CURRICULUM VITAE

GENEVIEVE SAUVE

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Business Address: Case Western Reserve University
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Education

1990-1994 Concordia University, Montreal, Canada
B.S. Chemistry (Honors)

1994-1999 California Institute of Technology, Pasadena, CA
Ph.D. Chemistry
Thesis: "Dye Sensitization of Nanocrystalline Titanium Dioxide"
Advisor: Professor Nathan S. Lewis

2002-2008 Carnegie Mellon University
Postdoctoral Fellow and Research Associate, Conducting Polymers
Advisor: Professor Richard D. McCullough

Professional Appointments

7/09-present Assistant Professor
Department of Chemistry, Case Western Reserve University, Cleveland, OH

2008-2009 Visiting Scientist
Helmholtz-Centre Berlin for Materials and Energy, Berlin, Germany

2008-2009 Visiting Assistant Professor
Department of Chemistry, Case Western Reserve University, Cleveland, OH

2005-2008 Research Associate with Professor Richard D. McCullough
Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA

2002-2005 Postdoctoral Fellow with Professor Richard D. McCullough
Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA

1999-2000 Senior Development Chemist
PPG Industries, Pittsburgh, PA

Membership in Professional Societies

American Chemical Society since 1994

Professional Honors and Awards

1. Professional Mentor of the Year 2014, Women in Science and Engineering Roundtable (WISER), Case Western Reserve University.
2. Glennan Fellowship, UCITE, Case Western Reserve University, 07/01/2011-06/30/2012. *Awarded to develop inquiry-based laboratories for a new course entitled "Solar Energy Conversion", and to integrate solar energy conversion undergraduate laboratory courses.*
2. Mentor Fellowship, UCITE, Case Western Reserve University, 07/01/2011-06/30/2012. *Awarded for improving graduate student mentoring.*
3. Max Planck Institute of Colloids and Interfaces Fellowship, 2008.
4. Masters and Doctoral Research Scholarships, FCAR (Le Fond Québécois de la Recherche sur la Nature et les Technologies), 1994-1999
   Scholarship with full tuition awarded to best candidates in continuing graduate work in natural science, mathematics or engineering research.
5. Chemistry Award, Celanese Canada LTD, 1994.
   Awarded to outstanding students in the chemistry department (one of two).
6. Merit Award, Society of Chemical Industry, Canadian section, 1994.
   Award in recognition of outstanding academic achievement
7. Canada Scholarship, 1990-1993.
   Awarded in recognition of sustained academic excellence in science, engineering and technology. Competed nationally.
8. Entrance Scholarship, Concordia University, 1990-1993.
   Awarded to the best incoming undergraduate student in chemistry

Professional Service

Grant Reviewing: National Science Foundation (NSF); Office of Basic Energy Sciences (DOE); ACS Petroleum Research Fund.

Journal Reviewing: Advances; ACS Macro Letters; Chemistry of Materials; Inorganic Chemistry; Journal of Materials Chemistry; Journal of Polymer Science Part B: Polymer Physics; Journal of the Electrochemical Society; Langmuir; Macromolecules; Nanoscale; Optical Materials; Organic Electronics; Organic Letters; Progress in Polymer Science; Polymer Chemistry; RSC Advances; The Journal of Materials Chemistry A.; The Journal of Organic Chemistry; The Journal of Physical Chemistry Letters.

Professional Societies:
Director, Cleveland Section of the American Chemical Society, 2012-2015.

Service on Institutional Committees

Member, Graduate Admissions Committee, Chemistry, CWRU, 2009-present.
Member, Chairman Search Committee, Mechanical & Aerospace Eng., CWRU, 2013-2014.
Member, Faculty Search Committee, Chemistry, CWRU, 2012-2013.
Member, Resource Committee, Chemistry, CWRU, 2010-present.

Member, Energy and Materials Faculty Search Committee, Chemistry, CWRU, 2009-2010.
Member, Chemistry Executive Committee, CWRU, 2009-2010; 2012-present.
Co-founder of the Materials for Opto/electronic Research and Education (MORE) center, CWRU, a multi-user facility, 2009-2011.

Teaching Activities

Fall 2009-14	CHEM 335: Physical Chemistry 1
Spring 2010	CHEM 504: Special topics in organic chemistry – Solar Energy Conversion
Spring 2012-14	CHEM 340/440: Solar Energy Conversion (new course)

Research Support

Present:
National Science Foundation CAREER Award, Chemistry Division, "Developing n-type Low Bandgap Conjugated Macromolecules Based on Aza-dipyrromethene" June 2012 – May 2017, $600,000, Role: PI - 100%

American Chemical Society Petroleum Research Fund (ACS-PRF), Doctoral New Investigator, "Synthesis and Structure-Property Relationship Studies of Polymers Containing Core Substituted Naphthalene Diimides", Sept. 2012 – Aug. 2014, $100,000, Role: PI - 100%

Past:
PPG Industries Inc., Research funds, "Chemistry-Optoelectronic Thin", June 2012 - October 2013, $10,990. Role: Co-PI

DAAD (German Academic Exchange Service) Faculty Research Visit grant to Germany, 2009

Peer Reviewed Publications - Independent contributions at CWRU:

1. Mao Z.; Senevirathna, W.; Liao, J.-Y.; Gu, J.; Vajjala Kesava, S.; Guo, C.; Gomez, E. D.; **Sauve, G**.* "Azadipyrromethene-based Zn(II) complexes as non-planar conjugated electron acceptors for organic photovoltaics", *Adv. Mater.*, Under review.
2. Senevirathna, W.; Daddario, C. M.; **Sauve, G.** "Density functional theory study predicts low reorganization energies for azadipyrromethene-based metal complexes", *J. Phys. Chem. Lett.*, **2014**, 5, 935-941.
3. * Fernando, R.; Mao, Z.; Muller, E.; Ruan, F.; **Sauvé, G.** "Tuning the organic solar cell performance of acceptor 2,6-dialkylaminonaphthalene diimides by varying a linker between the imide nitrogen and a thiophene group", *J. Phys. Chem. C.*, **2014**, 118, 3433-3442.
4. * Senevirathna, W.; **Sauvé, G.** "Introducing 3D conjugated acceptors with intense red absorption: homoleptic metal (II) complexes of di(phenylacetylene) azadipyrromethene", *J. Mater. Chem. C*, **2013**, 1, 6684-6694.
5. Fernando, R.; Mao, Z.; **Sauvé, G.** "Rod-like oligomers incorporating 2,6-dialkylamino core-substituted naphthalene diimide as acceptors for organic photovoltaic" *Org. Electron.*, **2013**, 14, 1683-1692.
6. Mao, Z.; Vakhshouri, K.; Jaye, C.; Fischer, D. A.; Fernando, R.; DeLongchamp, D. M.; Gomez, E. D.; **Sauvé, G.** "Synthesis of perfluoroalkyl end-functionalized poly(3-hexylthiophene) and the effect of fluorinated end-groups on solar cell performance"

Macromolecules, **2013**, 46, 103-112.

7. Gao, L.; Tang, S.; Zhu, L.; **Sauvé, G.** "Synthesis and characterization of azadipyrromethene-*alt*- *p*-phenylene ethynylene conjugated polymers and their chelates" *Macromolecules* **2012**, 45, 7404-7412.
8. ***** Gao, L.; Senevirathna, W.; **Sauvé, G.** "Azadipyrromethene-based conjugated oligomers with near-IR absorption and high electron affinity" *Org. Lett.* **2011**, 13, 5354-5357.

Peer Reviewed Publications prior to CWRU :

9. **Sauvé**, **G.;** Javier, A. E.; Zhang, R.; Liu, J.; Sydlik, S. A.; Kowalewski,T.; McCullough, R. D. "Well-defined, high molecular weight poly(3-alkylthiophene)s in thin-film transistors: side chain invariance in field-effect mobility" *J. Mater. Chem.*, **2010**, 20, 3195-3201.
10. Osaka, I.; Zhang, R.; **Sauvé, G.**; Smilgies, D.-M.; Kowalewski, T.; McCullough, R. D. "High-lamellar ordering and amorphous-like p-network in short-chain thiazolothiazole-thiophene copolymers lead to high mobilities', *J. Am. Chem. Soc.*, **2009**, 131(7), 2521-2529.
11. Liu, J.; Zhang, R.; **Sauvé, G.**; Kowalewski, T.; McCullough, R. D. "Highly disordered polymer field effect transistors: n-alkyl dithieno[3,2-*b*:2',3'-*d*]pyrroles-based copolymers with surprisingly high charge carrier mobilities", *J. Am. Chem. Soc.*, **2008**, 130(39), 13167-13176.
12. Singh, K. A.; **Sauvé, G.**; Zhang, R.; Kowalewski, T.; McCullough, R. D.; Porter, L. M. "Dependence of field-effect mobility and contact resistance on nanostructure in regioregular poly(3-hexylthiophene) thin film transistors", *Appl. Phys. Lett.*, **2008**, 92, 263303.
13. Osaka, I.; **Sauvé, G.**; Zhang, R.; Kowalewski, T.; McCullough, R. D. "Novel thiophene-thiazolothiazole copolymers for organic field-effect transistors"*, Adv. Mater.*, **2007**,19(23) 4160-4165.
14. **Sauvé, G.**; McCullough, R. D. "High Field-Effect Mobilities for diblock copolymers of poly(3-hexylthiophene) and poly(methyl acrylate)", *Adv. Mater.*, **2007**, 19(14) 1822-1825.
15. Li, B.; Santhanmam, S.; Schultz, L.; Jeffries-EL, M.; Iovu, M. C.; **Sauvé, G.**; Cooper, J.; Zhang, R.; Revelli, J. C.; Kusne, A. G.; Snyder, J. L.; Kowalewski, T.; Weiss, L. E.; McCullough, R. D.; Fedder, G. K.; Lambeth, D. N.; "Inkjet printed chemical sensor array based on polythiophene conductive polymers", *Sensors and Actuators, B: Chemical*, **2007**, B123, 651-660.
16. Li, B.; **Sauvé, G.**; Iovu, M. C.; Zhang, R.; Cooper, J.; Santhanam, S.; Schultz, L.; Revelli, J. C.; Kusne, A. G.; Kowalewski, T.; Snyder, J. L.; Weiss, L. E.; Fedder, G. K.; McCullough, R. D.; Lambeth, D. N.; "Volatile organic compound detection using nanostructured copolymers", *Nano Lett.*, **2006**, 6 (8) 1598-1602.
17. Zhang, R.; Li, B.; Iovu, M.; Jeffries-EL, M.; **Sauvé, G.**; Cooper, J.; Jia, S.; Tristram-Nagle, S.; Smilgies, D. M.; Lambeth, D. N.; McCullough, R. D.; Kowalewski, T. "Nanostructure dependence of field-effect mobility in regioregular poly(3-hexylthiophene) thin film field effect transistors", *J. Am. Chem. Soc.*, **2006**, 128(11), 3480-3481.

18. Jeffries-EL, M.; **Sauvé, G.**; McCullough, R. D. "Facile Synthesis of end-functionalized regioregular poly(3-alkylthiophene)s via modified grignard metathesis reaction", *Macromolecules*, **2005**, 38(25), 10346-10352.
19. Ewbank, P. C.; Loewe, R. S.; Zhai, L.; Reddinger, J.; **Sauvé, G.**; McCullough, R. D. "Regioregular Poly(thiophene-3-alkanoic acid)s: Water soluble conducting polymers suitable for chromatic chemosensing in solution and solid State", *Tetrahedron,* **2004**, 60(49), 11269-11275.
20. Jeffries-EL, M.; **Sauvé, G.**; McCullough, R. D. "In-situ end-group functionalization of regioregular poly(3-alkylthiophene) using the Grignard Metathesis polymerization method", *Adv. Mater.,* **2004**, 16(12), 1017-1019.
21. **Sauvé, G.**; Cass, M. E.; Coia, G.; Doig, S. J.; Lauermann, I.; Pomykal, K. E.; Lewis, N. S. "Dye sensitization of nanocrystalline titanium dioxide with osmium and ruthenium polypyridyl complexes", *J. Phys. Chem. B*, **2000**, 104, 6821-6836.
22. **Sauvé, G.**; Cass, M. E.; Doig, S. J.; Lauermann, I.; Pomykal, K. E.; Lewis, N. S. "High quantum yield sensitization of nanocrystalline titanium dioxide photoelectrodes with cis-dicyanobis(4,4'-dicarboxy-2,2'-bipyridine)osmium(ii) or tris(4,4'-dicarboxy-2,2'-bipyridine)osmium(ii) complexes", *J. Phys. Chem. B*, **2000**, 104, 3488-3491.
23. Kamat, P. V.; **Sauvé, G.**; Guldi, D. M.; Asmus, K.-D. "Radical reactions of C_{84}", *Res. Chem. Intermed.*, **1997**, 23, 575-585.
24. **Sauvé G.**; Kamat, P. V.; Thomas, K. G.; Thomas, K. J.; Das, S.; George, M. V. "Photochemistry of Squaraine Dyes: Excited triplet state and redox properties of crown ether squaraines", *J. Phys. Chem.*, **1996**, 100(6), 2117-2123.
25. Serpone, N.; **Sauvé, G.**; Koch, R.; Tahiri, H.; Pichat, P.; Piccinini, P.; Pelizzetti, E.; Hidaka, H. "Standardization protocole of process efficiencies and activation parameters in heterogeneous photocatalysis: relative photonic efficiencies ξ_r", *J. Photochem. Photobiol. A: Chem.*, **1996**, 94(2,3), 191-203.
26. **Sauvé, G**.; Kamat, P. V.; Ruoff, R. S. "Excited triplet and reduced forms of C_{84}", *J. Phys. Chem*, **1995**, 99, 2162-2165.
27. **Sauvé, G.**; Dimitrijevic, N. M.; Kamat, P. V. "Singlet and triplet excited state behaviors of c_{60} in nonreactive and reactive polymer films", *J. Phys. Chem.*, **1995**, 99, 1199-1203.
28. Serpone, N.; Terzian, R.; Lawless, D.; Kennepohl, P.; **Sauvé, G.** "On the usage of turnover numbers and quantum yields in heterogeneous photocatalysis", *J. Photochem. Photobiol., A: Chem.*, **1993**, 73(1), 11-16.

Book chapter

Ewbank, P. C.; Stefan, Mihaela C.; **Sauve, G.**; McCullough R. D., "Synthesis, characterization and properties of regioregular polythiophene-based materials, in Handbook of Thiophene-based Materials:Applications in Organic Electronics and Photonics", Wiley, **2009**, 157-203.

Selected Presentations

Sauve, G. "My Career Path", Lota Sigma Pi initiation meeting, Cleveland, OH, April 24, 2014; Guest speaker.

Sauve, G. "Azadipyrromethene-based conjugated materials with near-IR absorption as acceptors for organic solar cell", 247th *ACS National Meeting*, Conjugated Polymers for Optoelectronics, Electronics and Biosensors, Dallas, TX, March 16-20, 2014. Invited talk.

Sauve, G. "Towards Novel Electron Acceptors for Organic Photovoltaics", *Department of Chemistry and Biochemistry,* Kent State University, Kent OH, January 23, 2014; Invited seminar.

Sauve, G. "Towards Novel Electron Acceptors for Organic Photovoltaics", *Chemistry Department*, University of Akron, Akron, OH, December 3, 2013; Invited seminar.

Sauve, G. "Towards Novel Electron Acceptors for Organic Photovoltaics", *Chemistry Department*, Indiana University of Pennsylvania, Indiana, PA, November 8, 2013; Invited recruiting seminar.

Sauve, G. "Towards Novel Electron Acceptors for Organic Photovoltaics", *Chemistry Department*, Otterbein University, Westerville, OH, September 25, 2013; Invited recruiting seminar.

Sauve, G. "Synthesis and Characterization of Azadipyrromethene-based Conjugated Compounds and their Chelates" *11th International Symposium on Functional π-Electron Systems*, Arcachon, France, June 2-7, 2013; Submitted talk.

Sauve, G. "Towards Novel Electron Acceptors For Organic Photovoltaics", *Workshop on Advanced Materials and Devices for Energy-Related Applications*, Institut national de la recherche scientifique, Varennes, Canada, May 31st, 2013; Invited talk.

Sauve, G. "Synthesis and Characterization of Azadipyrromethene-based Conjugated Compounds and their Chelates", *96th Canadian Chemistry Conference and Exhibition*, Division of Materials Chemistry, Québec, Canada, May 26 - 30, 2013; Invited talk.

Sauve, G. "Rod-Like Oligomers Incorporating 2,6-Dialkylamino Core-Substituted Naphthalene Diimide As Acceptors For Organic Photovoltaics" *96th Canadian Chemistry Conference and Exhibition*, Division of Materials Chemistry, Québec, Canada, May 26 - 30, 2013; Submitted talk.

Sauve, G. "Got energy? How about Solar? How the quest to use solar energy influences my work", Fernway Elementary School, Shaker Heights, OH, May 22, 2013; Invited talk to all third graders at Fernway.

Sauve, G. "Conjugated Materials for Organic Photovoltaics", *School of Science*, Penn State Behrend, Erie, PA, November 1st, 2012; Invited recruiting seminar.

Sauve, G. "Electron Accepting Conjugated Materials for Organic Photovoltaics Applications", *Department of Chemistry*, John Carroll University, University Heights, OH, October 10th, 2012; Invited Talk.

Sauve, G. "Electron Accepting Low Bandgap Conjugated Polymers Based on Aza-borondipyrromethene Dyes" *244th ACS National Meeting*, Main Group Chemistry Meets Polymer and Materials Science, Philadelphia, PA, August 19-23, 2012; Invited talk.

Sauve, G. "N-Type Low Bandgap Conjugated Polymer Based on Aza-Dipyromethene Dyes" *International Conference on Science and Technology of Synthetic Metals*, Atlanta, GA, July 8-13, 2012; Invited short talk.

Sauve, G. "Functional Conjugated Polymers for Organic Photovoltaics" *Workshop on Polymers for Optics and Electronics*, Case Western Reserve University, Cleveland, May 15-16, **2012**; Invited talk.

Sauve, G.; Gao, L.; Daddario, C.; Mao, Z.; Singer, K.; Zhu, L.; Tang, S**. "**Harvesting near-IR Irradiation Using Electron-Accepting Conjugated Polymers Based on Aza-Dipyrromethene Dyes" *Materials Research Society Fall Meeting*, Boston, MA, Nov. 28-Dec 2, 2011; Submitted talk.

Sauvé, G. "Electron Accepting Low Bandgap Conjugated Polymers Based On Azadipyrromethene" *42nd ACS Central Regional Meeting*, Division of the Colloid and Surface Chemistry, Indianapolis, June 10, 2011; Invited Talk.

Sauvé, G.; Gao, L.; Senerivathna W.; "Azadipyrromethene (Azadipy) As Building Blocks For Low Bandgap Conjugated Polymers" *94th Canadian Chemistry Conference and Exhibition*, Opto-electronic Materials, June 8, 2011; Submitted talk.

Sauvé, G. "Functional Polymers For Printable Electronic Applications", *Department of Chemistry and Biochemistry*, Denison University, Granville, OH, March 24, 2011; Invited Talk.

Sauvé, G. "Functional Polymers For Printable Electronic Applications", *Department of Chemistry and Biochemistry*, Miami University, Oxford, OH, March 3, 2011; Invited Talk.

Sauvé, G. "Polymeric Materials For Printable Eletronic Applications: From Synthesis To Device Characterization", *Physics Department*, Case Western Reserve University, Cleveland, OH, October 25, 2010; Invited Talk.

Sauvé, G. "Polymeric Materials For Printable Eletronic Applications: From Synthesis To Device Characterization", *Department of Macromolecular Science and Engineering*, Case Western Reserve University, Cleveland, OH, April 23, 2010; Invited Talk.

Sauvé, G. "Polymeric Materials For Printable Eletronic Applications: From Synthesis To Device Characterization", *Department of Materials Science and Engineering*, Case Western Reserve University, Cleveland, OH, March 2, 2010; Invited Talk.

Sauvé, G.**,** "Block Copolymers Of Poly(3-Hexylthiophene): Towards Better Control Of Nanostructures", *Workshop on Quantum Solar Energy Conversion*, Rauris, Austria, March 12, 2009; Submitted talk.

Sauvé, G., "Printable Electronics: From Synthesis of Conducting Polymers to High Mobility Transistors", *Nano-Science Center*, University of Copenhagen, Denmark, October 30, 2008; Invited Talk.

Sauvé, G., "Regioregular Poly(3-Alkylthiophene)S For Use In Printable Electronic Applications: Transistors And Sensors", *ACS local polymer section*, Pittsburgh, PA, April 22, 2008; Invited Talk.

Sauvé, G., "Regioregular Poly(3-Alkylthiophene)S For Use In Printable Electronic Applications: Transistors And Sensors", *PPG Coatings Innovation Center*, Allison Park, PA, Feb. 26, 2008; Invited Talk.

Sauvé, G.; McCullough, R. D. "High Mobilities for Block Copolymers of Regioregular Poly(3-hexytlthiophene)", *Materials Research Society Spring Meeting*, San Francisco, CA, April 9-13, 2007; Submitted talk.

Sauvé, G.; McCullough, R. D. "High Mobilities for Block Copolymers of Regioregular Poly(3-hexytlthiophene)", *233rd ACS National Meeting*, Chicago, IL, March 25-29, 2007; Submitted talk.

Sauvé, G.; Zhang, R,; Li, B.; Iovu, M. C.; Craley, C.; Jeffries-EL, M.; Cooper, J.; Jia, S.; Tristram-Nagle, S.; Smilgies, D. M.; Lambeth, D. N.; Kowalewski, T. A.; McCullough, R. D. "Synthesis, mobility, and Conductivity of Well-defined Regioregular Poly(3-hexylthiophene) and Diblock Copolymers of Regioregular Poly(3-hexylthiophene)", *SPIE-Optics and Photonics, Conference 6336 (Organic Field-Effect Transistors V)*, San Diego, CA, August 13-17, 2006. Submitted Talk.

McCullough, R. D.; Sauvé, G.; Li, B.; Jeffries-EL, M.; Santhanam, S.; Schultz, L.; Zhang, R.; Iovu, M. C.; Cooper, J.; Sreedharan, P.; Revelli, J. C.; Kusner, A. G.; Kowalewski, T.; Snyder, J. L.; Weiss, L. E.; Lambeth, D. N.; Fedder, G. K. "Regioregular Polythiophene Nanowires and Sensors", *SPIE-Optics and Photonics, Conference 5940 (Organic Field-Effect Transistors IV)*, San Diego, CA, July 31-August 4, 2005; Gave Rick McCullough's invited talk.

Sauvé, G.; Cass, M.; Coia, G.; Doig, S.; Lewis, N. S. "Studies of Ru and Os Bipyridine Complexes as Sensitizers for Polycrystalline TiO_2-Based Photoelectrochemical Cells", *216th ACS national Meeting*, August 23-27, 1998. Submitted Talk.

Current PhD. Graduate Students

1. Fernando, Juwanmandadige Roshan (12/2009-8/2014)
2. Mao, Zhenghao (12/2009-5/2014)
3. Senevirathna, Wasana (12/2010-8/2014)
4. Daddario, Cassie (12/2010-present)
5. Forrest Etheridge (12/2011-present)
6. Sandra Pejic (12/2013-present)

Current and Past Master Students

Fei Ruan (5/2012-12/2012), Jie Li (7/2012-6/2013) Ohio Department of Health Laboratory, Qi Han (5/2013-5/2014), Jia-yu Liao (6/2013-present), Jun Gu (6/2013-present), Chunlai Wang (1/2014-present)

Current and Past Undergraduate Students

Cassie Daddario (8/2009-5/2010), Quinn M. Gleisner (5/2010-8/2010), Joshua Young (9/2010-6/2011), Margeret Oti (9/2010-6/2011), Xin Hao (01/2011-05/2012), Grace Eder (09/2011-5/2013), Evan Muller (1/2012-5/2013), Matthew Porter (09/2013-present)

Postdoctoral Fellows: Dr. Lei Gao (7/2010-6/2012) Instructor at John Carroll University, Cleveland, OH.