy, J.P. Broyer, T. McKenna, "Diffusion effects in Olefin Polymerisation: Reconciliation of theory and experiment." *International Symposium on Synthetic, Structural and Industrial Aspects of Stereospecific Polymerisation* Milano, Italy, June 6-10, 1994.
8. **McKenna, T.F.**, B. Billy, "Use of membranes in the generation of monodisperse particles in suspension polymerisation," 3<sup>rd</sup> Meeting of European Federation of Chemical Engineering Working Party on Polymer Reaction Engineering, Sitges, Spain, 6-7 May, 1995)
9. **McKenna, T.F.**, "Modèle simplifié d'un évaporateur à film raclé: Equipement pour l'élimination des résidus volatils d'un polymère fondu," V<sup>ième</sup> Congrès du Groupe Français du Génie des Procédés, 19-21 September, 1995.
10. **McKenna, T.F.**, S. Othman, G. Févotte, H. Hammouri, "Contrôle en ligne d'un réacteur de polymérisation," V<sup>ième</sup> Congrès du Groupe Français du Génie des Procédés, 19-21 September, 1995.
11. **McKenna, T.F.**, "Aspects du transfert d'énergie pendant la polymérisation des oléfines," V<sup>ième</sup> Congrès du Groupe Français du Génie des Procédés, 19-21 September, 1995.
12. **McKenna, T.F.**, F. Barbotin, R. Spitz, "Transfert de Matière en Catalyse Ziegler: Exploration des limitations diffusionnelles de la polymérisation d'éthylène en suspension," Réunion du G.F.P., Nancy, 21-23 Nov., 1995.
13. **McKenna, T.F.**, B. Billy, "Control of Droplet Size in Suspension Polymerisation: A Novel method for Eliminating the Influence of Mixing Conditions," 4th Meeting of European Federation of Chemical Engineering Working Party on Polymer Reaction Engineering, Thessaloniki, Greece, Sept. 21-22, 1996.

14. **McKenna, T.F.**, "Advances in Modelling of Heat and Mass Transfer: Polymerisation of Olefins on Highly Active Ziegler-Natta Catalysts," 4th Meeting of European Federation of Chemical Engineering Working Party on Polymer Reaction Engineering, Thessaloniki, Greece, Sept. 21-22, 1996.
15. **McKenna, T.F.**, "Computer Aided Process Design: Short-cut design for polymer production.," ESCAPE-6, Rhodes, Greece, May, 1996.
16. G. Févotte, I. Barudio, H. Hammouri, **McKenna, T.**, S. Othman, "A New Approach to the Control of Glass Transition Temperatures of Free Radical Copolymers," ECCE Conference, Florence, Italy, May 4-7, 1997.
17. **McKenna, T.F.**, "Polymer Reaction Engineering in Lyon: A general overview," 5<sup>th</sup> Working Party on Polymer Reaction Engineering, Lyon, France, 5-7 September, 1997
18. **McKenna, T.F.**, A. Villanueva "Non-ideal Kinetic Behaviour of Free Radical Polymerisation," 5<sup>th</sup> Working Party on Polymer Reaction Engineering, Lyon, France, 5-7 September, 1997
19. **McKenna, T.F.**, D. Cokljat, R. Spitz, D. Schweich, "Modelling of Heat and Mass Transfer during the Polymerisation of Olefins on Heterogeneous Ziegler Catalysts," 2nd International Symposium on Catalysis in Multiphase Reactors, 16-18 March, 1998, Toulouse, France.
20. **McKenna, T.F.**, P. Wild, D. Cokljat, "CFD Modelling of Heat Transfer during Gas Phase Olefin Polymerisation," ESCAPE-8, Brugge, Belgium, 24-27 May, 1998.
21. **McKenna, T.F.**, S. Othman, G. Févotte, A.M. Santos, H. Hammouri, "Integrated approach to monitoring, state estimation and control of polymer reactors," 6th International Workshop on Polymer Reaction Engineering, Berlin. Germany, October 5-7, 1998.
22. Othman, N., A.M. Santos, G. Févotte, **T.F. McKenna**, "Estimation non linéaire pour le suivi de la cinétique de la polymérisation en émulsion," Club Emulsion, Nancy, France, Oct. 26-27, 1998.
23. **McKenna, T.F.**, H. Hammouri, "Applications de la calorimétrie est des estimateurs non-linéaire à la polymérisation radicalaire," 11èmes Recontres Jacques Cartier: Le Génie de la Polymérisation en Ligne, Lyon France 7-9 Déc. 1998.
24. G. Févotte, T. McKenna, S. Othman, A.M. Santos "A combined Hardware/software sensing approach for on-line control of emulsion polymerisation processes," ESCAPE-8, Brugge, Belgium, 24-27 May, 1998.
25. **McKenna, T.F.**, S. Othman, N. Othman, G. Févotte, Ph. Guinot, H. Hammouri, "Non-linear state estimators for polymer reactors." Paper 77f, 3rd Annual Polymer Producers Conference AIChE Spring Meeting, Houston, TX, March 14-18, 1999.
26. **McKenna, T.F.**, D. Cokljat, V. Mattioli, R. Spitz, P. Wild, "Heat and Mass Transfer During Heterogeneously Catalysed Olefin Polymerisation," Paper 72e, 3rd Annual Polymer Producers Conference AIChE Spring Meeting, Houston, TX, March 14-18, 1999.
27. Santos, A.M., N. Othman, G. Févotte, **T. F McKenna**, "Experimental evaluation of free radical emulsion polymerisation using a non-linear state estimator: Evaluation in on-line conditions," Polymerisation in Dispersed Media, Lyon, France, 12-15 April, 1999.
28. **McKenna, T.F.**, Davor Cokljat, "Use of CFD in olefin polymerisation: advantages & disadvantages in the context of CATAPOL," Working Party on Polymer Reaction Engineering, Amsterdam, June 5, 1999.
29. **N. Othman**, S. Othman, G. Févotte, A.M. Santos, H. Hammouri, T.F. McKenna, "Use of non-linear estimation techniques: application to polymerisation reactors and parameter estimation," ECCE2 Montpellier, France, October 1999.
30. **Gantillon, B.**, T. McKenna, R. Spitz, "Advances in post-condensation polymerization of ethylene terephthalate," Paper 69e, 3rd Annual Polymer Producers Conference AIChE Spring Meeting, Houston, TX, March 14-18, 1999.
31. Kaboré, P., T.F. McKenna, **S. Othman**, H. Hammouri, "On-line fault detection and isolation for a free radical copolymerisation reaction: An observer-based approach," ECCE2 Montpellier, , October 1999.

32. Storti, G., A. Sliepcevich, M. Morbidelli, C. Martin, D. Schweich, T. McKenna, " Measurement of diffusion coefficients in polyolefins using a chromatographic technique: preliminary results," ECCE2 Montpellier, France, October 1999.
33. Fortuny Heredia, M., M. Schneider, C. Graillat, T. McKenna, "A new look at kinetics and stabilisation phenomena in emulsion polymerisation," ECCE2 Montpellier, France, October 1999.
34. Colombier, D., **T.F. McKenna**, "La formulation de polymères en émulsion," Ecole de Printemps de Casa, Casablanca, Morocco, May 29-31, 2000-06-08.
35. **McKenna, T.F.**, R. Spitz, P. Kittilsen, V. Mattioli, C. Martin, "Single particle transfer phenomena: a review and future directions," ECOREP Conference, Lyon, France, July 3-6 (2000)
36. McKenna, T.F., R. Spitz, "Activity Limits of Heterogeneous Catalysts," OCOP 2000, Organometallic Catalysts and Olefin Polymerization, New Millennium International Conference, Oslo, Norway, June 18-22, 2000.
37. Schneider, M., T.F. McKenna, C.Graillat, "Comparaison de différentes méthodes d'analyse de Distribution de Taille de Particules: Application à la polymérisation en émulsion," Users' seminar, Malvern Instruments Ltd., Vénissieux, France, June, 2000.
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39. Cokljat, D., T.F. McKenna, S. Vasquez, V. Ivanov, "CFD modelling for the production of olefins in FBRs: Simulation of Industrial Scale FBR Hydrodynamics using Unstructured Multiphase Solver," ECOREP Conference, Lyon, France, July 3-6 (2000).
40. **McKenna, T.F.**, M. Schneider, A. Guyot, "High Solids Content Latex with Controlled Viscosity," oral presentation at 51<sup>st</sup> Canadian Chemical Engineering Conference, October 14-17, 2001, Halifax, Canada
41. **McKenna, T.F.**, "Progress in Single Particle Modelling for Polyolefins," oral presentation at 51<sup>st</sup> Canadian Chemical Engineering Conference, October 14-17, 2001, Halifax, NS, Canada.
42. Othman, N., T.F. McKenna, G. Févotte, "Control of Emulsion Polymerization Processes," Oral Presentation at Advances in Process Control 6, 24-25 September, 2001, York, U.K.
43. Ouzineb, K., C. Graillat, T.F. McKenna, "Continuous Tubular Reactor as a Seed Reactor for Emulsion Polymerisation," Oral presentation at the 7<sup>th</sup> International Workshop on Polymer Reaction Engineering, Hamburg, Germany, 8-10 October, 2001.
44. Kittilsen, P., **T. F. McKenna**, "Morphology models for polymerisation of olefins on supported catalysts," Oral Presentation at ECOREP II, 1-4 July, 2002, Lyon, France.
45. Boutti, S., **T. F. McKenna**, C. Graillat, "Formulation of High Solid Content Latexes with Low Viscosity," Présentation Orale au : Polymer Colloids: Preparation and Properties of Aqueous Polymer Dispersions, 14-19 July, 2002, Swabian Conference Centre, Kloster Irsee, Germany.
46. **T.F. McKenna**, M.Schneider, C. Graillat, "New Processes for High Solid Content Latexes with Low Viscosity," 3rd World Congress on Emulsions, Lyon, France, 24-27 September 2002.
47. **T.F. McKenna**, "Vers un nouveau modèle pour la croissance des particules pendant la polymérisation des oléfines," Journée des polyméristes Lyonnais, 28 October, 2002, Lyon, France.
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49. S. Boutti, T. McKenna, C. Graillat, "Procédé de Synthèse Non-Ensemencé de Latex Multipopulés," Journées Club Emulsion, XXIème réunion du Club Emulsion, Arc et Senans, 14 et 15 October, 2002.
50. Fortuny, M., Christian Graillat, Pedro H. H. Araújo, José C. Pinto, **Timothy F. McKenna**, "Dynamic Simulation of Particle Formation in Batch Emulsion Polymerization : A New

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51. 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,” 53<sup>rd</sup> Conference of the Canadian Society of Chemical Engineering, Hamilton, Ontario, Canada, 26-29 October, 2003.
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  56. Jovanovic, R., K. Ouzineb, T.F. McKenna, M.A. Dubé, “BA/MMA Latexes: Adhesive Properties,” Polymer Reaction Engineering V, 18-23 May 2003, Québec, Canada
  57. Santos, A.F., J.C. Pinto, C. Graillat, T.F. McKenna, “Real-Time Monitoring of Emulsion Polymerization Reactions Using Conductivity Measurements and Calorimetric Data,” Polymer Reaction Engineering: Modelling, Optimisation and Control, 16èmes Entretiens Jacques Cartier, Lyon, France, 1-3 December, 2003.
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  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.
  60. Boutti, S., **T.F. McKenna**, “High Solid Content Latexes without Intermediate Seeds,” 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany.
  61. 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
  62. Ouzineb, K., N. LeSauze, A. Farzi, C. Graillat, **T. McKenna**, “Generation of miniemulsions with static mixers,” 2<sup>nd</sup> 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.
  64. 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.
  65. 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.
  66. **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.

67. 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.
68. 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
69. U. El-Jaby, T.F.L. McKenna, M. Cunningham, "Miniemulsification: An analysis of the use of rotor stators as emulsification devices," 9<sup>th</sup> International Workshop on Polymer Reaction Engineering, 7-9 October, 2007, Hamburg, Germany.
70. 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.
71. G.A.Farzi, E. Bourgeat-Lami, T.F.L. McKenna,, "Preparation of silica/polyacrylate nanocomposite latexes", 2<sup>d</sup> Conference on nanostructured materials – 11-14 March 2008, Kish university, Kish Island, Iran
72. 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/ Cp2ZrCl2" , INCOREP, 22-27 June 2008, Montreal, Canada.
74. 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.
75. 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.
76. 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.
77. T.F.L. McKenna, "High Solid Content Polyacrylic Latexes via Emulsion and Miniemulsion Polymerisation," Waterborne Coatings Conference, February 19, 2009, New Orleans.
78. 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
79. 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
80. T.F.L. McKenna, U. El-Jaby, M.C. Cunningham, Static mixers for the production of miniemulsions, PRE VIII, Niagara Falls, May 2009.

#### Poster Presentations

1. 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 )

2. 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)
3. 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)
4. 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)
5. Févotte, G., I. Barudio, T.F. McKenna "Computer-Aided Parameter Estimation and On-line Monitoring of Polymerisation Reactors.," (ESCAPE-6, Rhodes, Greece, May, 1996).
6. McKenna, T.F., A. Guyot "A New Method for Creating Polymerisable Suspensions with Well-Defined Particle Sizes", (Engineering Foundation Conference on Polymer Reaction Engineering, Palm Coast, Florida, USA, March 16-21, 1997).
7. Févotte, G., I. Barudio, H. Hammouri, T. McKenna, S. Othman, "The On-Line Control of the Glass Transition Temperature of Free Radical Emulsion Copolymerisations", (Engineering Foundation Conference on Polymer Reaction Engineering, Palm Coast, Florida, USA, March 16-21, 1997).
8. McKenna, T.F., I. Barudio, G. Févotte, "Free radical Solution polymerisation: monitoring and modelling of solution copolymerisations in real time," (ECCE1 Conference, Florence, Italy, May 4-7, 1997).
9. McKenna, T.F., A. Guyot, "Developments in Suspension Polymerisation: A New Method for Creating Polymerisable Suspensions," (ECCE1 Conference, Florence, Italy, May 4-7, 1997).
10. "Solubility and Crystallinity of Ethylene/Polyethylene Systems," Timothy F. McKenna (ECCE1 Conference, Florence, Italy, May 4-7, 1997).
11. "Kinetics and Mass Transfer in Polyolefin Reactions," V. Mattioli, C. Martin, T. McKenna (Working Party on Polymer Reaction Engineering, Lyon, France, 5-7 September, 1997)
12. "Monitoring and Control of Rapidly Evolving Copolymerisation: Example of MMA - Vinyl Acetate in Emulsion," A. M. Santos, G. Févotte, T. McKenna (Working Party on Polymer Reaction Engineering, Lyon, France, 5-7 September, 1997)
13. "A method for the control of Glass Transition Temperature in Free Radical Polymerisation, I. Barudio, G. Févotte, S. Othman, H. Hammouri, T. McKenna (Working Party on Polymer Reaction Engineering, Lyon, France, 5-7 September, 1997)
14. "Etude de mélange de la polymérisation radicalaire en milieu divisé," C. Graillat, T. McKenna, Colloque Programme de Recherche CNRS: Génie des procédés chimiques, physiques et biotechnologiques. Toulouse (FR), 26-27 November 1998.
15. "Application d'observateurs d'état non linéaire au contrôle d'opération de polymérisation radicalaire," N. Othman, T. McKenna, S. Othman, A.M. Santos, H. Hammouri, G. Févotte, Colloque Programme de Recherche CNRS: Génie des procédés chimiques, physiques et biotechnologiques. Toulouse (FR), 26-27 November 1998.
16. "Un algorithme adaptatif pour l'estimation calorimétrique de conversion globale en polymérisation radicalaire," G. Févotte, T. McKenna, A.M. Santos, Colloque Programme de Recherche CNRS: Génie des procédés chimiques, physiques et biotechnologiques. Toulouse (FR), 26-27 November 1998.
17. "Suivi et Contrôle de la Copolymérisation Radicalaire," N. Othman, A.M. Santos, G. Févotte, S. Othman, T.F. McKenna, Poster présenté aux 11èmes Recontres Jacques Cartier: Le Génie de la Polymérisation en Ligne, Lyon France 7-9 Déc. 1998)
18. "Production de latex polypopulés: vers un procédé continu," T. McKenna, M. Heredia, M. Schneider," Colloque Programme de Recherche CNRS: Génie des procédés chimiques, physiques et biotechnologiques. Toulouse (FR), 26-27 November 1998.
19. "Comportement mécanique de films de copolymères styrène-acrylate de butyle. Influence de la composition," G. Vigier, P. Hajji, J.Y. Cavaillé, G. Févotte, N. Othman, T. McKenna. Colloque Programme de Recherche CNRS: Génie des procédés chimiques, physiques et biotechnologiques. Toulouse (FR), 26-27 November 1998.

20. Fortuny Heredia, M., M. Schneider, C. Graillat, T. McKenna "A new look at kinetics and stabilisation phenomena in emulsion polymerisation," Polymerisation in Dispersed Media, Lyon, France, 12-15 April, 1999.
21. Renard, B., T.F. McKenna, "Kinetics of Polymerisation of Partially Neutralised Acrylic Acid in INVERSE Suspensions," Polymerisation in Dispersed Media, Lyon, France, 12-15 April, 1999.
22. Santos, A.M., G. Févotte, N. Othman, S. Othman, T.F. McKenna, "The on-line monitoring of methyl methacrylate-vinyl acetate emulsion copolymerisation," Polymerisation in Dispersed Media, Lyon, France, 12-15 April, 1999.
23. M. Schneider, C. Graillat, T. McKenna, I. Bétrémieux, "Preparation of High Solid Content Latex with Polymodal Particle Size Distribution (PSD)," Gordon Conference, June, 1999.
24. Santos, A. F., A. Cherfi, T. McKenna, G. Fevotte, "In-Line Dielectric Monitoring of MMA/BuA Copolymerization Reactions," Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
25. Ouzineb, K., M. Fortuny Heredia, M. Schneider, C. Graillat, T.F. McKenna, "Emulsion polymerization with anionic and non-ionic surfactants," Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
26. Kittilsen, P., T. F. McKenna "Mass Transfer Effects in the Production of High Impact Resistance Polymer," Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
27. Gantillon, B., R. Spitz, T. McKenna, "Solid State Polycondensation of PET," Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
28. Schneider, M., C. Graillat, T. McKenna, I. Bétrémieux, "Preparation of High Solid Content Latex with Polymodal Particle Size Distribution (PSD), and evaluation of the PSD," Polymer Reaction Engineering IV, Palm Coast, Florida, March 19-24, 2000.
29. Mattioli, V., T.F. McKenna, "Capillary condensation during olefin polymerisation," ECOREP Conference, Lyon, France, July 3-6 (2000).
30. Martin, C., C. Novat, T.F. McKenna, "An Experimental Investigation of the Morphology of Polyolefin Particles," ECOREP Conference, Lyon, France, July 3-6 (2000).
31. Martin, C., T.F. McKenna, "Inverse Gas Chromatography for Characterisation of Polyolefins: Exploration of Solubility, Diffusion and Particle Morphology," ECOREP Conference, Lyon, France, July 3-6 (2000).
32. Ouzineb, K., C. Graillat, T.F. McKenna, "Study of the continuous emulsion polymerisation of butyl acrylate and methyl methacrylate," Working Party on Polymer Reaction Engineering, Lausanne, Suisse, 21-22 October, 2000.
33. Santos, A. F., A. Cherfi, T. McKenna, G. Seytre, J.C. Pinto, G. Fevotte, "In-Line Dielectric Monitoring of MMA/BuA Copolymerization Reactions," Working Party on Polymer Reaction Engineering, Lausanne, Suisse, 21-22 October, 2000.
34. P. Kittilsen, H. Svendsen, H.A. Jakobsen, T.F. McKenna & S.B. Fredriksen, "The effect of initial conditions on morphology in heterogeneous olefin polymerization," poster at International symposium on future technologies for polyolefin and olefin polymerization catalysis, Tokyo Institute of Technology, Japan, 21-24 March 2001.
35. Fortuny-Heredia, M., C. Graillat, T.F. McKenna, "Experimental modeling of monomer partitioning in emulsion systems," Poster presentation at the Gordon Research Conference on Polymer Colloids, July 1-6, 2001 Tilton, NH, USA.
36. Schneider, M., I. Bétrémieux, A. Guyot, C. Graillat, T. McKenna, "Product development and rheology of high solids content latexes," Poster presentation at the Gordon Research Conference on Polymer Colloids, July 1-6, 2001 Tilton, NH, USA.
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38. Santos, A.F., F. Bentes Freire, J.C. Pinto, R. Giudici, C. Graillat, T.F. McKenna, "On-line Monitoring of Emulsion Polymerisations: Conductivity and Real Time Calorimetry," poster

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39. Schneider, M., I. Bétrémieux, A. Guyot, T.F. McKenna, "High Solids Content Emulsions: Product Development and Rheological Characterisation," poster accepted for presentation at the 7<sup>th</sup> International Workshop on Polymer Reaction Engineering, Hamburg, Germany, 8-10 October, 2001.
40. Le Sauze, N., Ouzineb, K., Ricard, A., McKenna, T., Xuereb, C., Apport des mélangeurs statiques lors d'une polymérisation en émulsion réalisée dans un réacteur en boucle," 8<sup>ème</sup> Congrès Francophone du Génie des Procédés, 17-19 October, 2001.
41. Di Martino, A., T.F. McKenna, "Future Developments in the Tension Model: Toward a realistic model of particle fragmentation and growth" ECOREP II, 1-4 July, 2002, Lyon, France.
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43. Eriksson, E., D. Cokljat, T.F. McKenna, "Heat transfer Modelling using CFD," ECOREP II, 1-4 July, 2002, Lyon, France.
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45. Santos, A.F., J.C. Pinto, C. Graillat, T.F. McKenna La mesure de  $N_p$  avec la conductimétrie, Journées Club Emulsion, XXIème réunion du Club Emulsion, Arc et Senans, 14 et 15 October, 2002
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56. Farshchi, F., Graillat, C., Othman, S., Hammouri, H., McKenna, T.F., "On-line monitoring and modelling of emulsion polymerisation of butyl acrylate using conductimetry," Polymer

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60. Eriksson, E., Y. Banat, G. Weickert, T.F. McKenna, "CFD simulation of gas phase polyolefin microreactors," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany
61. Di Martino A., T.F. McKenna, G. Weickert, F. Sidoroff, "Toward a realistic model of particle fragmentation," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany
62. Farshchi, F., A.F. Santos, S. Othman, H. Hammouri, T. F. McKenna, "Monitoring of Emulsion Polymerization Using Conductimetry," 8<sup>th</sup> International Workshop on Polymer Reaction Engineering, 4-6 October, 2004, Hamburg, Germany
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65. S. Boutti, C. Graillat, T.F. McKenna, "High Solid Content Latexes: Unseeded Emulsions with 76% Solids and Very Low Viscosity," 2<sup>nd</sup> International Symposium on Polymeric Microspheres, 29-31 March, 2005, Washington Hotel, Fukui, Japon
66. S.Y.A. Shin, L.C. Simon, J.B.P. Soares, G. Scholz, T.F. McKenna, "Gas phase polymerization of ethylene using coordination catalysts supported on Montmorillonite: nanocomposites prepared by in situ polymerization," ECOREP III, Lyon, France, June 20-24, 2005)
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68. A. Di Martino, T.F. McKenna, J.P. Broyer, G. Weickert, "A Quenched-flow reactor for the observation of polyolefin morphology under industrial conditions at short times (<1s)," ECOREP III, Lyon, France, June 20-24, 2005.
69. A. Di Martino, T.F. McKenna G. Weickert, F. Sidoroff , "Toward a realistic model of particle fragmentation," ECOREP III, Lyon, France, June 20-24, 2005.
70. F.M. Silva, E.L. Lima, J.C. Pinto, T.F. McKenna, "Gas-Phase Copolymerization of Propylene / 1-Butene with Ziegler-Natta Catalyst," ECOREP III, Lyon, France, June 20-24, 2005.
71. V.F. Tisse, R.M. Briquel, T.F. McKenna, Investigation of reaction rate properties of polyethylene produced by homopolymerisation and copolymerisation of ethylene and 1-hexene in slurry phase with EtInd<sub>2</sub>ZrCl<sub>2</sub> on supports with different physical properties, ECOREP III, Lyon, France, June 20-24, 2005
72. G. Farzi, T.F.L. McKenna, E. Bourgeat-Lami, C. Graillat, "Comparative study of miniemulsion polymerization and conventional emulsion polymerization of MMA," 24ème journées du Club Emulsion – 26-27 Septembre 2005, Montpellier, France.
73. G. Farzi, T.F.L. McKenna, E. Bourgeat-Lami, C. Graillat, "Preparation of SiO<sub>2</sub>/ PBuA-co-PMMA nanocomposite latexes via miniemulsion polymerization for coating and adhesive applications," Nanofun Poly – 26-27 Mai 2006, Lyon, France

74. D. Bouzid, T.F.L. McKenna, "Study and Control of the Distribution of Elastomer in High Impact PP," Polymer Reaction Engineering VI, 21-26 May 2006, Halifax, Canada.
75. A. DiMartino, F. Silva, J.C. Pinto, T.F.L. McKenna, "Stopped Flow Reactors For The Study Of The Nascent Polymerisation Of Ethylene," Polymer Reaction Engineering VI, 21-26 May 2006, Halifax, Canada.
76. M. Pishvaie, Ph. Cassagnau, T.F.L. McKenna, "Modelling Of The Rheological Properties Of Bimodal Emulsions," Polymer Reaction Engineering VI, 21-26 May 2006, Halifax, Canada.
77. H. Vale, T.F.L. McKenna, "Synthesis Of Bimodal Pvc Latexes By Emulsion Polymerization: An Experimental And Modeling Study," Polymer Reaction Engineering VI, 21-26 May 2006, Halifax, Canada.
79. F.M. Silva, T.F.L. McKenna, E. Lima, J.C. Pinto, "Synthesis of Polypropylene-Based Polymers in Liquid Pool and Gas-Phase Processes," Polymer Reaction Engineering VI, 21-26 May 2006, Halifax, Canada.
80. F.M. Silva, T.F.L. McKenna, E. Lima, J.C. Pinto, "In-Situ Preparation of Polypropylene / 1-Butene Alloys with a High-Activity Ziegler-Natta Catalyst, World Polymer Congress, 41<sup>st</sup> International Symposium on Macromolecules (IUPAC MACRO 2006), 16-21 July 2006, Rio de Janeiro, Brazil.
81. G. Farzi, T.F.L. McKenna, E. Bourgeat-Lami "Preparation of SiO<sub>2</sub>/ PBuA-co-PMMA nanocomposite latexes via miniemulsion polymerization for coating and adhesive applications," 25<sup>ème</sup> journées du Club Emulsion – 18-19 Septembre 2006, Strasbourg, France
82. V. Mellon, N. Negrette-Herrera, E. Bourgeat-Lami, T.F.L. McKenna, "Synthèse et caractérisation de latex acryliques à haut taux de solide par polymérisation en mini emulsion," 25<sup>ème</sup> journées du Club Emulsion – 18-19 Septembre 2006, Strasbourg, France
83. N. Negrette-Herrera, V. Mellon, E. Bourgeat-Lami, T.F.L. McKenna, "Encapsulation de particules de Laponite modifiées par polymérisation en mini emulsion," " 25<sup>ème</sup> journées du Club Emulsion – 18-19 Septembre 2006, Strasbourg, France
84. V. Mellon, N. Negrette-Herrera, T.F.L. McKenna, E. Bourgeat-Lami, "Polymer encapsulation of Laponite clay platelets through miniemulsion polymerization" Groupe Français des Argiles : Charges lamellaires et nanocomposites: où en est-on? – 10-11 Septembre 2007, Villeurbanne, France
85. G. Farzi, J.L. Putaux, E. Bourgeat-Lami, T.F.L. McKenna,, C. Graillat, "Preparation of silica/polyacrylate nanocomposite latexes via conventional emulsion and miniemulsion polymerization: a comparison.," 26<sup>ème</sup> journées du Club Emulsion – 20-21 Septembre 2007, Lyon, France
86. V. Mellon, N. Negrette-Herrera, J.L. Putaux, T.F.L. McKenna, E. Bourgeat-Lami,, "Preparation of waterborne acrylic/Laponite nanocomposite latexes by miniemulsion polymerization", 26<sup>ème</sup> journées du Club Emulsion – 20-21 Septembre 2007, Lyon, France
87. R. Udagama, C. Graillat, E. Bourgeat-Lami, T.F.L. McKenna, "High solid content Acrylic/Alkyd resin hybrid latexes. Effect of the hydrophobicity of the organic phase on droplets nucleation", 26<sup>ème</sup> journées du Club Emulsion – 20-21 Septembre 2007, Lyon, France
88. U. El-Jaby, T.F.L. McKenna, M. Cunningham, "Miniemulsification: Comparing In-line mixers to Rotor-Stators as Emulsification" 26<sup>ème</sup> journées du Club Emulsion – 20-21 Septembre 2007, Lyon, France
89. U. El-Jaby, T.F.L. McKenna, M. Cunningham, "Miniemulsion Formation and Polymerization using Rotor-Stator Homogenizers" 26<sup>ème</sup> journées du Club Emulsion – 20-21 Septembre 2007, Lyon, France
90. H. Vale, T.F.L. McKenna, "Population Balance Modeling of Emulsion Polymerization Reactors : Applications to Vinyl Chloride Polymerization," 9<sup>th</sup> International Workshop on Polymer Reaction Engineering, 7-9 October, 2007, Hamburg, Germany.

91. B. Olalla, J-P. Broyer, T.F.L. McKenna, "Heat Transfer and Nascent Polymerisation of Olefins on Supported Catalysts," 9<sup>th</sup> International Workshop on Polymer Reaction Engineering, 7-9 October, 2007, Hamburg, Germany.
92. Expanding the range of on-line conductivity analysis for monitoring emulsion homo and copolymerization reactions, Alexandre F. Santos, Montserrat Fortuny, Farshad Farshchi, Christian Graillat, Timothy F. McKenna. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
93. The use of ion-selective electrodes for in-line monitoring of batch emulsion polymerization reactions, Gilson P. Santos Jr., Alexandre F. Santos, Montserrat Fortuny, Mireille Turmine, Christian Graillat, Timothy F. McKenna. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
94. On the use of the use of rotor stators as miniemulsification devices, Ula El-Jaby, Timothy F.L. McKenna, Michael Cunningham. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
95. Observation of particle size in the synthesis of silica/ polyacrylate nanocomposite latexes via miniemulsion polymerization, G. Farzi, E. Bourgeat-Lami, T.F.L. McKenna. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
96. Heat Transfer and Nascent Polymerisation of Olefins on Supported Catalysts, B. Olalla, J-P. Broyer, T.F.L. McKenna. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
97. PVC Latexes by Emulsion Polymerization: an Experimental and Modeling Study, Hugo M. Vale, Timothy F. McKenna. Poster presentation at Properties, Monitoring and Control of Polymers and Polymerisation, 20<sup>ième</sup> Rencontres du Centre Jacques Cartier, 01-05/12/2007.
98. Heat Transfer and Nascent Polymerisation of Olefins on Supported Catalysts, E. Tioni, V. Monteil, R. Spitz, B. Olalla, J.P. Broyer, T.F.L. McKenna, INCOREP, 22-27 June 2008, Montreal, Canada
99. Role of Support Properties in the Kinetics of Ethylene Polymerisation, V. Tisse, R. Briquel, T.F.L. McKenna, INCOREP, 22-27 June 2008, Montreal, Canada.
100. Heat Transfer in Gas Phase Olefin Polymerisation: A study of Particle-Surface Interactions, E. Eriksson, T.F.L. McKenna, INCOREP, 22-27 June 2008, Montreal, Canada.
101. Study and Control of the Distribution of Rubber in High Impact PP, D. Bouzid, T.F.L. McKenna, INCOREP, 22-27 June 2008, Montreal, Canada.
102. E. Degrandi, C. Creton, E. Bourgeat-Lami, R. Udagama, T. McKenna, J. M. Asua, A. Lopez, "Mechanical and adhesive properties of nanostructured waterborne polymer films prepared by miniemulsion", Euradh'2008 conference on adhesion and adhesive phenomena – 3-5 September 2008, Oxford, UK
103. G. Farzi, E. Bourgeat-Lami, T.F.L. McKenna, "Incorporation of silica into polyacrylate latexes for adhesive applications", 27<sup>ème</sup> journées du Club Emulsion – 24-25 Septembre 2008, Lyon, France

**ANNEX 2. HIGHLY QUALIFIED PERSONNEL*****SUPERVISION OF RESEARCH PROJECTS****Ph.D. Theses Underway*

1. Raul Moraes, "High solid content latex for paper coatings." Nov 2007-Present
2. Ula EL-JABY "Advanced applications of miniemulsions," August 2005-Present (Co-direction with Michael Cunningham, Queen's University, Kingston, Canada).
3. Jordan Pohn "Modelling and experimental study of latex Stability," August 2005-Present (Co-direction with Michael Cunningham, Queen's University, Kingston, Canada)
4. Ravindra UDAGAMA "Acrylic-Alkyd Hybrids via Miniemulsion Polymerisation," December 2005 – present.
5. Gabriela FONSECA, "Miniemulsion polymerisation for adhesives," 2005-2009 (Cosupervised with Prof. Marc. A. Dube, University of Ottawa)
6. Estevan TIONI, "The study of the role of the support, support preparation and initial conditions on olefin polymerisation," 2007-2010 (Co-direction with Dr. Vincent Monteil, Université de Lyon).
7. Elena Ranyeri, "Kinetics of metallocene polymerisation," (Co-direction with Dr. Christophe Boisson, Université de Lyon), 2007-2010
8. Arash ALIZADEH, "Advanced morphological models for olefin polymerisation," 2009-2013 (DPI).

*Ph.D. Completed*

1. Virginie MATTIOLI, "Aspects génie chimiques de la polymérisation polyphasiques" March 1997- March 2000
2. Christine MARTIN, "Transport phenomena during polymerisation on heterogeneous catalysts." May 1997 - July 2000
3. Nida OTHMAN, "Advanced Strategies for Composition Control in Semi-continuous Emulsion Polymerization," October 1997 - July 2000.
4. Martine SCHNEIDER, "Etude de Procédés de Synthèse de Latex Multipopulés à Haut Extrait Sec," October 1997- September 2000
5. Montserrat FORTUNY, "Modélisation de la polymérisation en émulsion de latex multipopulés," June 1999 - November 2002.
6. Keltoum OUZINEB, "Emulsion and Miniemulsion Polymerization : Stabilization, tubular reactors and practical applications," September 1999- February 2003
7. Alexandre SANTOS, "Emulsion polymerisation: sensors and control," (Co-direction with Professor José Carlos PINTO, Universidad federal de Rio de Janeiro), June 1999-February 2003.
8. Salima BOUTTI, "Synthesis of High Solid Content Latexes," October 2000 - December 2003
9. Thomas LYS, "Mechanism of particle formation and growth in bimodal PVC latexes," October 2000-February 2004.
10. Djallal BOUZID, "Morphologie des particules de copolymères d'éthylène et de propylène," October 2001-October 2004
11. Farschad FARSCHEID, "Commande de réacteurs de polymérisation en émulsion," January 2000 – December 2004, (Co- direction with Professor Hassan HAMMOURI, UCBL-Lyon I).
12. Erik ERIKSSON, "Validation of transport models for the gas and slurry phase polymerisation of olefins," November 2001- April 2005.
13. Audrey COSYNS, "Dispersions de polymères à granulométrie multimodale : application aux revêtements aqueux," October 2002 – October 2005

14. Malihae PISHVAIE; "Latex Rheology", (Co-direction with Philippe CASSAGNAU LMPBM), April 2002 – December 2005.
15. Audrey DIMARTINO, "Modelling of particle fragmentation, growth and morphology for polyolefins," November 2001- March 2006
16. Virginie TISSE, "Ethylene polymerisation on silica-supported catalysts," October 2002 – April 2006.
17. Fabricio SILVA "Polymerisation of propylene and butene on supported catalysts," (Co-direction with José Carlos PINTO, COPPE/UFRJ Rio de Janeiro, Brazil).
18. Hugo VALE, "Modelling of the evolution of the PSD during emulsion polymerisation," January 2003 – March 2007.
19. Ali FARZI "Nanocomposite films from miniemulsions," August 2004 – December 2007 (Co-direction with Mme Elodie BOURGEAT-LAMI).
20. Véronique MELLON "Clay-acrylic composite films via Miniemulsion Polymerisation," October 2005 – March 2009 (Co- direction with Mme Elodie BOURGEAT-LAMI).

#### *Postdoctoral Fellowships*

1. Dr Selwa BEN AMOR "Suivie Calorimétrique et Commande des Réacteurs de Polymérisation, October 1999 - October 2000.
2. Dr. Djallel BOUZID, "Use of Atomic Force Microscopy for the Study of High Impact Polypropylene" December 2004-April 2005.
3. Dr. Norma Negrete "Clay-acrylic composite films via Miniemulsion Polymerisation," October 2005 – December 2006 (Co- direction with Mme Elodie BOURGEAT-LAMI).
4. Dr. Erik Eriksson, "Oscillating polymer structures," May 2005 – April 2006 (Co- direction with Professor Guenter Weickert, U Twente/PRT GmbH).
5. Dr. Audrey Di MARTINO, "Kinetics of the nascent polymerisation of ethylene in the gas phase. March 2006-September 2006
6. Dr. Yahya BANAT, "Oscillating polymer structures," 2007 (Co- direction with Professor Guenter Weickert, U Twente/PRT GmbH).
7. Dr. Salima BOUTTI, "Emulsification of acrylic monomers," 2009

#### *M.Sc./D.E.A*

1. MSc *Chemical Engineering*, Robert COCKBURN, "Polymerisation of Biosource monomers." (co-direction with Prof. Robin Hutchinson) 2009-2011.
2. MSc (IFP School, ENSMP, Reuil-Malmaison, France), Arash ALIZADEH, "Modelling ZN polymerisation," January 2009
3. MSc *Chemical engineering* Sondes BOURIGA, "Production de Nanocomposites d'argile", July 2007,
4. MSc *Chemical engineering* Zha LI, "Production de Miniemulsions," July 2007
5. MSc *Chemical engineering* Thomas GEREZ, "Role of the support morphology of silica based metallocenes," June 2006.
6. MSc *Chemistry* Ravindra UDAGAMA "Emulsion Polymerisation of Butyl Acrylate – process intensification," December 2005
7. MSc *Chemical engineering* Rémi BRIQUEL "Le rôle du support dans la polymérisation d'éthylène avec des catalyseurs métallocènes" June 2005
8. MSc *Chemical engineering* Sebastien FERRERO "L'application de la calorimétrie à la suivi de réacteurs de polymérisation" June 2004
9. MSc *Composites and Polymeric Materials* Floran PRADES "Etude d'une cascade de réacteurs agités pour la polymérisation en émulsion". June 2000
10. MSc *Composites and Polymeric Materials* Djallel BOUZID "Morphologie des particules de polyoléfines" June 2000

11. MSc *Chemical engineering* Kamel MAHFOUDI "Phénomènes de transport de matière pendant la polymérisation des oléfines" June 2000
12. M.Sc. *Chemical engineering* Sandrine MOREAU "Production of multipopulated latices in stirred tank reactors" June 1999
13. M.Sc. *Composites and Polymeric Materials* Béatrice RENARD "Methods for polymerisation of acrylic acid in inverse suspension" June 1998.
14. M.Sc. *Chemical engineering* Jérôme TORRES "Emulsion copolymerisation in continuous stirred tank reactors" June 1997
15. M.Sc. *Chemical engineering* Alvaro VILLANEUAVE "Cinétique de la polymérisation radicalaire en solution" June 1997
16. M.Sc. *Chemical engineering* Nora GHERIB, "Elaboration of a reaction calorimeter for free radical polymerisation." June 1996
17. M.Sc. *Composites and Polymeric Materials* Boris BILLY "A metallic membrane process for the suspension polymerisation of styrene." June 1996
18. M.Sc. *Composites and Polymeric Materials* Barbara GANTILLON "Process for the production of PET in divided media." June 1996

#### *Undergraduate Research Projects*

1. *Final Year Thesis (B.Eng.)* Montserrat FORTUNY HEREDIA "Solution polymerisation of acrylates: influence of solvents on the rate constants," June- September, 1998
2. *End of Year Project (B.Eng.)* Cesar ALVAREZ, "The use of calorimetry to monitor the production of core-shell latexes" January-July 2001
3. *Erasmus Mundus (B.Eng.)* Susanne LOW, "Monitoring of emulsion polymerisation using conductivity," January-June 2001
4. *Final Year Thesis (B.Eng.)* Catharine LORD, "Miniemulsification using rotor stator mixers," August-December 2002
5. *Final Year Project (B.Eng.)* Christophe LeBARON, "Bimodal latexes for PVDC products," January-July 2003
6. *Final Year Project (B.Eng.)* Sohinee MAZUMDAR, "Miniemulsification using Rotor Stator Mixers – influence of process conditions," January-June 2003
7. *Work Exchange (U. Lorena, SP Brazil)* Rafael JARDIM PINTO da SILVA, "Partitioning of acid comonomers during emulsion polymerisation," January-June 2005
8. *Final Year Project (B.Eng.)* Raul MORAES, "Rheological Modifiers and Thickeners," January-July 2005
9. *Final Year Project (B.Eng.)* Rocio DIEZ, "Bimodal latexes for low viscosity applications," October 2004-July 2005
10. *Final Year Project (B.Eng.)* Jaime CAETANO, "Hollow core-shell emulsions," January-June 2006
11. *Final Year Project (B.Eng.)* Beartz OLALLA, "Polyolefin morphologies using stopped flow reactors," October 2006-July 2007.
12. *Work Exchange (U. Lorena, SP Brazil)* Flavia OLIVEIRA, "Formulation of high temperature adhesives," January-June 2007.
13. *NSERC Summer Student*, Todd Larson, "Miniemulsification of acrylic monomers," May-August 2008.
14. *Summer Student*, Nathan Hordy, "Tubular Reactors for Miniemulsion Polymerization," May-August 2008.
15. *Chemistry 417 Student*, Todd Larson, "Rotor Stator Mixers for Miniemulsions," 2008-2009
16. *Chem. Eng. 421 Student*, Nathan Hordy, "Structured latexes in tubular reactors," 2008-2009
17. *Chemistry 417 Student*, Michael Gretton, "Synthesis of Triblock Copolymers by Polymerization of Acrylates and Methacrylates in Miniemulsion," (co-direction with Michael Cunningham) 2008-2009

18. *Chemistry 417 Student*, Robert COCKBURN, "Polymerisation of Biosource monomers." (co-direction with Prof. Robin Hutchinson) 2008-2009.
19. *Undergraduate thesis (ESCPE-Lyon)*, Philippe Lauvernier, "Microemulsions," 2009.
20. *NSERC Summer Student*, Andrew Wong, "Coagulator Design," (co-direction, with Prof. Robin Hutchinson) 2009.
21. *NSERC Summer Student*, Jessica Albanese, "Miniemulsions via static mixers." 2009
22. *NSERC Summer Student*, Scott Campbell, "Phase inversion for emulsions." 2009
23. *NSERC Summer Student*, Sarah Haw, "HASE thickeners via miniemulsions." 2009.
24. *ChEE 421*, Scott Campbell, "Catastrophic Phase Inversion for Miniemulsification," 2009-10.
25. *ChEE 406*, Natalie MacKenzie, "Grafting of styrene and PHA resins," 2009-10 (co-direction with Juliana Ramsay).
26. *ChEE 421*, Andrew W.T. Wong, "Coagulation of polymeric latex," 2009-10 (co-direction with Robin Hutchinson).
27. *Chem 417*, Kevin Payne, "Use of biorenewable monomers for adhesives product," (co-direction with Robin Hutchinson).
28. *Chem 417*, Jessica Albanese, "Products and processes of miniemulsions". 2009-10.