

BIOGRAPHY

Dr. Roger Gaudreault

Executive Scientific Advisor



Dr. Roger Gaudreault has a B.Sc. in Chemistry from the *Université du Québec à Chicoutimi* (1986), a Masters Degree in Pulp and Paper from the *Université du Québec à Trois-Rivières* (1991) and a Ph.D. in molecular modelling from McGill University (2003). Dr. Gaudreault followed the PhD with a postdoctoral Fellowship jointly supervised by Professors David A. Weitz, at Harvard University, and Theo van de Ven, at McGill University (2005-2006), on the kinetics of colloids aggregation.

Affiliated member of the Centre in Green Chemistry and Catalysis (CGCC) since June 2011, Dr. Gaudreault received the 2016 Canadian Green Chemistry and Engineering Award (CGCEN), recognizing his significant contributions to these areas. Mr Gaudreault was also appointed PAPTAC Fellow in 2017 in recognition of his outstanding long-term and significant contribution to the Association, the pulp & paper and forest products industry and for the advancement of science and technology in the industry.

Dr. Gaudreault has 30 years of experience in the Pulp & Paper Industry, plus additional experience in industrial water treatment and green energy. He was appointed Vice-President of R&D and Innovation at TGWT Clean Technologies Inc. Dr. Gaudreault also managed Cascades R&D Centre for 20 years, where he initiated two North-American R&D Consortia, and lead the team that developed Cascades Innovation Strategy and its implementation.

In 2005, he instigated the Fundamental and Applied Pulp & Paper Molecular Modelling Symposium (FAPPMMS), a world first in this industry. He was senior editor of the refereed proceedings published in book form for the 2005, as well as 2008 and 2011 Symposia. More recently, he co-chaired the technical program of The Annual Conference of the Canadian Pulp and Paper industry (PaperWeek Canada 2013), chaired the FIBRE Day and FIBRE Commercialization Forum (PaperWeek Canada 2013-2016), is a Board Member of the *Association pour le développement de la recherche et de l'innovation du Québec (ADRIQ)*, and the Guest-Editor of the J-FOR, PAPTAC's flagship scientific journal, a special issue in honour of Dr. Theo van de Ven from McGill University. He is also a member of the NSERC Synergy Awards for Innovation Selection Committee.

In the last few years, Dr. Gaudreault has given numerous talks on science, green chemistry and sustainable innovation to industrial conferences, university departments, Les Entretiens

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Jacques-Cartier, The Conference Board of Canada, and The Standing Senate Committee of Canada on Agriculture and Forestry.

Papers in Scientific Journals and Refereed Conference Proceedings

1. **Gaudreault, R.**; Safari, S.; van de Ven, T.G.M.; Junghanns, M., Control of Deposition Risks in High-Silica Boiler Waters: A Novel Approach Using Purified Tannin Chemistry, AWT Annual Convention and Exposition, San Diego, CA, September 7-10, **2016**. (http://www.awt.org/abstracts/uploads/13218-157/Roger%20Gaudreault-AWT%202016%20Control%20of%20Deposition%20Risks%20in%20High-Silica%20Boiler%20Waters%202016_0...1.pdf?pass=99)
2. **Gaudreault, R.**; Pion, D.; van de Ven, Theo G.M., A Sensitivity Analysis of Wet-End Chemistry by Kinetic Calculations: A Case Study, J-FOR, **2016**, 5, 4, 14-23.
3. Dargahi, M.; Olsson, A.L.J.; Tufenkji, N., **Gaudreault, R.**; Green Technology: Tannin-Based Corrosion Inhibitor for Protection of Mild Steel, CORROSION, **2015**, 71, 11, 1321-1329.
4. **Gaudreault, R.**; Di Cesare, N., van de Ven, T.G.M., Weitz D., The Structure and Strength of Floccs of Precipitated Calcium Carbonate Induced by Various Polymers used in Papermaking, Ind. Eng. Chem. Res. **2015**, 54, 6234–6246.
5. Dargahi, M.; **Gaudreault, R.**; Olsson, A.L.J.; Tufenkji, N., Green Chemistry – Purified Tannin Molecules for the Protection of Mild Steel Closed-Loop Systems, The Analyst, Volume 22, Number 1, 22-27, **2015**.
6. Dargahi, M.; **Gaudreault, R.**; Olsson, A.L.J.; Tufenkji, N., Green Chemistry – Purified Tannin Molecules for the Protection of Mild Steel Closed-Loop Systems, AWT Annual Convention and Exposition, Fort Worth, TX, November 1st **2014**.
7. **Gaudreault, R.**; Dargahi, M.; Weckman, N.; Olsson, A.L.J.; Omanovic, S.; Schwartz, G.; Tufenkji, N. Green Chemistry – with a Special Emphasis on Tannin Molecules for the Protection of Aluminum Boilers, AWT Annual Convention and Exposition, Uncasville, CT, USA, November **2013**.
8. **Gaudreault, R.**; Brochu, C.; Sandroock, R.; Deglmann, P.; Seyffer, H.; Tétreault, A.; Overview of Practical and Theoretical Aspects of Mineral Oil Contaminants in Mill Process and Paperboard. The Pulp and Paper Fundamental Research Society 2013 FRC, Cambridge, England, September **2013**.
9. **Gaudreault, R.**; Green Chemistry at Cascades: From Research to Innovation, Fundamental and Applied Pulp & Paper Modelling Symposium, Montréal, Canada, August 24-27, **2011**, 217-223.
10. **Gaudreault, R.**; Di Cesare, N., van de Ven, T.G.M., Weitz D., The Structure and Strength of Floccs of Precipitated Calcium Carbonate Induced by Various Polymers used in Papermaking, Advances in Pulp & Paper Research, The 14th FRC Symposium, St-Anne's College, Oxford, UK, 13th-18th September, **2009**, 1193-1219.
11. **Gaudreault, R.**; Whitehead, M.A.; van de Ven, T.G.M., Molecular Modelling Review of the

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- association between Poly(ethylene oxide) (PEO) and Cofactor, 7th International Paper and Coating Chemistry Symposium, **2009**, Hamilton, Canada, June 10-12, 2009, 263-276.
12. **Gaudreault, R.**; Di Cesare, N., Weitz D., van de Ven, T.G.M., Flocculation Kinetics of Precipitated Calcium Carbonate, *Colloids Surf. A : Physicochem. Eng. Aspects*, **2009**, 268, 131-146.
 13. **Gaudreault, R.**; Whitehead, M.A.; van de Ven, T.G.M. Quantum Theory in Hydrogen Bonds in PEO/Cofactor Complexes, Fundamental and Applied Pulp & Paper Modelling Symposium, Montréal, Canada, August 27-29, **2008**, 149-166.
 14. Fillion, M.; Ager, P.; **Gaudreault, R.**, « Comparison of Bleaching Sequences (PF, PH and PY) for Deinked MOW Containing Different Percentages of Mechanical Pulp », **2006**, 92^e Congrès Annuel ATPPC - Prétiré B., 179-185.
 15. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., “Theoretical Studies of the Interactions between Complex Molecules in the Gas Phase”, **2006**, *J. Phys. Chem. A*, 10, 3692-3702.
 16. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., “A Theoretical Study of the Interactions of Water with Gallic Acid and a PEO/TGG Complex”, *Molecular Simulation*, **2006**, 32, 1, 17-27.
 17. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., “Mechanisms of Flocculation of Microcrystalline Cellulose by Poly(ethylene oxide) and Cofactor Corilagin, the 13th FRC Symposium, Robinson College, Cambridge, 11-16 Septembre **2005**, 1269-1292.
 18. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., “Salt Necessary for PEO-Cofactor Association: The Role of Molecular Modelling in PEO Flocculation Mechanisms, First Applied Pulp & Paper Molecular Modelling Symposium, Montréal, Canada, 24-26, August **2005**.
 19. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., “Mechanisms of Flocculation with Poly(ethylene oxide) and Novel Cofactors: Theory and Experiment, *Colloids & Surf. A: Physicochem. and Eng. Aspects*, 31 Octobre **2005**, 268, 131-146.
 20. Aucoin, M.; **Gaudreault, R.**; Daneault, C., « Impact of Water Conductivity on the Freeness and the Properties of Various Pulps », 5th International Paper and Coating Chemistry Symposium, **2003**, Montréal, Canada, 16-19 Juin, 201-207.
 21. **Gaudreault, R.**; Pion, D., Cas pratique des calculs cinétiques : optimisation de la chimie de la partie humide, *Congrès Francophone du Papier 2002*, Québec, Canada, May 29-31, **2002**, 65-73.
 22. **Gaudreault, R.**; van de Ven, T.G.M.; Whitehead, M.A., Molecular modeling of poly(ethylene oxide) model cofactors; 1,3,6-tri-O-galloyl- β -D-glucose and corilagin, *J. Mol. Model.*, **2002**, 8, 73-80.
 23. **Gaudreault, R.**, Aucoin, M.; Bleaching Sequence (PF) for deinked pulp, (wood free type) and its impact on the environment, *4th Research Forum on Recycling*, Quebec, Canada, October 7-9, **1997**, 221-232.
 24. **Gaudreault, R.**; Blais, S.; Chabot, P.; Tremblay, C., Methodology for the Determination of Stickies Concentration in Bleached Kraft Recycled Pulp using and Interactive Image Analyzer, *Paper Recycling Challenge Volume I Stickies*, Eds.; Mahendra, R. Doshi and Jeffrey M. Dyer, **1997**, 49-56.

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25. **Gaudreault, R.**; Blais, S.; Chabot, P.; Tremblay, C., Méthodologie de détermination de la concentration de masses gommantes « Stickies » dans la pâte recyclée du type Kraft blanchie à l'aide d'un analyseur d'images interactif, *Les Papetières du Québec*, **1996**, 7, 1, 24-28.
26. Dubreuil, M.; **Gaudreault, R.**; Suty, H., The impact of disperser bleaching with peroxide on the efficiency of flotation, *TAPPI Pulping Conference*, Chicago, IL, October 1-5, **1995**, 841-848.
27. **Gaudreault, R.**; Roy, B.; Tremblay, C.; Dupont, R., Methodology for the evaluation of soaps/surfactants used for ONP/OMG deinking, *Progress in Paper Recycling*, **1994**, 3, 2, 42-51.
28. **Gaudreault, R.**; Lapointe, M.; Lorenzo, M., The effect of deinked pulp on physico-chemical and optical properties of thermo mechanical pulp, *78th Annual Meeting - technical section*, CPPA **1992**, A235-A240.

J-FOR Theo van de Ven Special Issue (PAPTAC's Flagship Scientific Journal), Guest-editor.

- A special issue dedicated to the work of Theo van de Ven, where eight articles were published on the fields of colloids, polymers, papermaking and cellulose science (**July 2016**).

Conference Proceedings Books (senior editor)

- Festschrift Book in Honour of Theo van de Ven, Scientific Papers and Reminiscences, Editor: **R. Gaudreault**, ISBN 978-1-77289-001-3 (**2016**)
- The Proceedings of the Fundamental and Applied Pulp & Paper Modelling Symposium, Montreal, Canada, August 24-27, **2011**. Eds. **R. Gaudreault**, S. Robert and M.A. Whitehead, Desktop Publishing, Montreal, ISBN: 978-2-9808323-7-6 (**2012**).
- The Proceedings of the Fundamental and Applied Pulp & Paper Modelling Symposium, Montréal, Canada, August 27-29, **2008**. Eds: **R. Gaudreault**, S. Robert, M.A. Whitehead. Desktop Publishing, Montreal, ISBN: 13978-2-9808323-5-2 (**2009**).
- The Proceedings of the First Applied Pulp & Paper Molecular Modelling Symposium, Montreal, Canada, August 24-26, **2005**. Eds. **R. Gaudreault**, S. Robert, and M.A. Whitehead and T.G.M. van de Ven, Desktop Publishing, Montreal, ISBN: 2-9808323-3-2 (**2006**).

Teaching & Lecturing

- Lectures on Colloid Chemistry (Course 585B), McGill University, Pulp & Paper Research Centre, **Winter 2012, 2014-2017**.
- Lecture on Green Chemistry, McGill University (CHEM 462), Chemistry Department, **Fall 2015**.
- Lectures sur l'innovation technologique et la R&D en entreprise : Cours GES851 - L'avantage concurrentiel ; Méthodes et applications, École de technologie supérieure, **Autumn 2014**.

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- Lectures on: i) Bleaching without chlorine; ii) Mechanisms of Flocculation with Poly(ethylene oxide) and Novel Cofactors: Theory and Experiment.; and iii) Green Corrosion Inhibition, Laval University, *Chimie de l'environnement CH-2150*, **Winter 2014**.
- **Gaudreault, R.**; Molecular Modelling in the Context of Papermaking Wet-End Chemistry, TECH Courses **1997, 2000, 2003 and 2006**: *Wet-End Chemistry*, PAPTAC, (Quebec), Canada.
- Coordinator of *Wet-End Chemistry* TECH Courses **1994, 1997 et 2000** and leader of TECH **2003, 2006**.

Co-Supervision of Graduate Students

- **Co-Director of Masters thesis of Mr. Benoit Boudrias-Gaboriau**; Subject: Analyse expérimentale des propriétés thermiques et mécaniques des tanins, École de technologie supérieure (ETS), QC, Canada, **2014-2016**.
- **Co-Director of Masters thesis of Mr. Michel Aucoin** ; Subject: *Impact de la conductivité de l'eau sur l'indice d'égouttage et les propriétés de différentes pâtes*. Université du Québec à Trois-Rivières, QC, Canada, **1999**.
- **Co-Director of Master's thesis of Mrs Mme Martine Lepage**; *Kinetics of Formamidine Sulfonic Acid Degradation*. McGill University, QC, Canada, Novembre 1997.

Patents

- Rainer Sandrock; **Roger Gaudreault**; Charles Brochu: Packaging Material for a packaging good "Verpackungsmaterial für ein Verpackungsgut", **Application number 14193290.5, (14.11.2014), EP3020652 (Publication date 18.05.2016)**.
- **Roger Gaudreault**; Michel Labbe; Luc Barrette; Steeve Gagne: Biodegradable and biocompatible agricultural mulch and method of preparing same. Canadian Patent, Patent number: 2, 319,747 (**October 10, 2009**)
- Abaje, H.; Curtis, J.; **Gaudreault, R.**; Vaska, A.; Woodward, J., Method for removing stickies from waste paper using modified cationic kaolin, United States Patent, Patent number: 5,540,814 (**July 30, 1996**).