

Curriculum vitae

Marie Richard-Lacroix

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Education

- June 2016 - **Postdoc/Junior group leader**
Friedrich-Schiller-University of Jena et Leibniz Institute of Photonic Technology
Temporally and spatially resolved investigation of plasmon and photo-induced reactions

Advisor: Prof. Dr. Volker Deckert
- Mai 2011-
April 2016 **Ph.D. in Chemistry**
University of Montreal, Montreal (Quebec, Canada) (GPA: 4.25/4.3)
Raman spectroscopy of electrospun fibers: Methodology development and application on individual fibers

Advisor: Prof. Christian Pellerin
- Sept. 2008 –
April 2011 **B.Sc. in Chemistry**
University of Montreal, Montreal (Quebec, Canada) (GPA:4.2/4.3)

Teaching

- 2017-2018 Friedrich-Schiller-University Jena
Teaching assistant
 - Medical photonics: Supervision of the practical classes covering basic notions UV-Vis and vibrational spectroscopies UV-Vis for a master program
- 2011-2016 University of Montreal
Teaching assistant
 - Physical Chemistry II (CHM 1402): Recitation lectures and grading on basic physical chemistry concepts (2012-2016).
 - Polymer Chemistry (CHM 2410): Recitation lectures and grading on basic polymer chemistry (2013-2014).

- Physical Chemistry Laboratory (CHM 3410): Supervising fourth year undergraduate student laboratory experiments related to spectroscopy and materials characterization. (2012-2013)
- General Chemistry Laboratory (CHM 1979): Supervising first year undergraduate student laboratory experiments related to analytical and organic basic concepts (2011)

Research internship

- 2014 (3 months) *International internship*, University of Colorado, Prof. M. Raschke
Project: Infrared scattering scanning near-field optical microscopy (s-SNOM) characterization of electrospun nanofibers and block copolymer complexes.
- 2010 *Internship*, University of Montreal, Prof. C. Pellerin
Project: Molecular orientation quantification in single electrospun nanofibers by confocal Raman spectroscopy
- 2009 *Summer internship*, University of Montreal, Prof. C. Pellerin
Project: Characterization of polymer complexes into electrospun nanofibers

Publications

- 14- Trautmann, S., **Richard-Lacroix, M.**, Dathe, A., Schneidewind, H. Dellith, J., Fritzsche, W., Deckert, V.*, Plasmon response evaluation based on image-derived arbitrary nano structures. *Nanoscale*, 10, 21, 9830-9839.
- 13- **Richard-Lacroix, M.**, Zhang, Y., Dong, Z.*, Deckert, V.* (2017) Mastering high resolution tip-enhanced Raman spectroscopy: towards a shift of perception. *Chemical Society Review*, 46, 3922-3944 (**Cover page July 2017, selected HOT article June 2017**).
- 12- Zhang, Z., **Richard-Lacroix, M.**, Deckert, V.* (2017) Plasmon induced polymerization: a platform for nanostructured 2D/1D material production. *Faraday Discussion*, 205, 213-226.
- 11- **Richard-Lacroix, M.***, Pellerin, C. (2017), Raman spectroscopy of individual poly(ethylene oxide) electrospun fibers: Effect of the collector on molecular orientation. *Vibrational Spectroscopy*, 91, 92-98 (**Invited article, special issue “most prominent young spectroscopist”**).
- 10- **Richard-Lacroix, M.**, Borozenko, K., Pellerin, C.*, Bazuin, C.G.* (2016), Bridging the Gap between the Mesoscopic 2D Order-Order Transition and Molecular-Level Reorganization in Dot-Patterned Block Copolymer Monolayers. *Macromolecules*, 49, 23, 9089-9099.

- 9- **Richard-Lacroix, M.**, Pellerin, C.* (2015), Orientation and partial disentanglement in individual electrospun fibers: diameter dependence and correlation with mechanical properties. *Macromolecules*, 48, 13, 4511-4519.
- 8- **Richard-Lacroix, M.**, Pellerin, C.* (2015), Partial Disentanglement in Continuous Polystyrene Electrospun Fibers. *Macromolecules*, 48, 1, 37-42.
- 7- **Richard-Lacroix, M.**, Pellerin, C.* (2013), Molecular Orientation in Electrospun Fibers: From Mats to Single Fiber. *Macromolecules*, invited *Perspective* paper, 46, 24, 9473-9493. (*Cover page, Dec. 2013, "Most Read Articles" Nov. – Dec. 2013*)
- 6- **Richard-Lacroix, M.**, Pellerin, C.* (2013), Accurate New Method for Orientation Quantification using Raman Spectroscopy. *Macromolecules*, 46, 14, 5561-5569.
- 5- **Richard-Lacroix, M.**, Pellerin, C.* (2013), Novel Method for Orientation Quantification by Raman Spectroscopy: A Simulation Comparison Study. *Applied Spectroscopy*, 67, 4, 409-419.
- 4- **Richard-Lacroix, M.**, Pellerin, C.* (2013), Electrospinning of Supramolecular Polymer Complexes. *Science China Chemistry*, 56, 1, 24-32.
- 3- **Richard-Lacroix, M.**, Pellerin, C.* (2012), Orientation and Structure of Single Electrospun Nanofibers of Poly(ethylene terephthalate) by Confocal Raman Spectroscopy. *Macromolecules*, 45, 1946-1953.
- 2- **Richard-Lacroix, M.**, Pellerin, C.* (2011), Polymer Complexes with Congruent and Incongruent Fusion by Spin Coating. *Macromolecular Symposia*, 303, 42-47.
- 1- Antaya, H., **Richard-Lacroix, M.**, Pellerin, C.* (2010), Electrospinning as a New Method for Preparing Pure Polymer Complexes. *Macromolecules*, 43, 4986-4990.

Oral presentations (Selected amongst 34 contributions)

- 33- **Richard-Lacroix, M.**, Zhang, Z., Deckert, V., (2018), Tip enhanced Raman spectroscopy for the study of plasmon induced reactions, Spring SciX 2018, Glasgow, UK. (**Invited talk**)
- 34- **Richard-Lacroix, M.**, Zhang, Z., Deckert, V., (2017), Plasmon induced polymerization: a platform for nanostructured 2D/1D material production, SciX 2017, Reno, NV, US. (**Invited talk**)
- 32- **Richard-Lacroix, M.**, Zhang, Z., Deckert, V., (2017), Tip enhanced Raman spectroscopy for investigation of plasmon-induced diazo polymerization, *ANAKON 2017*, Tübingen, Germany
- 31- **Richard-Lacroix, M.**, Pellerin, C. (2016), Raman spectroscopy investigation of orientation and disentanglement in single electrospun fibers, *ESOPS20 2016*, Dresden, Germany.
- 28 **Richard-Lacroix, M.**, Pellerin, C. (2015), Raman spectroscopy of single electrospun nanofibers, SciX 2015, Providence, RI, US. (**Invited talk**)

- 27- **Richard-Lacroix, M.**, Pellerin, C. (2015), Orientation quantification by confocal Raman spectroscopy: From improved methodology to applications on challenging materials, *ICAVS 2015*, Vienna, Austria.
- 25- **Richard-Lacroix, M.**, Pellerin, C. (2015), Raman spectroscopy of single electrospun fibers, *CSC 2015*, Ottawa, ON, Canada.
- 24- **Richard-Lacroix, M.**, Pellerin, C. (2014), Experimental demonstration of disentanglement in electrospun polystyrene nanofibers, *247th ACS conference*, Dallas, TX, US.
- 19- **Richard-Lacroix, M.**, Pellerin, C. (2013), Accurate New Method for orientation quantification using Raman spectroscopy. *SciX 2013*, Milwaukee, WI, US.
- 18- **Richard-Lacroix, M.**, Pellerin, C. (2013), Confocal Raman spectroscopy: An efficient tool for the fine characterization of single electrospun nanofibers. *SciX 2013*, Milwaukee, WI, US. (**Invited talk**)
- 14- **Richard-Lacroix, M.** (2013), Simple and Accurate New Method for orientation quantification using Raman spectroscopy. *CSC 2013*, Québec, QC, Canada.
- 11- **Richard-Lacroix, M.**, Pellerin C. (2012), Confocal Raman spectroscopy: An efficient tool for the fine characterization of single electrospun nanofibers. *HPF*, Gananoque, ON, Canada.
- 10- **Richard-Lacroix, M.**, Pellerin C. (2012), Confocal Raman spectroscopy: An efficient tool for the characterization of single electrospun nanofibers, *2nd Peking University-Université de Montréal Bilateral Symposium*, Montreal, QC, Canada. (**Invited talk**)

Posters (Selected amongst 22 contributions)

- 13- **Richard-Lacroix, M.** Zhang, Z., Deckert, V. (2017) Surface and tip enhanced Raman spectroscopy for investigation of plasmon induced reactions, *ICAVS 9*, Victoria, Canada
- 12- **Richard-Lacroix, M.**, Borozenko, K., Bazuin, C.G., Pellerin, C. (2016) Polarized ATR spectroscopic investigation of supramolecular complexes of block copolymers into ultrathin films, *ESOPS20 2016*, Dresden, Germany.
- 11- **Richard-Lacroix, M.**, Borozenko, K., Bazuin, C.G., Pellerin, C. (2015), Infrared study of Langmuir-Blodgett films of a supramolecular block copolymer complex, *ICAVS 2015*, Vienna, Austria.
- 9- **Richard-Lacroix, M.**, Borozenko, K., Bazuin, C.G., Pellerin, C. (2015), Infrared study of Langmuir-Blodgett films of a supramolecular block copolymer complex, *CSC 2015*, Ottawa, ON.
- 8- **Richard-Lacroix, M.**, Pellerin, C. (2014), Simple and Accurate New Method for Orientation Quantification using Polarized Raman Spectroscopy, *SciX 2014*, Reno, NV.
- 5- **Richard-Lacroix, M.**, Pellerin, C. (2014), Simple and Accurate New Method for Orientation Quantification using Polarized Raman Spectroscopy, *RamanFest 2014*, Cambridge, MA.

- 4- **Richard-Lacroix, M.**, Pellerin C. (2012), Orientation and structure of single electrospun nanofibers by confocal Raman spectroscopy, *Macro IUPAC*, Blacksburg, VA.
- 3- **Richard-Lacroix, M.**, Pellerin C. (2011), Molecular Orientation of Single Electrospun Nanofiber by Raman Spectroscopy, *CSC 2011*, Montréal, QC.
- 2- **Richard-Lacroix, M.**, Pellerin, C. (2010), Molecular Orientation in Electrospun Nanofibers of PEO complexes. *High Polymer Forum (HPF)*, Ste-Adèle, QC.

Scholarship and Awards

- 2016-2018 NSERC Postdoctoral national fellowship (National, research)
- 2017 Best thesis of the Faculty of Arts and Sciences (FESP), University of Montreal, (Institutional, research)
- 2017 Dean honor list, Ph.D thesis (Institutional, research)
- 2017 67th Lindau Nobel Laureate Meeting travel award (International, research)
- 2013-2016 NSERC Ph.D scholarship, Alexander-Graham-Bell (BESD 3) (National, research)
- 2015 William G. Fateley student award (Coblentz) (International, research)
- 2015 Coblentz student award (International, research)
- 2015 Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) student award (International, research)
- 2015 International conference on advanced vibrational spectroscopy (ICAVS 8) student grant (International, presentation)
- 2014 SAS student poster award (SciX 2014) (International, presentation)
- 2014 FACSS Student poster award (SciX 2014) (International, presentation)
- 2014 FQRNT international internship scholarship (Provincial, research)
- 2013 Barbara Stull Graduate Student Award (SAS) (International, research)
- 2013 Horiba Travel and presentation award (CSC 2013 oral presentation) (National, presentation)
- 2013 Lemay foundation scholarship (Institutional, teaching)
- 2012 FQRNT provincial Ph.D. scholarship (Provincial, research)
- 2011 Undergraduate thesis award from the Macromolecular science and engineering division of the Canadian Society for Chemistry (MSED) (National, research)

- 2011 NSERC M.Sc. national scholarship, Alexander-Graham-Bell (BESM) (National, research)
- 2011 Faculty of Graduate Studies scholarship (University of Montreal) (Institutional, research)
- 2011-2013 Ph.D. admission scholarship (University of Montreal) (Institutional, research)
- 2011 Undergraduate academic award (University of Montreal, Chemistry department) (Institutional, academic)
- 2010 NSERC Undergraduate student research award (National, research)
- 2008-2011 Dean's list, University of Montreal (Institutional, academic)