JOSE M. MORAN-MIRABAL

Canada Research Chair in Micro- and Nanostructured Materials
Associate Professor, Department of Chemistry and Chemical Biology, McMaster University

1. PERSONAL INFORMATION

Name: Jose Manuel Moran-Mirabal
Academic Field: Chemistry
Languages: English, Spanish (Native), French, German (Conversational)
Citizenship: Mexican

2. BUSINESS ADDRESS

Department of Chemistry and Chemical Biology
Arthur N. Bourns Building (ABB) 233
1280 Main Street West
Hamilton, ON L8S 4M1, Canada
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3. ACADEMIC BACKGROUND

Applied Physics M.Sc., Ph.D. (2002-2007)
Cornell University, Ithaca, NY, USA.
Supervisor: Prof. Harold G. Craighead
Thesis Title: *"Biomembrane studies and applications through the use of micro- and nanostructured surfaces"*

Biotechnology M.Sc. (2000-2001)
Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey, NL, México
Supervisor: Prof. Rosamaría López-Franco
Thesis Title: *"Chromosomal transfer from citrus microprotoplasts to protoplasts through laser tweezers and scalpels"*

Engineering Physics B.Sc., Minor Field: Biotechnology (1995-1999)
Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey, NL, México

4. CURRENT STATUS AT MCMASTER

Associate Professor of Chemistry and Chemical Biology
Tenure Appointment: July 2016

5. PROFESSIONAL ORGANIZATIONS

- Canadian Institute for Chemistry member
- Canadian Society for Chemistry member
- Microscopical Society of Canada member
- American Chemical Society member
- Biophysical Society member
- Nanotechnology Network of Ontario member

6. EMPLOYMENT HISTORY

Associate Professor **July 2016-Present**
Department of Chemistry and Chemical Biology
McMaster University, Hamilton, ON, Canada

Assistant Professor **July 2011-June 2016**
Department of Chemistry and Chemical Biology
McMaster University, Hamilton, ON, Canada

Adjunct Assistant Professor **July 2011-July 2016**
Department of Biological and Environmental Engineering
Cornell University, Ithaca, NY, USA

Research Associate **July 2009-June 2011**
Department of Biological and Environmental Engineering
Cornell University, Ithaca, NY, USA

Post-Doctoral Research Associate **July 2007-June 2009**
Research Supervisor: Prof. Larry P. Walker
Department of Biological and Environmental Engineering

Cornell University, Ithaca, NY, USA

Graduate Research Assistant **August 2002-June 2007**
Research Supervisor: Prof. Harold Craighead
School of Applied and Engineering Physics,
Cornell University, Ithaca, NY, USA

Technical Research Assistant **January 2002-July 2002**
Research Supervisor: Haret Rosu
IPICyT, San Luis Potosi, SLP, Mexico

Graduate Research Assistant **July 2000-December 2001**
Research Supervisor: Prof. Rosamaría López-Franco
Biotechnology Center, ITESM, Monterrey, NL, Mexico

7. SCHOLARLY AND PROFESSIONAL ACTIVITIES

a) Editorial Boards

- *Guest Editor, Frontiers in Bioengineering and Biotechnology,* Special Issue: "Development of Biomimetic In-Vitro Cell Culture Models Integrating Mechanobiology and Mechanotransduction for Tissue Engineering and Theranostics." (2019-2020)
- *Invited Guest Editor, Micromachines,* Special Issue: "New Approaches to Micropatterning." (2018-2019)
- *Industrial Biotechnology*, peer-reviewed bimonthly research journal focused on biobased industrial and environmental products and processes. (2011-present)
- *Invited Guest Editor in Chief, Industrial Biotechnology,* Special Issue: "Cellulose Nanotechnology: Fundamentals and Applications," February 2015.
- *ISRN Biophysics Journal*, peer-reviewed, open access journal that publishes original research articles as well as review articles in all areas of biophysics. (2011-2015)

b) Grant and Personnel Committees

- Aditi Foundation International Research Fund, (2015-2016) McMaster University Selection Committee.
- NSERC CREATE Grant, (2015-2016) McMaster University Internal Selection Committee.
- CRC Tier 2 in Bioinnovation 2016, Faculty of Engineering, McMaster University Internal Selection Committee.

c) Executive Positions

- Microscopical Society of Canada – Council Member – Council Member at Large – Funding Agency Liaison (2015-2021)
- Canadian Institute for Chemistry – Hamilton Section, Member of the Executive, Treasurer (2015 – 2019).

d) Journal Referee. *Ad hoc* referee for the journals:

- ACS Nano
- ACS Omega
- ACS Sustainable Chemistry and Engineering
- Advanced Functional Materials
- Advanced Materials
- Analyst
- Analytical Chemistry
- Applied Materials and Interfaces
- Applied Optics Journal
- Beilstein Journal of Nanotechnology
- BioResource Technology
- Biotechnology Advances
- Biotechnology and Bioengineering
- Canadian Journal of Chemistry
- Epigenetics
- Enzyme and Microbial Technology
- Frontiers in Biotechnology and Bioengineering
- Industrial Biotechnology
- ISRN Biophysics
- Journal of Industrial and Engineering Chemistry
- Journal of the American Chemical Society
- Materials Science and Engineering B
- Micromachines
- Nano Letters
- Nano Research
- Nanotechnology
- Nucleic Acids Research
- Optics Express
- PLOS One
- Progress in Polymer Science
- Scientific Reports
- Sensors
- Soft Matter
- Trends in Analytical Chemistry

e) External Grant Reviews (total)

- Natural Sciences and Engineering Research Council, 2017, 2019, Collaborative Research Development Grant (2)
- A*STAR Agency for Science, Science & Engineering Research Council, Singapore, 2018 Advanced Manufacturing and Engineering Young Individual Research Grant (1)
- Comisión Nacional de Investigación Científica y Tecnológica, Chile, 2018 FONDECYT Initiation into Research 2018 (1)
- Natural Sciences and Engineering Research Council, 2016 Idea to Innovation Grant (1)
- US-Israel Binational Science Foundation, 2016 BSF Grant (1)
- Natural Sciences and Engineering Research Council, 2015 Discovery Grant – Chemistry (1)

- Human Frontier Science Program Organization, 2015 Research Grant Awards (1)

8. AREAS OF INTEREST

Research

My research group focuses on the study and application of micro- and nanoscale materials and devices. As such, we focus on:

- Novel bench-top micro/nanofabrication approaches to pattern and structure materials.
- Developing novel approaches for the controlled patterning of biologically active molecules on surfaces.
- Exploring the application of micro- and nanostructured materials for use as integral components of biosensors, micro-analytical devices, and engineered cell microenvironments.
- Employing synthesis and characterization of surface-active molecules for the functionalization of nanomaterials and structured surfaces.
- Employing high-resolution fluorescence microscopy (i.e. Confocal, TIRF, Super-Resolution, and Single Molecule Tracking microscopy) for the elucidation of nanoscale biomolecular interactions.

Teaching

- Developing new application-based courses, where students learn chemical concepts through case studies.
- Implementing teaching methodologies for problem-based learning.
- Developing educational multimedia in the form of websites, electronic documents, interactive learning software and educational videos to aid in content delivery.
- Developing new graduate courses that explore state-of-the-art technology and applications.
- Developing technical workshops that bring to McMaster University expert scientists from all over Canada and the world.

9. HONOURS

President's Award for Excellence in Graduate Supervision, *Nominee* ***2018***
McMaster University

Tier 2 Canada Research Chair in Micro- and Nanostructured Materials ***2017***
Canada Research Chairs

Early Researcher Award ***2015***
Ontario Ministry of Research and Innovation
Inaugural Speaker ***2013***
Emerging Leaders of Applied Chemistry and Chemical Engineering Seminar, University of Toronto, Toronto, ON
Distinguished Alumnus Plenary Lecture ***2010***
30th Anniversary IFI, ITESM, Monterrey, Mexico.
Student Travel Award ***2007***
Biophysical Society Meeting, Baltimore MD.
Graduate Fellowship ***2002-2007***
CONACyT, Mexico.
First Prize Award ***2005***
Scanning Electron Microscopy Image Contest, Cornell Center for Materials Research, Cornell University, Ithaca, NY, USA.
Best Poster Award ***2004***
Graduate Research Symposium, College of Engineering, Cornell University, Ithaca, NY, USA.
Graduate Excellence Academic Award ***2001***
ITESM, Monterrey, NL, Mexico. (2001)
Outstanding Academic Achievement Award for the Class of 1999 ***2000***
Colegio de Profesionistas de Nuevo Leon, Monterrey, NL, Mexico.
Excellence Graduate Scholarship ***2000***
ITESM, Monterrey, NL, Mexico.
Undergraduate Excellence Academic Award ***1999***
ITESM, Monterrey, NL, Mexico.
Excellence Undergraduate Scholarship ***1995***
ITESM, Monterrey, NL, Mexico.
Participant-Mexico, 26th International Physics Olympiad ***1995***
Canberra, Australia.

10. COURSES TAUGHT (Past five years)

a) Undergraduate

- Chemistry 4G12 – Senior Thesis in Chemistry ***2019 – 2020***
- Chemical Biology 4G12 – Senior Thesis in Chemical Biology ***2019 – 2020***
- Chemistry 4RP6/Chemical Biology 4RP6 – Research Project in Chemistry/Chemical Biology ***2019 – 2020***

- Chemistry 1AA3 – Introduction to General Chemistry II ***Winter 2019***
- Chemical Biology 2AA3/2A03 – Introduction to Bioanalytical Chemistry (2011-2012 – co-taught with Dr. Phillip Britz-McKibbin) ***Fall 2011-2016***
- Chemistry 3AA3 – Instrumental Analysis Methods ***Winter 2013-2017***
- Science 1A03 - Investigating Science-Opportunities and Experiences ***Fall 2013-2017***

b) Graduate

- Chemistry 757 – Fabrication and Applications of Lab-on-a-Chip Devices. ***Winter 2014- Fall 2016***
- Biomedical Engineering 706 – Biomedical Engineering Core 2. ***2016-2017*** ***2018-2019***

c) Special Contributions to Teaching

- ***Fall 2012 – CHEMBIO 2AA3/2AO3*** – Restructured the laboratory practices for this course to enhance the student learning experience and ensure experimental success. Developed a uniform format for all practices, along with analyst report sheets for all practices to be used in future years.
- ***Winter 2013 – CHEM 3AA3 –*** Within the course material I developed an inquiry-based project titled "The miniaturization of analytical platforms", where teams of students pick a relevant analyte and propose a miniaturized platform for its quantitative detection in a complex matrix. This exercise makes students work from the conceptualization of an analytical technique, to how they implement it in a miniaturized format, to the testing and validation needed for its deployment as a commercial platform. This has been a very useful exercise, since it that has enabled students to go beyond learning how an analytical technique works and exposed them to areas of study (e.g. microfabrication) that they would have otherwise not explored. I have continued to run this inquiry-based project every year that I taught this course.
- ***Fall 2013 – CHEMBIO 2AA3/2AO3 –*** Designed, optimized and introduced two new laboratory experiments for this course. The experiments expose our Chemical Biology Undergraduates to Liquid and Gas Chromatography instrumentation and experimental use. The laboratories focused on the determination of caffeine content in energy drinks, in the context of their impact on our health. Both experiments have been successfully incorporated into the course. An optional component was offered to students to visualize the effect of caffeine in an aquatic organism using microscopy.
- ***41st Southern Ontario Undergraduate Chemistry Conference,*** McMaster University, Hamilton, ON (March 30, 2013). SOUSCC is a unique conference, providing an

opportunity for undergraduate chemistry students to present and discuss their research, meet other undergraduates from the province, and interact with academic and industrial researchers. I participated as an organizer for this event and coordinated the website and program booklet design.

- ***Winter 2014 – CHEM 799: Fabrication and Applications of Lab-on-a-chip devices –*** Developed original course and lecture material for this graduate module. The graduate module explores fundamental techniques LoC device fabrication, the unit operations involved in on-chip analysis, and applications of LoC devices. As part of the course, the students develop a proposal where they apply a LoC device to an area of research. The course in its first offering drew in 5 registered and 5 auditing students as well as 2 faculty members. A request has been made to open the course to other departments.
- ***Fall 2014 – CHEMBIO 2AA3/2AO3 –*** Developed 5 instructional videos that introduce experiments that the students perform in this course. The videos were designed, recorded and edited in coordination with 3 Chemical Biology undergraduate students. These videos aid the students in their preparation for laboratory experiments and reduce the time needed to complete them successfully. The students have found the videos very helpful, as they reduced the stress of preparing for a laboratory. Some videos are also being used in experiments for the CHEM 2LA3 course.
- ***Winter 2015 – CHEM 3AA3 –*** I developed lecture podcasts where the slides and voice-over were recorded and made available online. This material allows students to review the lecture material at their own pace. Based on end-of-term evaluations, this was the learning aid that students found most efficient and would like to see retained.
- ***Fall 2014-2016 – SCIENCE 1A03 "Investigating Science-Opportunities and Experiences" –*** Participated with Dr. Saravanamuttu in the development of a lecture that introduced first year undergraduates to what Chemistry is, what our Department has to offer in undergraduate programs, teaching laboratories and research, and how we teach Chemistry. My responsibilities were to coordinate the recording and editing of videos highlighting research in our department, structuring the presentation and synthesizing the information relevant to the areas of "Smart Materials" and "Energy and the Environment", and assembling together the presentation in Prezi, as a new and engaging format for the delivery of this information.
- ***Fall 2016 - CHEMBIO 2AA3/2AO3 –*** Developed 5 additional instructional videos that introduce experiments that the students perform in this course. These videos complete the collection so that every laboratory practice in the semester has an electronic resource to be viewed by the students. These videos aid the students in their preparation for laboratory experiments and reduce the time needed to complete them successfully. The students have found the videos very helpful, as they reduced the stress of preparing for a laboratory. Introduced online pre-lab quizzes to help students prepare

for their lab experiment ahead of time.

11. SUPERVISORSHIP

a) Masters (MSc.)

1. *Adnan Murad Bhayo, Chemistry*, co-supervised with Dr. Michael Brook (August 2019 – Present). Project: Tuning the interfacial properties of cellulose and silicones.
2. *Eduardo González Martínez, Chemistry.* (July 2019 – Present). Project: Development of a Membrane-on-Chip Platform.
3. *Yue Su, Chemistry.* (July 2019 – Present). Project: Grafted Pulp.
4. *Taylor Stimpson, Chemical Engineering,* co-supervised with Dr. Emily Cranston (May 2018 – Present). Project: Mechanical properties of cell wall mimic thin films.
5. *Petr Nalivaika, Chemistry.* (September 2014 – March 2019). Project: Integration of structured conductive probes into a novel mass spectrometry source (in collaboration with VBM Science Ltd., cf. Publication D7).
6. *Christal Zhou, Chemical Biology*, co-supervised with Dr. Harald Stöver (September 2016 – August 2017). Project: Self Crosslinking p(APM-co-AA) Microstructured Films and Nanofibers as Biomimetic Cell Scaffolds. *Awards/Recognitions*: 2016 NSERC Canada Graduate Scholarship - Masters.
7. *Urooj Gill, Chemical Biology.* (May 2015 – July 2017). Project: Surface structuring and applications of cellulose nanocrystal films. *Awards/Recognitions*: *2nd Place Poster Presentation Award*, 9th PolyMac Conference, Hamilton, ON (December 2016); *2016 Ontario Graduate Scholarship* (September 2016).
8. *Jonathan West, Chemistry*, Co-Supervised with Dr. Adam Hitchcock. (June 2014 – July 2016). Project: Scanning Transmission X-Ray and Fluorescence Microscopy of Lipid Bilayers.
9. *Saied Rahimi-Razin,* Chemistry. (January 2013 – February 2015). Project: Development of functional polymer coatings for biomaterial patterning.
10. *Jacob C. Bolewski, Chemical Biology.* (September 2012 – September 2014). Project: Development of analysis methods for single molecule fluorescence microscopy (*cf.* Publication B21).

b) Doctoral (PhD.)

1. *Elnur Shayhidin, Medical Sciences,* co-supervised with Dr. Dawn M.E. Bowdish (September 2019 – Present). Project: Evaluation of changes in macrophage function with ageing.
2. *Mouhanad Babi, Chemical Biology* (May 2016 – Present). Project: Super Resolution microscopy imaging of cellulose nanostructure. *Awards/Recognitions*: *Best Poster Award,* 3rd Annual Biophysics Society of Canada Meeting, Montreal, QC (May 2017);

2017 NSERC Canada Graduate Scholarship – Doctoral; 2016 NSERC Canada Graduate Scholarship – Masters; 2017 Biophysical Society Travel Award.

3. *Xiuping Ding, Chemistry.* (May 2016 – Present). Project: Development of Stretchable Solar Cell. *Awards/Recognitions: China Science Council Graduate Scholarship* (2016 – Present).
4. *Sara Makaremi, Biomedical Engineering.* (September 2014 – Present). Project: Single molecule tracking of macrophage membrane receptors. *Awards/Recognitions: Travel Award* to attend the Laboratory for Fluorescence Dynamics workshop at the University of California at Irvine (October 2015); *Canadian Foundation for the Development of Microscopy Travel Scholarship* to attend the 60th Annual Biophysical Society Meeting in Los Angeles, California (January 2016); Appointed Student Councillor at Microscopical Society of Canada Term 2016-2018 (June 2016); *Best Oral Presentation Award,* 2017 BME Symposium, McMaster University (January 2017); *Canadian Foundation for the Development of Microscopy Fellowship Award* to attend the Canadian Microscopy and Cytometry Symposium in Montréal, Quebec (May 2017); 2017 *Ontario Graduate Scholarship* (September 2017); *Canadian Foundation for the Development of Microscopy Travel Award* to attend the Microscopy and Microanalysis Conference in Baltimore, MD, USA (June 2018); GT Simon Award to the Best Student Presentation, Microscopy and Microanalysis Conference, Baltimore, MD, USA (June 2018).
5. *Markus Rose, Physics,* co-Supervised with Dr. Cecile Fradin. (January 2014 – Present). Project: Single molecule tracking of lipids and cellulases (*cf.* Publications B29, B34, B39).
6. *Ayodele Fatona, Chemistry,* co-Supervised with Dr. Michael Brook. (September 2013 – September 2019). **Thesis:** Tuning the Interfacial Properties of Cellulose and Silicones through Triazinyl and Thioacetal Chemistry (*cf.* Publications B32, D5, E3). *Awards/Recognitions: Best Poster Award* – FIBREnetwork Industry Connect Meeting (April 2015); International Excellence Award, Faculty of Science, McMaster University (September 2016); *Best Presentation – ACS Industrial and Engineering Chemistry Research*, 253rd ACS National Meeting (April 2017); *Best Presentation Award by the Canadian Chemistry Journal* – 101st Canadian Chemistry Conference and Exhibition, Edmonton, AB (June 2018); *2019 Impact Award,* Department of Chemistry and Chemical Biology, McMaster University (April 2019).
7. *Sokunthearath (Kevin) Saem, Chemistry.* (May 2015 – September 2019). **Thesis:** Low Cost Bench-Top Microfabrication of Nano/Microstructured Electrodes for Electrochemical Biosensing. *Awards/Recognitions: 2018 Ontario Graduate Scholarship* (September 2018); *1st Place Biological Image Category*, Microscopical Society of Canada Image Contest, Microscopy and Microanalysis Conference, Baltimore, MD, USA

(August 2018); *Best Student Poster Award*, 62nd International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, San Juan, Puerto Rico (June 2018); *2017 Ontario Graduate Scholarship* (September 2017); *1st Place Award,* 2017 Graduate Research Colloquium, Department of Chemistry and Chemical Biology, McMaster University , Hamilton, ON (May 2017); *2nd Place Oral Presentation Award*, 9th PolyMac Conference, Hamilton, ON (December 2016); *2nd Place 2-minute Thesis Presentation – Analytical Chemistry Division*, 99th Canadian Chemistry Conference and Exhibition, Halifax, NS (June 2016); *Best Poster, Materials Science – Materials Horizons*, 98th Canadian Chemistry Conference and Exhibition, Ottawa, ON (June 2015). (*cf.* Publications B36, D8).

8. *Yujie Zhu*, *Chemistry*. (September 2011 – December 2016). **Thesis:** Micro/Nanostructured Surfaces through Thin Film Stencil Lift-Off: Applications to Patterning and Sensing (*cf.* Publications B22, B33, B35, B37, B38, D4, D6).
9. *Jeremy S Luterbacher, Chemical Engineering,* co-supervised with Dr. Larry Walker. (July 2010- July 2012). **Thesis:** Visualization of biomass depolymerization using fluorescence microscopy (*cf.* Publications B17, B20, B27, B28).

c) Post-Doctoral

1. Sokunthearath Saem, Post-Doctoral Fellow, Department of Chemistry and Chemical Biology, McMaster University.
2. Jaana Vapaavuori, Visiting Post-Doctoral Research Fellow, Department of Chemistry and Bioengineering, Tampere University of Technology, Finland. Awarded NSERC Banting PDF.

d) Supervisory Committees:

1. *Dialia Ritaine,* Chemistry Ph.D. Student (2019 – Present)
2. *Ahmad Mahmood,* Physics M.Sc. Student (2019 – Present)
3. *Xiao Wu,* Chemical Engineering M.Sc. Student (2019 – Present)
4. *Daniel Osorio,* Chemical Engineering Ph.D. Student (2018 – Present)
5. *Ryan LaRue,* Chemical Engineering Ph.D. Student (2018 – Present)
6. *Honfeng Zhang,* Chemical Engineering Ph.D. Student (2017-Present)
7. *Lili Zhang,* Physics Ph.D. Student (2017 – Present).
8. *Sheilan Sinjari,* Chemistry Ph.D. Student (2017 – Present).
9. *James Bodnaryk,* Chemistry Ph.D. Student (2017 – Present).
10. *Mengchen Liao,* Chemistry Ph.D. Student (2017 – Present).
11. *Kevin De France,* Chemical Engineering Ph.D. Student (2016 – 2019).
12. *Eric Rozema,* Chemical Engineering Ph.D. Student (2016).
13. *Bryan Lee,* Biomedical Engineering Ph.D. Student (2015 – Present).

14. *Darryl Fong,* Chemistry Ph.D. Student (2015 – 2019).
15. *Holly Bilton,* Chemical Biology Ph.D. Student. (2014 – 2019).
16. *Mai Yamamoto,* Chemical Biology Ph.D. Student. (2014 – 2018).
17. *Karen Lam,* Chemical Biology Ph. D. Student (2014 – 2018).
18. *Michael Reid,* Chemical Engineering Ph.D. Student (2014 – 2018).
19. *Michael Stolle,* Physics Ph. D. Student (2014 – Present).
20. *Matthew Chan*, Chemistry Ph.D. Student. (2013 – Present).
21. *Fei Xu,* Chemical Engineering Ph.D. Student. (2013 – 2018).
22. *Nadine Wellington*, Chemistry Ph.D. Student. (2012 – 2019).
23. *Christy Hui,* Chemical Biology Ph.D. Student. (2012 – 2018).
24. *Alison Stewart*, Chemistry Ph.D. Student. (2012 – 2018).
25. *Sujan Fernando*, Chemistry Ph.D. Student. (2012 – 2016).
26. *Emilia Bakaic,* Chemical Engineering Ph.D. Student. (2012 – 2017).
27. *Farnaz H. Zadeh*, Chemistry Ph.D. Student. (2011 – 2017).
28. *Erica Forsberg,* Chemical Biology Ph.D. Student (2011 – 2015).
29. *Fei-Chi Yang,* Physics M.Sc. Student. (2013 – 2014).
30. *Ahmed Tawfic,* Civil Engineering Ph.D. Student. (2013 – 2014).
31. *Nehad Hirmiz,* Physics M.Sc. Student. (2012-2014).
32. *Naomi Kuehnbaum*, Chemistry Ph.D. Student. (2011 – 2014).

e) Undergraduate Thesis Students

1. *Ya-Lin Chen*, Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2018-2019). Project: Reactive paper platform.
2. *Iflah Shahid*, Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2018-2019). Project: Polymer grafting onto bleached pulp fibers.
3. *Shanu Xavier,* Chemistry 3RP3: Research Practicum in Chemistry. (2018). Project: Applications of triazinyl chemistry for cellulose functionalization.
4. *Osama Shahid,* Chemistry 4G09: Senior Thesis in Chemistry. (2018 – 2019). Project: Membrane-based biosensors.
5. *Tyler Or*, Integrated Science 4A12: Senior Thesis in Integrated Science. (2017-2018). Project: Application of cellulose-based aerogel thin films.
6. *Drew Hansen*, Biochemistry 4T15: Senior Thesis in Biochemistry. (2016-2017). Project: Microfluidic Formation of Alginate-CNC Microparticles.
7. *Angelico Obille*, Integrated Science 4A12: Senior Thesis in Integrated Science. (2016-2017). Project: Development of surface modification of cellulosic materials for functionalization through thiol-ene click chemistry.
8. *Samuel Laskey*, Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2016-2017). Project: Assessment of impact of expansins and swollenins on cellulose

depolymerization.

9. *Daniel Levin*, Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2016-2017). Project: Microfluidic assay for macrophage adhesion.
10. *Tyler Or*, Integrated Science 3RP3, co-supervised with Dr. Emily Cranston. (September 2016 – December 2016) Project: Patterning of CNC aerogels.
11. *Travis Sutherland,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2015 – 2016). Project: Doping of hydrogels with CNCs for iontophoretic drug delivery.
12. *Mouhanad Babi,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2015 – 2016). Project: Super-Resolution Imaging of Cellulose Nanofibers.
13. *Justin Boyle,* Biochemistry 4T12: Senior Thesis. (2015 – 2016). Project: Evaluation of macrophage response to structured glassy surfaces.
14. *Sanjay Sonney,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2014 – 2015). Project: Development of microfluidic electrochemical sensor (*cf.* Publication B30)
15. *Baweleta Isho,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2014 – 2015). Project: Development of structured conductive surface probes. (In collaboration with VBM Science Ltd)
16. *Urooj Gill,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2014 – 2015). Project: Surface structuring of layer-by-layer biocomposite films.
17. *Sokunthearath (Kevin) Saem,* Chemistry 4G09: Senior Thesis in Chemistry. (2014 – 2015). Project: Characterization of the electrical properties of polystyrene/SWNT composites (*cf.* Publication B31)
18. *Justin Boyle,* Biochemistry 3A03: Biochemical Research Practice. (September 2014 – December 2014). Project: Macrophage growth on structured surfaces.
19. *Tomas Urlich,* Chemistry 4G09: Senior Thesis in Chemistry. (2013 – 2014). Project: Derivatization of cellulose nanofibers and nanocrystals with fluorescent dyes for high-resolution fluorescence microscopy.
20. *Rachel Prestayko,* Chemistry 4G09: Senior Thesis in Chemistry, co-supervised with Dr. Alex Adronov. (2013 – 2014). Project: Characterization of the electrical properties of nanofibres and thin films (*cf.* Publication B31)
21. *Anthony Palermo,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2012 – 2013). Project: Preparation of micro/nanoscale fluorescent cellulosic materials (*cf.* Publications B25, B34)
22. *Fahim Naeem,* Chemical Biology 4GG9: Senior Thesis in Chemical Biology. (2012 – 2013). Project: Electrospinning of conductive SWNT/PEO nanofibres (*cf.* Publication B31)

f) Undergraduate Co-Operative Education Research Assistants

1. *Daniel Levin*, Chemical Biology. (May 2017 – December 2017). Project: Fabrication of cellulose microparticles.
2. *Baweleta Isho,* Chemical Biology. (January 2014 – August 2014). Project: Fabrication of structured conductive probes.

g) Undergraduate Research Assistants

1. *Manjot Grewal,* Chemical Biology. (September 2019 – present). Project: Ultraporous Cellulose Microparticles.
2. *Christine Cerson,* Life Sciences, co-supervised with Dr. Dawn Bowdish. (May 2019 – August 2019). Project: Macrophage Focal Cell Adhesion Visualization.
3. *Iflah Shahid*, Chemical Biology. (May 2019 – August 2019). Project: Grafted Pulp.
4. *Nadine Beganovic*, NSERC-USRA, Chemical Biology. (May 2019 – August 2019). Project: 3D printing of nanocellulose composites.
5. *Shanu Xavier,* Chemistry. (May 2018 – August 2018). Project: Cellulose-based heavy metal biosensor.
6. *Osama Shahid,* Chemistry. (May 2017 – August 2018). Project: Membrane-based biosensors.
7. *Thomas Gorski,* Chemical Biology. (May 2017 – August 2017). Project: Surface modification of cellulose for microanalytical devices.
8. *Jaclyn Winitski,* Biomedical Engineering. (May 2017 – August 2017). Project: Super-Resolution imaging of BMCC microfibrils.
9. *Annie Wu,* Life Sciences. (May 2016 – August 2017) Project: Evaluation of macrophage phagocytic activity on structured surfaces.
10. *Tyler Or*, NSERC-USRA, Integrated Science, co-supervised with Dr. Emily Cranston. (May 2016 – August 2017) Project: Development of CNC-based electrolyte absorbants.
11. *Kajal Bhardwaj,* Chemical Biology. (January 2016 – May 2017) Project: Synthesis of cellulose based chemosensors.
12. *Srimann Chari,* NSERC-USRA, Chemical Biology. (January 2016 – May 2017) Project: Development of PDMS-modifying printable inks.
13. *Kaesevan Selvakumaran,* Life Sciences. (May 2016 – August 2016) Project: Characterization of macrophage adhesion to structured surfaces.
14. *Julia Pantaleo*, Integrated Science. (May 2016 – August 2016) Project: Single molecule imaging of cellulases on cellulose.
15. *Angelico Obille,* Integrated Science. (January 2016 – August 2016) Project: Integration of CNCs into silicone elastomers.
16. *Dakota Binkley,* NSERC-USRA, Integrated Sciences, co-Supervised with Dr. Kathryn Grandfield. (May 2015 – August 2016). Project: Electrospinning of poly-caprolactone nanofibers loaded with silver nanoparticles for biomineralization applications.

17. *Justin Boyle,* NSERC-USRA, Biochemistry. (May 2013 – August 2016). Projects: Fabrication of super-hydrophilic nanofluidic channels (2013) and Morphological evaluation of cell adhesion on structured surfaces (2014-2016, Co-Supervised with Dr. Dawn Bowdish).
18. *Christal Zhou,* NSERC-USRA, Chemical Biology, co-Supervised with Dr. Harald Stöver. (May 2015 – August 2016). Project: Electrospinning of ionic polymers for cell scaffolding.
19. *Mouhanad Babi,* NSERC USRA, Chemical Biology. (May 2014 – August 2015). Projects: Optimization of microfluidic interconnects and pressure testing (2014) and Super-resolution reconstruction of cellulose nanostructures (2015, *cf.* Publication B29)
20. *Travis Sutherland*, Chemical Biology. (May 2014 – August 2015). Project: Shrink induced structuring of cellulose biocomposites.
21. *Henry Fan,* NSERC-USRA, Chemical Biology. (May 2015 – August 2015). Project: Fluorescence labeling of cellulose using triazinyl derivatives.
22. *Julian Gilmore,* Chemical Biology. (May 2015 – August 2015). Project: Bench-top fabrication of a water-in-oil droplet microfluidic device.
23. *Daniel Levin,* Chemical Biology. (May 2015 – August 2015). Project: Purification of fluorescently labeled proteins through anion exchange FPLC.
24. *Mohammed Muneeb Shoaib*, Chemical Biology. (May 2014 – August 2014). Project: Scale up of amino-Parylene synthesis.
25. *Sokunthearath Saem,* Chemistry. (May 2014 – August 2014). Project: Determination of percolation threshold for PEO/SWNT composites. (*cf.* Publication B31)
26. *Urooj Gill,* Chemical Biology. (May 2014 – August 2014). Project: Structuring of PDMS surfaces through plasma oxidation.
27. *Daniel D'Souza,* Biochemistry. (May 2014 – August 2014). Project: Electrospinning of polystyrene/PDMS composites.
28. *Sanjay Sonney,* NSERC USRA, Chemical Biology. (May 2013 – August 2014). Projects: Bonding of PDMS to polystyrene substrates (2013), Fabrication of microfluidic devices for electrochemical sensing (2014, *cf.* Publication B30)
29. *Ahmed Negmi,* Biochemistry. (May 2013 – August 2014). Project: Patterning of lipid bilayer stacks (*cf.* Publication B33).
30. *Akanksha Nayak,* Biochemistry. (May 2013 – August 2014). Projects: Purification of crystalline cellulose from Nata de Coco (2013), Reducing-end labeling of cellulose nanofibrils and nanocrystals (2014).
31. *Katija Bonin,* Arts and Sciences. (May 2012 – August 2013). Project: Characterization of crumpled glassy films for biological applications.
32. *Katie Huyhn,* NSERC USRA, Chemical Biology. (May 2013 – August 2013). Project: Integration of glassy crumpled structures within microfluidic devices.

33. *Aren Armenian,* Biochemistry. (May 2013 – August 2013). Project: Fabrication of crumpled surfaces for SERS applications.
34. *Shyamal Pansuriya,* Honours Biology. (May 2012 – August 2013). Project: Coding of single molecule tracking algorithms.
35. *Oriana Vanderfleet,* NSERC USRA, Chemical Engineering, co-Supervised with Dr. Leyla Soleymani (May 2012 – August 2013). Projects: Miniaturized electrospinning setup (2012, *cf.* Publication B26), Electrochemical cell based on crumple-structured electrodes (2013).
36. *Avinash Ramkissoon,* NSERC USRA, Chemical Biology. (May 2012 – August 2012). Project: Characterization of conductive polymer films.
37. *Norman Shek,* Chemical Biology. (May 2012 – August 2012). Project: Bench-top fabrication of microfluidic devices (*cf.* Publication B30).
38. *Roman Malekzai,* Chemical Biology. (May 2012 – August 2012). Project: Electrospinning of polystyrene nanofibres.
39. *Jonathan Satar,* Chemical Biology. (May 2012 – August 2012). Project: Modeling of single molecule imaging.

h) Other (visiting researchers)

1. *Antoine Gourlay, Visiting MSc. Researcher,* Biopolyméres, Interactions et Assemblages, INRA-Nantes, France. (May – August 2019). Project: Xyloglucan-Cellulose Nanocrystals Interactions.
2. *Cindy Peto Gutiérrez*, Visiting MSc. Researcher, UNAM, Mexico. (October – December 2018). Project: Transfer of structured electrodes to elastomer substrates.
3. *Ahmed Saad,* Visiting MSc. Researcher, Université de Besançon – Université de Franche Comte. (January – April 2017). Project: Optimization of membrane deposition on structured electrodes.
4. *Juan Francisco Luna Muñoz,* Visiting BSc. Researcher, Biotechnology Engineering – Universidad Politécnica de Sinaloa. (September – December 2016). Project: Development of a reducing-end assay to assess the effect of expansin on cellulosic materials.
5. *Paul Astiasarain,* Visiting MSc Researcher, Chemistry – École Nationale Superiéure de Chimie de Clermont-Ferrand. (May – August 2015). Project: Characterization of the mechanical properties of PDMS-CNC composites.
6. *Miguel Olarte Lozano,* Visiting PhD Student Researcher, Biotechnology – UNAM, Mexico. (November 2014 – December 2014). Project: Isolation and functionalization of bacterial cellulose.
7. *Lauren Nowicki,* Visiting Undergraduate Researcher, Physics – Gettysburg College. (May 2013 – August 2013). Project: Electrical characterization of conductive nanofibres

(*cf.* Publication B31).

12. RESEARCH LEAVES

Research Sabbatical Stay – *Engineering in Life sciences Applications (ELiA) Team, Laboratory for the Architecture and Analysis of Systems, Centre National de la Recherche Scientifique.* Toulouse, France. Project: *"*Micro- and Nanoscale Structuring of Cellulosic Materials through Capillary Patterning and Photo-Initiated Crosslinking for Tissue Engineering and 3D Printing Applications" **2017-2018**

13. RESEARCH FUNDING (since joining McMaster University)

Discovery Grant – *Natural Sciences and Engineering Research Council (NSERC)*, $180,000. "Modular surface chemistry of green nanoparticles for the next generation of functional materials" **2019 – 2024**

Research Tools and Instrumentation-1 – *Natural Sciences and Engineering Research Council (NSERC)*, $125,500. "Photo-polymerization 3D Printer" **2019-2020**

Globalink France (Taylor Stimpson) – *MITACS, $6,000.* "Mechanical Characterization of Nanocomposites to Identify Structure-Function Relationships of Plant Cell Wall Components" **2019-2020**

Collaborative Research Development – *Natural Sciences and Engineering Research Council (NSERC)*, $214,000, (1 of 2 co-applicants). "Grafted Pulp – A New Canadian Forest Product" **2019-2022**

Ontario Research Fund, Research Excellence – *Ontario Ministry of Research and Innovation, $9,000,000.* (1 of 10 co-applicants). "*Enabling Next-Generation Technological Devices through Novel ALD, MLD and pulsed-CVD Reactions."* **2018-2024**

Tier 2 Canada Research Chair in Micro- and Nanostructured Materials – *Canada Research Chairs (CRC), $500,000.* **2018-2023**

Globalink France (Mouhanad Babi) – *MITACS, $6,000. "Study of DNA nanostructure through capillary assembly and super-resolution fluorescence microscopy"* **2018-2019**

New Scientific Collaborations – *France-Canada Research Fund*, $15,000. "Micro and Nanoscale Structuring of Cellulosic Materials through Capillary Patterning and Photo-Initiated Crosslinking for Tissue Engineering and 3D Printing Applications" **2017-2019**

Globalink France (Sokunthearath Saem) – *MITACS, $7,000. "Development of Novel Cellulose Bioprinting Materials Using Thiol-ene Click Chemistry for Application in 3D Printing/Structuring"* **2017-2018**

Research Tools and Instrumentation-1 – *Natural Sciences and Engineering Research Council (NSERC)*, $78,000, (1 of 10 co-applicants). "Thermo-gravimetric Analysis Instrument" **2017-2018**

Idea to Innovation (Market Assessment) – *Natural Sciences and Engineering Research Council (NSERC), $20,000,* (1 of 2 co-aplicants). "Smart nanotech sensors using human red blood cells for fast blood testing" **2017**

Voucher for Innovation and Productivity – *Ontario Centers of Excellence (OCE),* $45,000. "Functional Conductive Structured Surfaces for Primary Ion Mass Spectrometry Source (FSCS-PIMSS)" **2016**

Early Researcher Award – *Ontario Ministry of Research and Innovation (OMRI), $150,000. "*Simple and Inexpensive Fabrication of Micro- and Nanostructured Surfaces for Sensors, Flexible Electronics, and Tissue Engineering Applications" **2015-2020**

Interdisciplinary Research initiative – *McMaster University, Faculty of Science, $74,000*. "Nanoscale Investigation of the Molecular Mechanisms Behind Infection and Disease" **2015-2018**

Interaction Grant – *Natural Sciences and Engineering Research Council (NSERC), $2,704. "*Visit to IOGEN to discuss potential collaborative projects" **2015**

Engage Grant – *Natural Sciences and Engineering Research Council (NSERC), $25,000. "*Assesment of a One-Step Method for the Chemical Functionalization of Cellulose Nanocrystals" **2015**

Interaction Grant – *Natural Sciences and Engineering Research Council (NSERC), $1,282. "*Meeting with CelluForce to Evaluate a Collaborative Project for the One-Step Functionalization of Cellulose Nanocrystals" **2014-2015**

Research Tools and Instrumentation-1 – *Natural Sciences and Engineering Research Council (NSERC)*, $68,000, (1 of 7 co-applicants). "633 nm Laser for Raman Instrument" **2014-2015**

Voucher for Innovation and Productivity – *Ontario Centers of Excellence (OCE),* $45,000. "Conductive Structured Surfaces for Primary Ion Mass Spectrometry Source (SCS-PIMSS)" **2014**

Discovery Grant – *Natural Sciences and Engineering Research Council (NSERC)*, $138,000. "Development and Application of Micro-Engineered Surfaces for Biomaterial Micropatterning and the Study of Biomolecular Interactions" **2013 – 2019**

Research Tools and Instrumentation-1 – *Natural Sciences and Engineering Research Council (NSERC)*, $33,800. "Microscope Upgrade for the Characterization of Micro and Nanostructured Materials through Fluorescence and Polarization" **2013-2014**

Leaders Opportunity Fund – *Ontario Research Fund,* $225,000. "Laboratory for the Study of Biomolecular Interactions through Micropatterning and High Resolution Fluorescence Microscopy" (Funds Released in 2013) **2012-2017**

Leaders Opportunity Fund – *Canada Foundation for Innovation,* $225,000. "Laboratory for the Study of Biomolecular Interactions through Micropatterning and High Resolution Fluorescence Microscopy" (Funds Released in 2013) **2012-2017**

Research Tools and Instrumentation-1 – *Natural Sciences and Engineering Research Council (NSERC)*, $84,300, (1 of 6 co-applicants). "Multiple Wavelength Surface Plasmon Resonance Spectrometer for Optical Characterization and Adsorption Studies of Biomaterials and Nanocomposites" **2012-2013**

Science and Engineering Research Board – *McMaster University*, $20,000. **2012-2013**
"Development of functional micro- and nanostructured surfaces for the study of biomolecular interactions"

CREATE Grant – *Natural Sciences and Engineering Research Council (NSERC),* **2011-2017**
$1,650,000 ($25,500/yr to JM Moran-Mirabal for graduate and undergraduate student support). "Integrated Development of Extracellular Matrices"

CREATE Grant – *Natural Sciences and Engineering Research Council (NSERC),* **2011-2017**
$1,600,000 ($10,500/yr to JM Moran-Mirabal for graduate student support). "BioInterfaces Training Program"

14. LIFETIME PUBLICATIONS (H-index = 23, i10-index = 38, Total citations = 1890, Google Scholar Metrics, retrieved November 2019)

Note: Graduate students supervised in boldface, undergraduate students supervised underlined, corresponding author denoted with asterisk. Students supervised at Cornell University follow the same nomenclature but have been italicized to denote this distinction from HQP trained at McMaster University.

PEER REVIEWED

a) Contributions to books

A4. Moran-Mirabal JM* (2013) "Advanced-microscopy techniques for the characterization of cellulose structure and cellulose-cellulase interactions" in T. van de Ven and L. Godbout (Eds.) *Cellulose – Fundamental Aspects.* In-Tech Press. ISBN: 978-953-51-1183-2.

A3. Moran-Mirabal JM*, Craighead HG, and Walker LP (2012) "Single molecule fluorescence techniques for biomedical applications" in J.M.K. Irudayaraj (Ed.). *Biomedical Nanosensors*. Pan Stanford Press. 400pp.

A2. Moran-Mirabal JM*, Andresen K, and McMullen JD (2007) "History of Nobel laureates in physics" in Fundamentals of Physics, from *Encyclopedia of Life Support Systems (EOLSS),* Developed under the Auspices of the UNESCO, EoLSS Publishers, Oxford ,UK, [http://www.eolss.net] [Retrieved May, 2015]

A1. Orth RN*, Foquet M, Moran-Mirabal JM, Craighead HG, and Hajjar DP (2006) "Nanotechnology: tools microbiologists use to refine their research and become nanobiologists." *Cosmetic Science and Technology Series.* **31:** 271-294.

b) Journal Articles

B60. **Makaremi S, Luu H, Boyle JP, Zhu Y, Cerson C,** Bowdish DME* and Moran-Mirabal JM* (2019) "Topography of Silica Films Modulate Primary Macrophage Morphology and Function." *Advanced Materials Interfaces.* 6: 1900677. (Funding NSERC Discovery Grant, Early Researcher Award, Canada Research Chairs)

B59. **Saem S,** Fong D, Adronov A, and Moran-Mirabal JM* (2019) "Stretchable and Resilient Conductive Films on Polydimethylsiloxane from Reactive Polymer-Single-Walled Carbon Nanotube Complexes for Wearable Electronics." *ACS Applied Nano Materials.* **2:** 4968-4973. (Funding NSERC Discovery Grant)

B58. **Or T**, Miettunen K, Cranston ED, Moran-Mirabal J,* and **Vapaavuori J*** (2019) "Cellulose nanocrystal aerogels as electrolyte scaffolds for glass and plastic dye-sensitized solar cells." *ACS Applied Energy Materials.* **2:** 5635-5642. (Funding NSERC Discovery Grant, Canada Research Chairs)

B57. **Or T, Saem S**, Esteve A, Osorio DA, De France KJ, **Vapaavuori J**, Hoare T, Cerf A, Cranston ED, and Moran-Mirabal J* (2019) "Patterned Cellulose Nanocrystal Aerogel Films with Tunable Dimensions and Morphologies as Ultra-Porous Scaffolds for Cell Culture." *ACS Applied Nano Materials*. **2:** 4169-4179. (Funding NSERC Discovery Grant, France Canada Research Fund, Early Researcher Award, Canada Research Chairs)

B56. De France K, Badv M, Dorogin J, Siebers E, **Babi M**, Moran-Mirabal J, Lawlor M, Cranston E, Hoare T* (2019) "Tissue Response and Biodistribution of Injectable Cellulose Nanocrystal Composite Hydrogels." *ACS Biomaterials Science and Engineering.* **5:** 2235-2246. (Funding NSERC Discovery Grant, Early Researcher Award, Canada Research Chairs)

B55. **Binkley D,** Lee B, **Saem S,** Moran-Mirabal JM, and Grandfield K* (2019) "Fabrication of polycaprolactone electrospun nanofibers doped with silver nanoparticles formed by air plasma treatment" *Nanotechnology.* **30:** 215101. (Funding NSERC Discovery Grant, Early Researcher Award)

B54. De France KJ, **Babi M, Vapaavuori J,** Hoare T, Moran-Mirabal JM,* and Cranston ED* (2019) "2.5D hierarchical structuring of nanocomposite hydrogel films containing cellulose nanocrystals" *Applied Materials and Interfaces.* **11:** 6325-6335. (Funding NSERC Discovery Grant, Early Researcher Award)

B53. KhondkerA, Dhaliwal AK, **Saem S,** Mahmood A, Fradin C, Moran-Mirabal JM, and Rheinstädter MC* (2019) "Membrane Charge and Lipid Packing determine Polymyxin-induced Membrane Damage" *Communications Biology.* **2:** 67. (Funding NSERC Discovery Grant)

B52. **Vaapavuori J,* Stimpson T,** Moran-Mirabal JM (2019) "Light-induced wrinkling erasure reveals complex pattern evolution in supramolecular polymer-azobenzene

complexes." *Langmuir*. **35:** 875-881. (Funding NSERC Discovery Grant, Early Researcher Award, Canada Research Chairs)

B51. **Fatona A,** Moran-Mirabal JM, Brook MA* (2019) "Controlling silicone networks using dithioacetal crosslinks." *Polymer Chemistry.* **10**: 219-227. (Funding NSERC Discovery, Early Researcher Award)

B50. **Levin DL, Saem S,** Osorio DA, Cerf A, Cranston ED, and Moran-Mirabal JM* (2018) "Templating of Green Ultra-Porous Cellulose Nanocrystal Microparticles via Droplet Microfluidics" *Chemistry of Materials*. **30:** 8040-8051 (Funding NSERC Discovery, Early Researcher Award, Canada Research Chairs)

B49. **Zhou C,** Zhao J, **Saem S, Gill U,** Stöver HDH, and Moran-Mirabal JM* (2018) "Self-Crosslinking p(APM-co-AA) Microstructured Thin Films as Biomimetic Scaffolds" *ACS Applied Bio Materials.* **1:** 1512-1522. (Funding NSERC Discovery, Early Researcher Award, Canada Research Chairs)

B48. Tovar-Herrera OE, Rodriguez M, Olarte-Lozano M, Sampedro-Guerrero JA, Guerrero A, Pinto Camara R, Alvarado-Affantranger X, Wood C, Moran-Mirabal JM, Pastor N, Segovia L, Martinez-Anaya C* (2018) "Analysis of the binding of Expansin Exl1, from Pectobacterium carotovorum, to the plant xylem and comparison EXLX1 from Bacillus subtilis." *ACS Omega.* **3**: 7008–7018. (Funding NSERC Discovery)

B47. Amirdehi MA,† **Saem S,**† Zarabadi MP, Moran-Mirabal JM,* and Greener J* (2018) "Impact of anode microstructure on direct electron transfer biofilms in microbial fuel cells." *Advanced Materials Interfaces*. **1:** 1800290. (Funding NSERC Discovery, Early Researcher Award, Canada Research Chairs)
†Equally contributing authors.

B46. **Fatona A**, Berry R, Brook M, Moran-Mirabal JM* (2018) "One-Step Surface Modification of Cellulose Fibres and Cellulose Nanocrystals through Modular Triazinyl Chemistry." *Chemistry of Materials.* **30:** 2424-2435. (Funding NSERC Discovery, Early Researcher Award, Canada Research Chairs)

B45. Rambarran T, Gonzaga F, **Fatona A,** Coulson M, **Saem S**, Moran-Mirabal JM, and Brook MA* (2018) "Thermal Bonding of Silicones for Functional Microfluidics Using Huisgen Cyclization." *Journal of Polymer Science Part A.* **56:** 589–597. (Funding NSERC Discovery, Early Researcher Award)

B44. Gilbert T, Alsop R, **Babi M,** Moran-Mirabal JM, Rheinstadter MC, Hoare T* (2017) "Nanostructure of Fully Injectable Hydrazone-Thiosuccinimide Interpenetrating Polymer Network Hydrogels Assessed by Small-Angle Neutron Scattering and dSTORM Single-Molecule Fluorescence Microscopy." *Applied Materials and Interfaces.* **9:** 42179-42191. (Funding NSERC Discovery, Early Researcher Award)

B43. Khondker A, Alsop R, Dhaliwal A, **Saem S,** Moran-Mirabal JM, and Rheinstadter MC* (2017) "Membrane Cholesterol Reduces Polymyxin B Nephrotoxicity in Renal

Membrane Analogues." *Biophysical Journal.* **113:** 1-13. (Funding: NSERC Discovery Grant, Early Researcher Award)

B42. **West J, Zhu Y, Saem S,** Moran-Mirabal JM*, and Hitchcock AP* (2017) "X-ray absorption spectroscopy and spectromicroscopy of supported lipid bilayers." *Journal of Physical Chemistry C.* **121:** 4492–4501. (Funding: NSERC Discovery Grant, Early Researcher Award, IDEM CREATE)

B41. **Gill U,** Sutherland T, Himbert S, **Zhu Y,** Rheinstädter MC, Cranston ED and Moran-Mirabal JM* (2017) "Beyond Buckling: Humidity-Independent Measurement of the Mechanical Properties of Green Nanocomposite Films." *Nanoscale.* 9: 7781-7790. (Funding: NSERC Discovery Grant, Early Researcher Award, IDEM CREATE)

B40. **Saem S, Zhu Y, Luu H,** and Moran-Mirabal JM* (2017) "Bench-top fabrication of an all-PDMS microfluidic electrochemical biosensor integrating micro/nanostructured electrodes." *Sensors.* **12:** 732. (Funding: NSERC Discovery Grant, Early Researcher Award, IDEM CREATE)

B39. Himbert S, Alsop RJ, **Rose M**, Hertz L, Dhaliwal A, Moran-Mirabal JM, Verschoor CP, Bowdish DME, Kaestner L, Wagner C, Rheinstädter MC* (2017) "The Molecular Structure of Human Red Blood Cell Membranes from Highly Oriented, Solid Supported Multi-Lamellar Membranes." *Scientific Reports* **7:** 39661. (Funding: NSERC Discovery Grant, McMaster University Faculty of Science Interdisciplinary Research Initiative, IDEM CREATE)

B38. **Zhu Y** and Moran-Mirabal JM* (2016) "Micropatterning of phase-segregated supported lipid bilayers and binary lipid phases through polymer stencil lift-off." *Langmuir.* **32:** 11021-11028. (Funding: NSERC Discovery Grant, IDEM CREATE)

B37. Yamamoto M, Ly R, Gill B, **Zhu Y,** Moran-Mirabal JM, Britz-McKibbin P* (2016) "A Robust and High Throughput Method for Anionic Metabolite Profiling: Preventing Polyimide Aminolysis and Capillary Breakages under Alkaline Conditions in CE-MS." *Analytical Chemistry.* **88:** 10710-10719 (Funding: NSERC Discovery Grant, IDEM CREATE)

B36. Fong D, Bodnaryk WJ, Rice N, **Saem S,** Moran-Mirabal JM, Adronov A* (2016) "Influence of polymer electronics on selective dispersion of single walled carbon nanotubes." *Chemistry-A European Journal.* **22:** 14560-14566. (Funding: NSERC Discovery Grant)

B35. **Zhu Y** and Moran-Mirabal JM* (2016) "Fabrication of highly flexible and stretchable electrodes through compressive stress microstructuring." *Advanced Electronic Materials.* **2:** *1500345*. (Funding: NSERC Discovery Grant, Early Researcher Award, IDEM CREATE)

B34. **Rose M,** Hirmiz N, Moran-Mirabal JM*, Fradin C* (2015) Lipid diffusion in supported lipid bilayers: a comparison between line-scanning fluorescence correlation

spectroscopy and single particle tracking. *Membranes*. **5:** 702-721. (Funding: NSERC Discovery Grant, McMaster University Faculty of Science Interdisciplinary Research Initiative)

B33. **Zhu Y**, Negmi A and Moran-Mirabal JM* (2015) Multi-Stacked Supported Lipid Bilayer Micropatterning through Polymer Stencil Lift-Off. *Membranes*. **5:** 385-398. (Funding: McMaster University Science and Engineering Research Board, NSERC Discovery Grant, IDEM CREATE)

B32. **Fatona A,** Chen Y, Reid M, Brook MA, Moran-Mirabal JM* (2015) "One-step in-mould modification of PDMS surfaces and its application in the fabrication of self-driven microfluidic channels." *Lab-on-a-Chip.* **15:** 4322-4330. (Funding: NSERC Discovery Grant, Early Researcher Award)

B31. Naeem F, Prestayko R, **Saem S**, Nowicki L, Imit M, Adronov A, and Moran-Mirabal JM* (2015) "Fabrication of conductive polymer nanofibers through SWNT supramolecular functionalization and aqueous solution processing." *Nanotechnology*. 26: 395301 (Funding: McMaster University Start-up Funds, Science and Engineering Research Board, NSERC Discovery Grant)

B30. Sonney S**,** Shek N, and Moran-Mirabal JM* (2015) "Rapid bench-top fabrication of PDMS/polystyrene microfluidic devices incorporating high-surface-area sensing electrodes." *Biomicrofluidics.* **9:** 026501. (Funding: NSERC Discovery Grant)

B29. **Rose M**, Babi M, and Moran-Mirabal JM* (2015) "The study of cellulose structure and depolymerization through single-molecule methods." *Industrial Biotechnology.* **11:** 1-9. (Featured in cover) (Funding: NSERC Discovery Grant)

B28. ***Luterbacher JS***, Moran-Mirabal JM*, Burkholder E, and Walker LP* (2015) "Modeling enzymatic hydrolysis of lignocellulosic substrates using confocal fluorescence microscopy I: filter paper cellulose." *Biotechnology and Bioengineering.* **112:** 21-31. (Funding: DOE Grant GO18084, McMaster University Start-up Funds).

B27. ***Luterbacher JS***, Moran-Mirabal JM*, Burkholder E, and Walker LP* (2015) "Modeling enzymatic hydrolysis of lignocellulosic substrates using confocal fluorescence microscopy II: pretreated biomass." *Biotechnology and Bioengineering.* **112:** 32-42. (Funding: DOE Grant GO18084, McMaster University Start-up Funds)

B26. Vanderfleet OM, Gabardo CM, Naeem F, Moran-Mirabal JM*, and Soleymani L* (2014) "Rapid prototyping of a miniaturized electrospinning setup for the production of polymer nanofibers." *Journal of Applied Polymer Science.* **131:** 40629. (Funding: McMaster University, Science and Engineering Research Board).

B25. Abitbol T*, Palermo AF, Moran-Mirabal JM, and Cranston ED (2013) "Fluorescent labeling and characterization of cellulose nanocrystals with varying charge contents." *Biomacromolecules.* **14:** 3278-3284. (Funding: McMaster University, Science and Engineering Research Board).

B24. Moran-Mirabal JM* (2013) “The study of cellulose structure and cellulose-cellulase interactions through fluorescence microscopy.” *Cellulose.* **20:** 2291-2309. (Funding: NSERC Discovery Grant).

B23. Yang D, Moran-Mirabal JM, Parlange JY, and Walker LP* (2013) “Investigation of the porous structure of cellulosic substrates through confocal laser scanning microscopy.” *Biotechnology and Bioengineering.* **110:** 2836-2845. (Funding: DOE Grant GO18084).

B22. Gabardo CM, **Zhu Y**, Soleymani L*, and Moran-Mirabal JM* (2013) “Benchtop fabrication of hierarchically structured high surface area electrodes.” *Advanced Functional Materials*. **23:** 3030-3039. (Featured in cover). (Funding: McMaster University, Science and Engineering Research Board).

B21. Moran-Mirabal JM*, **Bolewski JC**, and Walker LP* (2013) “Cellulases exhibit limited surface diffusion on bacterial microcrystalline cellulose.” *Biotechnology and Bioengineering*. **110:** 47-56. (Featured in Research Spotlight). (Funding: DOE Grant GO18084, McMaster University Start-up Funds).

B20. ***Luterbacher JS***, Walker LP, Moran-Mirabal JM***** (2013) “Observing and modeling BMCC degradation by commercial cellulase cocktails with fluorescently labeled *Trichoderma reseii* Cel7A through confocal microscopy.” *Biotechnology and Bioengineering*. **110:** 108-117. (Funding: DOE Grant 18084, McMaster University Start-up Funds).

B19. Kostylev M, Moran-Mirabal JM**,** Walker LP, and Wilson DW* (2012) “Determination of the molecular states of the processive endocellulase Thermobifida fusca Cel9A during crystalline cellulose depolymerization.” *Biotechnology and Bioengineering*. **109:** 295-299.

B18. Moran-Mirabal JM*, *Bolewski JC*, and Walker LP (2011) “Reversibility and binding kinetics of *Thermobifida fusca* cellulases studied through fluorescence recovery after photobleaching microscopy.” *Biophysical Chemistry*. **155:** 20-28. (Funding: DOE Grant 18084).

B17. Zhu P, Moran-Mirabal JM**, *Luterbacher JS***, Walker LP, and Craighead HG* (2011) “Observing *Thermobifida fusca* cellulase binding to pretreated wood particles using time-lapse confocal laser scanning microscopy.” *Cellulose.* **18:** 749-758.

B16. Moran-Mirabal JM, Corgie SC, *Bolewski JC, Smith HM,* Cipriany BR, Craighead HG, Walker LP* (2009) “Labeling and purification of cellulose-binding proteins for high-resolution fluorescence applications.” *Analytical Chemistry.* **81:** 7981-7987.

B15. Moran-Mirabal JM and Craighead HG* (2008) “Zero-mode waveguides: sub-wavelength nanostructures for single molecule studies at high concentrations.” *Methods*. **46:** 11-17.

B14. Moran-Mirabal JM, Santhanam N, Corgie SC, Craighead HG, and Walker LP* (2008) "Immobilization of cellulose fibrils on solid substrates for cellulase binding studies through quantitative fluorescence microscopy." *Biotechnology and Bioengineering*. **101:** 1129 - 1141. (Featured in cover).

B13. Slinker JD, DeFranco JA, Jaquith MJ, Silveira WR, Zhong YW, Moran-Mirabal JM**,** Craighead HG, Abruña H, Marohn JA, and Malliaras GG* (2007) "Direct measurement of the electric-field distribution in a light-emitting electrochemical cell." *Nature Materials*. **6:** 894-899.

B12. Moran-Mirabal JM, Aubrecht DM, and Craighead HG* (2007) "Phase separation and fractal domain formation in phospholipid/diacetylene supported lipid bilayers." *Langmuir*. **23:** 10661-10671.

B11. Moran-Mirabal JM, Torres AJ, Samiee KT, Baird BA, Craighead HG* (2007) "Cell investigation of nanostructures: Zero-Mode Waveguides for plasma membrane studies with single molecule resolution." *Nanotechnology*. **18:** 195101. (Featured in cover).

B10. Zhou X, Moran-Mirabal JM**,** Craighead HG, and McEuen P* (2007) "Supported lipid bilayer/carbon nanotube hybrids." *Nature Nanotechnology*. **2:** 185-190.

B9. Moran-Mirabal JM*, Slinker JD, DeFranco JA, Verbridge SS, Ilic R, Flores-Torres S, Abruña H, Malliaras GG, and Craighead HG (2007) "Electrospun light-emitting nanofibers." *Nano Letters.* **7:** 458-463. (Featured in Biophotonics Journal, and Nanotechweb).

B8. Moran-Mirabal JM, Tan C, Orth RN, Williams EO, Craighead HG, and Lin DM* (2007) "Controlling microarray spot morphology with polymer lift-off arrays." *Analytical Chemistry* **79:** 1109-1114.

B7. Bellan LM, Cross JD, Strychalski EA, Moran-Mirabal JM**,** and Craighead HG* (2006) "Individually resolved DNA molecules stretched and embedded in electrospun polymer nanofibers." *Nano Letters.* **6:** 2526-2530.

B6. Samiee KT, Moran-Mirabal JM, Cheung YK, and Craighead HG.* (2006) "Zero Mode Waveguides for single molecule spectroscopy on lipid membranes." *Biophysical Journal*. **90:** 3288-3299.

B5. Meyer GD, Moran-Mirabal JM, Branch DW, and Craighead HG.* (2006) "Non-specific binding removal from protein microarrays using thickness shear mode resonators." *IEEE Sensors Journal*. **6:** 254-261.

B4. Moran-Mirabal JM, Edel JB, Meyer GD, Throckmorton D, Singh AK, and Craighead HG* (2005) "Micrometer-sized supported lipid bilayer arrays for bacterial toxin binding studies through total internal reflection fluorescence microscopy." *Biophysical Journal*. **89:** 296-305.

B3. Verbridge SS, Edel JB, Stavis SM, Moran-Mirabal JM, Mathers R, Coates G, and Craighead HG* (2005) "Suspended glass nanochannels coupled with silicon microstructures for single molecule detection." *Journal of Applied Physics*. **97:** 124317-1:12437-4.

B2. Rosu HC,* Moran-Mirabal JM, Cornejo O (2003) "One-parameter nonrelativistic supersymmetry for microtubules." *Physics Letters A*. **310:** 353-356.

B1. Louzada ES,* del Rio HS, Xia D, and Moran-Mirabal JM (2002) "Preparation and fusion of *Citrus sp*. microprotoplasts." *Journal of the American Horticultural Society*. **127:** 484-488.

c) Editorial

C1. Moran-Mirabal JM* and Cranston ED (2015) "Cellulose nanotechnology on the rise." *Industrial Biotechnology.* **11:** 14-15.

d) Patents

D11. Brook MA, Feinle A, Moran-Mirabal JM, Fatona A, Wong MY (2019) "Catalyst Free Silicone Cure." *United States Provisional Application No. 62/857,050,* June, 2019.

D10. Georgevich G, Vuckovic D, Moran-Mirabal JM (2018) "PIMSS – Primary Ion Mass Spectrometry Source." *United States Provisional Patent Application No. 62/679,143,* June 2018.

D9. Moran-Mirabal JM and **Fatona A** (2017) "Modular chemistry for the covalent modification of polysaccharides and glycosylated biopolymers", *United States Provisional Patent Application Submitted*, McMaster University, April 2017.

D8. Rheinstädter MC, Himbert S, Alsop RJ, Moran-Mirabal JM, **Saem S,** Bowdish DME (2016) "Biological Membrane-Based Sensor", *United States Provisional Patent Application No. 62/413,652*, McMaster University, October 2016.

D7. Moran-Mirabal JM, Vuckovic D, **Nalivaika P** (2016) "Structured Conductive Probes for Mass Spectrometry." *United States Provisional Patent Application No. 62/347,294,* McMaster University, June 2016.

D6. Moran-Mirabal JM, Bowdish D, **Zhu Y,** Boyle JP (2016) "Structured Glassy Surfaces for Use as Substrates for Immune Cell Assays." *United States Provisional Patent Application No. 62/338,091,* McMaster University, May 2016.

D5. Moran-Mirabal JM, Brook MA, **Fatona AT** (2014) "One Step fabrication of functional structured surfaces for microfluidic applications." *United States Provisional Patent Application No. 62/033,159*, McMaster University, August 2014.

D4. Moran-Mirabal JM, Soleymani L, Gabardo CM, **Zhu Y** (2013) "Benchtop fabrication of hierarchically structured high surface area materials." *United States Provisional Patent Application No. 61/788443,* McMaster University, February 2013.

D3. Moran-Mirabal JM, Slinker JD, Abruña HD, Malliaras GG, Craighead HG (2013) "Electrospun Light-emitting Fibers." *USPTO Patent No. 8,541,940.*

D2. Moran-Mirabal JM, Slinker JD, Abruña HD, Malliaras GG, Craighead HG (2012) "Electrospun Light-emitting nanoFibers." *USPTO Patent No. 8,106,580.*

D1. Chang YF, Clark TG, Craighead HG, Lin DM, Moran-Mirabal JM, Orth RN (2010) "Protective Coating for array material deposition." *USPTO Patent No. 7,781,378.*

e) Other, including Proceedings of Meetings

E3. **Fatona A,** Chen Y, Brook MA, Moran-Mirabal JM* (2015) "One-step in-mould modification of PDMS surfaces and its application in the fabrication of self-driven microfluidic channels." *μTAS – The 19th International Conference on Miniaturized Systems for Chemistry and Life Science*, October 2015. Gyeongju, Korea.

E2. Moran-Mirabal JM, Throckmorton D, Singh AK, Craighead HG* (2003) "Micropatterning of functional lipid domains for toxin detection." *Materials Research Society Meeting, Fall 2003 Proceedings.* Boston, Massachusetts.

E1. Rosu HC*, Moran-Mirabal JM, Planat M (2003) "Milne phase for the Coulomb quantum problem related to Riemann's hypothesis." *Group 24: Physical and mathematical aspects of Symmetries Institute of Physics Conference Series* **173:** 695-697.

SUBMITTED FOR PUBLICATION

Journal Articles

B61. **Saem S,** Shahid O, Khondker A, Moran-Hidalgo C, Rheinstädter MC, and Moran-Mirabal JM* (2019) "Benchtop-fabricated lipid-based electrochemical sensing platform for the sensitive detection of membrane disrupting agents." *Scientific Reports.* Submitted.

B62. Hiltunen A, Or T, Lahtonen K, Ali-Löytty H, Tkachenko N, Valden M, Sarlin E, Cranston ED, Moran-Mirabal JM, and ***Vapaavuori J**** (2019) "Ultrathin-walled 3D Inorganic Nanostructured Networks Templated from Crosslinked Cellulose Nanocrystal Aerogels." *Small.* Submitted.

NON-PEER REVIEWED

Journal Articles

1. **Zhu Y** and Moran-Mirabal JM* (2012) "Micro and nanostructured materials for the study and monitoring of biomolecular interactions." *Laboratory Focus.* **16:** 13-15.

15. INVITED TALKS AT UNIVERSITIES, INDUSTRY, ETC.

1. "Micro- and nanostructured materials: from stretchable gold to "green" materials for tissue engineering." *Invited Seminar, Department of Chemistry, Simon Fraser University,* Vancouver, BC, March 2019.
2. "Micro- and nanostructured materials: from stretchable gold to "green" materials for tissue engineering." *Invited Seminar, Department of Chemistry, University of British Columbia,* Vancouver, BC, March 2019.
3. "Micro- and nanostructured materials: from stretchable gold to "green" materials for tissue engineering." *Invited Seminar, Department of Chemistry, University of Victoria,* Victoria, BC, March 2019.
4. "Micro- and nanostructured materials: from stretchable gold to "green" materials for tissue engineering." *Invited Seminar, Department of Chemical and Physical Sciences, University of Toronto Mississauga,* Mississauga, Ontario, October 2018.
5. "Micro/nanostructured materials: from stretchable gold to "green" materials for tissue engineering", *LETI science seminars, LETI-CEA (Laboratoire d'électronique des technologies de l'information- Commissariat à l'Energie Atomique et aux Energies Alternatives),* Grenoble, France, June, 2018.
6. "Cellulose-based micro/nanostructured materials: fabrication, characterization, and applications", *Guest Seminar Biopolymères Interactions Assemblages, INRA,* Nantes, France, February, 2018.
7. "Patterned Micro/Nanostructured Surfaces through Shape-Memory Polymer Shrinking", *Guest Seminar Biosciences and Biomaterials Division, Research Institutes of Sweden,* Stockholm, Sweden, November 2017.
8. "Micro and Nanostructured Materials: On Patterning, Wrinkling, Surface Chemistry and Super-Resolution", *Seminar Department of Bioproducts and Biosystems, Aalto University,* Helsinki, Finland, October 2017.
9. "Structured Electrodes for Passive Sampling and On-Chip Sensing." *Symposium Annuel du Reséau de Recherche en Microfluidique, Université Laval*, Quebec City, QC, June 2017.
10. "Designer Molecules for One-Step Modification of Polysaccharides (Cellulose)", *Guest Seminar, Mirexus Biotechnologies Inc.,* Guelph, ON, June 2017.
11. "Patterned Micro/Nanostructured Surfaces through Shape-Memory Polymer Shrinking." *Engineering for Life Sciences Applications Guest Lecture, Laboratory for the Architecture and Analysis of Systems, CNRS,* Toulouse, France, October 2016.
12. "Bench-top fabrication of patterned micro- and nanostructured surfaces and their applications in sensing, stretchable electronics, and tissue engineering". *Analytical Chemistry Seminar Series, Department of Chemistry, University of Toronto*, September 2016.

13. "High Resolution Fluorescence Microscopy for the Study of the Biochemical Depolymerization of Cellulosic Materials". *IOGEN Corporation*, Ottawa, ON, June 2015.
14. "Bench-top Fabrication Patterned Micro/Nanostructured Surfaces". *XRCC Seminar, Xerox Research Centre of Canada*, Mississauga, ON, January 2015.
15. "One-Step Functionalization of Cellulose Nano-Crystals". *Guest Seminar, CelluForce*, Montreal, QC, November 2014.
16. "Bench-top Fabrication Patterned Micro/Nanostructured Surfaces". *Guest Seminar Series, Department of Chemistry and Biochemistry, University of Windsor*, Windsor, ON, October 2014.
17. "Microscopía de Alta Resolución para el Estudio de Interacciones Celulasa-Celulosa". *Cátedra Institucional, Instituto de Biotecnología, UNAM*, Cuernavaca, Morelos, Mexico, September 2014.
18. "Fabricación de Superficies Micro/Nanoestructuradas por Técnicas No-Convencionales". *Seminario Institucional, Facultad de Química, UNAM*, Mexico City, Mexico, August 2014.
19. "Biomolecular Interactions Dissected by Single Molecule and Super-Resolution Fluorescence Microscopy". *Department of Physics Seminar, University of Guelph*, Guelph, ON, February 2014.
20. "Biomolecular Interactions Dissected by Single Molecule and Super-Resolution Fluorescence Microscopy". *Department of Biochemistry Seminar, McMaster University,* Hamilton, ON, January 2014.
21. "The Study of Cellulase-Cellulose Interactions and Cellulose Structure through Fluorescence Microscopy Techniques". *Guest Seminar Series, Novozymes A/S,* Bagsvaerd, Denmark, November, 2013.
22. "Study of Cellulase-Cellulose Interactions through Single Molecule Fluorescence Microscopy Techniques". *Emerging Leaders of Applied Chemistry and Chemical Engineering Seminar, University of Toronto*, Toronto, ON, October 2013.
23. "The simplicity of bench top fabrication of hierarchically structured materials". *Chemistry Departmental Seminar*, *University of Waterloo*, Waterloo, ON, November 2012.
24. "The Study of Cellulase-Cellulose Interactions through High-Resolution Fluorescence Microscopy Techniques". *The Science and Engineering Challenges to the Development of Sustainable Biobased Industries*, *Cornell University*, Ithaca, NY, October 2011.

16. PRESENTATIONS AT MEETINGS

a) Invited

1. "Micro- and nanostructured biointerfaces: from lipid phase segregation to biosensors."

WE-Heraeus Seminar on Micro- and Nanostructured Biointerfaces, Bad Honnef, Germany, November 2018.

2. "Micro/nanostructured materials: from bench-top fabrication to cellulose-reinforced hydrogels." *2018 Annual Symposium on Mechanobiology in Biomimetics, LaNSBioDyT – UNAM,* Mexico City, Mexico, November 2018.
3. "Native and Surface Modified Nanocellulosic Materials for 2.5 and 3D Fabrication." *The 62nd International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication*, San Juan, Puerto Rico, May 2018.
4. "Designer Molecules for One-Step Modification of Cellulosic Materials." *International Conference on Nanotechnology for Renewable Materials, TAPPI,* Montreal, QC, June 2017.
5. "Characterization of Cellulose Nanostructure through Super-Resolution Fluorescence Microscopy." *61st International Conference on Analytical Sciences and Spectroscopy,* Quebec City, QC, June 2017.
6. "Assembly and Characterization of Nanocellulose-based Biocomposite Materials." *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017.
7. "Study of Cellulose Structure and Cellulase-Cellulose Interactions through Single Molecule Methods." *3rd Annual Meeting, Biophysical Society of Canada,* Montreal, QC, May 2017.
8. "Characterization of Cellulose Nanostructure through Super-Resolution Fluorescence Microscopy." *Canadian Microscopy and Cytometry Symposium,* Montreal, QC, May 2017.
9. "Microfluidic Devices with Integrated Structured Electrodes for On-chip Sensing." *99th Canadian Chemistry Conference and Exhibition,* Halifax, NS, June 2016.
10. "The structural underpinnings of bacterial microcrystalline cellulose acid hydrolysis". *98th Canadian Chemistry Conference and Exhibition*, Ottawa, ON, June 2015.
11. "Compressive Stress Micro/Nanostructuring of CNC-XG Composite Films. Symposium on Sustainable Nanomaterials". *Canadian Society for Chemical Engineering Conference,* Niagara Falls, ON, October 2014.
12. "Bench-top Fabrication of Patterned Micro/Nanostructured Surfaces and Applications". *97th Canadian Chemistry Conference and Exhibition*, Vancouver, BC, June 2014.
13. "High Resolution Fluorescence Microscopy for the Characterization of Cellulosic Materials". *96th Canadian Chemistry Conference and Exhibition,* Quebec City, QC, May 2013.
14. "The Study of Cellulase-Cellulose Interactions through Fluorescence Microscopy". *American Chemical Society Spring Meeting,* New Orleans, LA, April 2013.
15. "Polymers as structural materials in micro and nanofabrication". *PolyMac Conference, McMaster University*, Hamilton, ON, December 2012.
16. "The study of cellulase-cellulose interactions through fluorescence-based techniques: from macromolecular structures to individual molecules". *2011 Gordon-Keenan Research Symposium: Cellulosomes, Cellulases & Other Carbohydrate Modifying Enzymes*, Stonehill

College, Easton, MA, July 2011.

17. "Use of High Resolution Optical Methods and Micro/Nanofabrication for the Study of Cellulase-Cellulose Interactions at the nanoscale". *2008 Pacific Rim Summit on Industrial Biotechnology and Bioenergy*, Vancouver, BC, September 2008.
18. "Zero-Mode Waveguides: Subwavelength Optical Apertures for Single-Molecule Studies at High Molecular Concentrations". *IEEE-LEOS*, Orlando, FL, October 2007.
19. "Zero Mode Waveguides for Nanoscale Observation of Membrane Processes". *7th Annual Nanobiotechnology Symposium*, Cornell University, Ithaca, NY, October 2006. Available as Academy eBriefing at: http://www.nyas.org/nbtc2006

b) Contributed (presenter underlined)

1. Talantikite M, Stimpson TC, Gourlay A, Moreau C, Beury N, Cranston ED, Moran-Mirabal JM, Cathala B "Bioinspired thermo-responsive hydrogels composed of xyloglucan and cellulose nanocrystals" 259th American Chemical Society National Meeting, PA, March 2020. (Contributed Talk).
2. De France KJ, Osorio DA, Hurley AL, Winitsky J, Grandfield K, Hoare T, Moran-Mirabal JM, Cranston ED "Crosslinked cellulose nanocrystal aerogels and hydrogels with hierarchical structure for tissue engineering" 259th American Chemical Society National Meeting, PA, March 2020. (Invited Talk).
3. Brook MA, Chen Y, Feinle A, Faiczak K, Fatona A, Lusterio A, Moran-Mirabal J, Bhayo AM, Osamudiamen A, Zheng S "Combining Saccharides with Silicone Polymers to Improve Sustainability" 259th American Chemical Society National Meeting, PA, March 2020. (Invited Talk).
4. Saem S, Shahid O, Khondker A, Moran-Hidalgo C, Rheinstadter MC, Moran-Mirabal JM "Detection of membrane disrupting agents via microstructured electrochemical biosensors" 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC, June 2019. (Contributed talk)
5. Stimpson T, Osorio DA, Cranston ED, Moran-Mirabal JM "Characterization of the Mechanical Properties of Polymer Nanocomposite Films via Strain-Induced Buckling" 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC, June 2019. (Contributed talk)
6. Ding X, Moran-Mirabal JM "Multi-material Structured Thin Film Transfer to Stretchable Substrates" 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC, June 2019. (Contributed talk)
7. Osamudien A, Fatona A, Moran-Mirabal JM, Brook MA "Catalyst-Free Silicone Elastomers via Triazinyl Chemistry" 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC, June 2019. (Contributed talk)

8. Amirdehi MA,* Saem S*, Mirpouyan Z, Moran-Mirabal JM, Greener J "Microstructured Anodes by Surface Wrinkling for Studies of Direct Electron Transfer Biofilms in Microbial Fuel Cells" 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC, June 2019. (Contributed talk, *equally contributing authors)
9. Osorio DA, Or T, Levin DL, Vapaavuori J, Grandfield K, Moran-Mirabal JM, and Cranston ED "New Applications of Cross-Linked Cellulose Nanocrystal Aerogels – Energy Production/Storage Devices, Sorbents, Drug Delivery and Bone Implants" 257th American Chemical Society National Spring Meeting, Orlando, FL, April 2019. (Contributed Talk).
10. Osorio DA, Or T, Levin DL, Vapaavuori J, Siefried B, Moquin P, Grandfield K, Moran-Mirabal JM, and Cranston ED "New Processing and Applications of Cross-Linked Cellulose Nanocrystal Aerogels: Bone Implants, Delivery Systems, and Components for Energy Storage and Production Devices" 257th American Chemical Society National Spring Meeting, Orlando, FL, April 2019. (Contributed Talk).
11. Levind DL, Saem S, Osorio DA, ED Cranston, and Moran-Mirabal JM "Droplet microfluidic templating of ultraporous cross-linked CNC microparticles" 257th American Chemical Society National Spring Meeting, Orlando, FL, April 2019. (Contributed Talk).
12. Babi M, Palermo A, Abitbol T, ED Cranston, and Moran-Mirabal JM "New approaches to the fluorescent labeling of cellulose for visualization at the nanoscale" 257th American Chemical Society National Spring Meeting, Orlando, FL, April 2019. (Contributed Talk).
13. Stimpson T, Osorio DA, Cranston ED, and Moran-Mirabal JM "Characterization of Mechanical Properties of Cellulose Nanocrystal Composite Films via Mechanical Buckling" 11th Annual PolyMac Conference, Hamilton, ON, December 2018. (Contributed Poster).
14. Makaremi S, Luu H, Boyle J, Ranjit S, Digman MA, Gratton E, Bowdish DME, Moran-Mirabal JM "Measuring Lateral Diffusion of Receptors on Plasma Membrane of Macrophages Using Raster Image Correlation Spectroscopy" Microscopy and Microanalysis 2018 Meeting, Baltimore, MD, USA, August 2018. (Contributed Talk)
15. Vapaavuori J, Thomas M, Niinivaara E, Cranston ED, and Moran-Mirabal JM "Light-induced wrinkling erasure reveals complex dynamics as a function of azobenzene content in supramolecular polymers" PhoSM 2018, Tampere, Finland, June 2018. (Contributed Talk)
16. Cranston ED, De France KJ, Osorio DA, Moran-Mirabal JM, Grandfield K, and Hoare T "New Production Strategies for Tissue Scaffolds Containing Cellulose Nanocrystals and Their Fate in Vivo" 2018 International Conference on Nanotechnology for Renewable Materials – TAPPI Nano, Madison, WI, June 2018. (Contributed Talk)

17. De France KJ, Babi M, Vapaavuori J, Moran-Mirabal JM, Hoare T, and Cranston ED "Tunable Cellulose Nanocrystal Structured Thin Film Hydrogels" 2018 International Conference on Nanotechnology for Renewable Materials – TAPPI Nano, Madison, WI, June 2018. (Contributed Talk)
18. Vuckovic D, Nalivaika P, Moran-Mirabal JM "Structured Conductive Probes for Ambient Ionization in Mass Spectrometry" 66th American Society for Mass Spectrometry Conference, San Diego, CA, June 2018. (Contributed Talk)
19. Fatona A, Moran-Mirabal JM and Brook MA "Functional Silicone Networks via Thioacetal Linkages" *101st Canadian Chemistry Conference and Exhibition,* Edmonton, AL, June 2018. (Contributed Talk)
20. Saem S, Esteve A, Jiménez Zenteno AK, Fatona A, Boyer L, Accardo A, Malaquin L, Cerf A, Moran-Mirabal JM "Renewable nanoparticles as additive for 3D printed hydrogels" The 62nd International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication, San Juan, Puerto Rico, May 2018. (Invited Poster)
21. Desvignes E, Thibault C, Vieu C, Bouissou A, Poincloux R, Marionneau-Parini I, Babi M, Moran-Mirabal JM "3D Microfabricated scaffolds for the investigation of the mechanical forces exerted by living cells during migration" The 62nd International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication, San Juan, Puerto Rico, May 2018. (Contributed Talk)
22. Ding X, Zhu Y, Saem S, Moran-Mirabal JM "Transfer of Structured Thin Films from PS to PDMS through Solvent-assisted Lift-off" *10th Annual PolyMac Conference*, Hamilton, ON, December 2017. (Contributed Poster)
23. Gill U, Cranston ED, Moran-Mirabal JM "Mechanical Properties of All-Cellulose Nanocrystal Thin Films as a Function of Nanoparticle Orientation" *10th Annual PolyMac Conference*, Hamilton, ON, December 2017. (Contributed Poster)
24. Levin DL, Cranston ED, Moran-Mirabal JM "Sustainable Fabrication of High Surface Area Cellulose-Based Microparticles" *10th Annual PolyMac Conference*, Hamilton, ON, December 2017. (Contributed Poster)
25. Or T, Cranston ED, Moran-Mirabal JM "Fabrication and Application of Cellulose-based Aerogel Films" *10th Annual PolyMac Conference,* Hamilton, ON, December 2017. (Contributed Poster)
26. Babi M, Fatona A, Moran-Mirabal JM "Super-Resolution Imaging of Native Cellulose Nanostructure" *7th Single Molecule Localization Symposium*, King's College London, London UK, August 2017. (Contributed Poster)
27. Gill U, Sutherland T, Himbert S, Zhu Y, Rheinstadter MC, Cranston ED, Moran-Mirabal JM "Beyond Buckling: Humidity-Independent Measurement of the Mechanical Properties of Green Nanocomposite Films." *International Conference on Nanotechnology for Renewable Materials, TAPPI,* Montreal, QC, June 2017. (Contributed Talk)

28. Saem S, Zhu Y, Moran-Mirabal JM "Bench-top fabrication of all-PDMS microfluidic electrochemical sensors integrating micro/nanostructured electrodes" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Talk)
29. Nalivaika P, Isho B, Vuckovic D, Moran-Mirabal JM "Structured Conductive Probes for Mass Spectrometry: Novel Ambient Ionization Technique" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Poster)
30. Luu H, Makaremi S, Boyle J, Levin D, Bowdish DME, Moran-Mirabal JM "The Effect of Glassy Film Topography on Macrophage Function and Adhesion" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Poster)
31. Zhou C, Moran-Mirabal JM, Stöver HDH "Self-crosslinking p(APM-co-AA) nanofibrous scaffolds and microstructured films as biomimetic scaffolds" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Poster)
32. Fatona A, Bhardwaj K, Brook MA, Moran-Mirabal JM "A New Colorimetric and Fluorescent Cellulose Chemosensor for Selective Detection of Copper (II) and Mercury (II) in Water" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Poster)
33. Gill U, Sutherland T, Himbert S, Zhu Y, Rheinstadter MC, Cranston ED, Moran-Mirabal JM "Beyond Buckling: Humidity-Independent Measurement of the Mechanical Properties of Cellulose Nanocrystal- Based Films" *100th Canadian Chemistry Conference and Exhibition,* Toronto, ON, June 2017. (Contributed Poster)
34. Babi M, Fatona A, Moran-Mirabal JM "Super-Resolution Imaging of Native Cellulose Nanostructure." *3rd Annual Meeting, Biophysical Society of Canada,* Montreal, QC, May 2017. (Contributed Poster)
35. Makaremi S, Luu H, Ranjit S, Digman MA, Gratton E, Bowdish DME, Moran-Mirabal JM "Raster Image Correlation Spectroscopy for Measuring Diffusion of Receptors on Macrophage Membranes" *Canadian Microscopy and Cytometry Symposium,* Montreal, QC, May 2017. (Contributed Poster)
36. Fatona A, Brook MA, Moran-Mirabal JM "Designer molecules for one-step modification of cellulosic materials in aqueous and organic media through triazine chemistry" *253rd American Chemical Society National Meeting and Exposition*, San Francisco, CA, April 2017. (Contributed Talk)
37. Babi M, Moran-Mirabal JM "The Characterization of Cellulose Nanostructure Using Super-Resolution Fluorescence Microscopy" *61st Biophysical Society Meeting,* New Orleans, LA, USA, February 2017. (Contributed Poster)
38. Saem S, Fong D, Adronov A, Moran-Mirabal JM "Single-Walled Carbon Nanotube:PDMS Devices - A Promising Avenue in Flexible Electronics" *9th Annual PolyMac Conference,* Hamilton, ON, December 2016. (Contributed Talk)

39. Gill U, Sutherland T, Himbert S, Rheinstädter MC, Cranston ED, Moran-Mirabal JM. (2016) "Beyond Buckling: Humidity-Independent Measurement of the Mechanical Properties of Green Nanocomposite Films." *9th Annual PolyMAC Conference*, McMaster University, Hamilton, ON, December 2016. (Contributed Poster)
40. Babi M, Moran-Mirabal JM "Super-resolution imaging of cellulose." *9th Annual PolyMac Conference,* McMaster University, Hamilton, ON, December 2016. (Contributed Poster)
41. Zhou C, Stöver HDH, Moran-Mirabal JM. "Self-crosslinking structured p(APM-*co*-AA) films and nanofibers for use as biomimetic scaffolds." 9th Annual *PolyMAC Conference,* Hamilton, ON, December 2016. (Contributed Poster)
42. Gill U, Sutherland T, Himbert S, Wojcik J, Rheinstädter MC, Cranston ED, Moran-Mirabal JM "Beyond Buckling: Humidity-Independent Measurement of the Mechanical Properties of Green Nanocomposite Films." *7th Annual Nano Ontario Conference,* Guelph, ON, November 2016. (Contributed Poster)
43. Saem S, Fong D, Adronov A, Moran-Mirabal JM "Single-Walled Carbon Nanotubes:PDMS Devices - A Promising Avenue in Flexible Electronics." *99th Canadian Chemistry Conference and Exhibition,* Halifax, NS, June 2016. (Contributed Talk)
44. Nalivaika P, Vuckovic D, Moran-Mirabal JM "Structured Conductive Probes for Mass Spectrometry." *99th Canadian Chemistry Conference and Exhibition,* Halifax, NS, June 2016. (Contributed Talk)
45. Makaremi S, Ranjit S, Bowdish DME, Digman MA, Gratton E, Moran-Mirabal JM "Investigating Diffusion of Receptors on Macrophage Membranes Using Raster Image Correlation Spectroscopy" *43rd Microscopical Society of Canada Annual Meeting,* Edmonton, AB, June 2016. (Contributed Talk)
46. Makaremi S, Boyle JP, Zhu Y, Bowdish D, Moran-Mirabal JM "Phagocytic ability of macrophages cultured on nano-structured glassy films." *10th World Biomaterials Congress,* Montreal, QC, May 2016. (Contributed Poster)
47. Gill U, Sutherland T, Himbert S, Wojcik J, Mascher P, Rheistädter M, Cranston ED, Moran-Mirabal JM "Stable, irreversible and tuneable micro/nanostructuring of cellulose nanocrystal biocomposite films." *10th World Biomaterials Congress,* Montreal, QC, May 2016. (Contributed Poster)
48. Zhu Y, Boyle JP, Moran-Mirabal JM "Effect of glassy film micro/nanostructured Topography on Cell Morphology." *10th World Biomaterials Congress,* Montreal, QC, May 2016. (Contributed Talk)
49. Fatona AT, Chen Y, Brook MA, Moran-Mirabal JM "Structuring and in-mould modification of PDMS surfaces for self-driven microfluidic devices." *10th World Biomaterials Congress,* Montreal, QC, May 2016. (Contributed Talk)
50. Babi M, Moran-Mirabal JM "Super-resolution imaging of cellulose." *Chemical Biophysics Symposium*, *University of Toronto*, Toronto, ON, May 2016. (Contributed Poster)

51. Makaremi S, Novakowski K, Rose M, Bowdish DME, Moran-Mirabal JM, "Investigating Diffusion of Receptors on Macrophage Membranes Using Single Molecule Tracking" *60th Biophysical Society Meeting,* Los Angeles, CA, USA, February 2016. (Contributed Poster)
52. Zhu Y, Moran-Mirabal JM "Bench top fabrication of transferrable micro/nanostructured gold electrodes for stretchable sensors and electronics." *The International Chemical Congress on Pacific Basin Societies 2015,* December 2015. Hawaii, USA. (Contributed Talk)
53. Fatona A, Chen Y, Brook MA, Moran-Mirabal JM "One-step in-mould modification of PDMS surfaces and its application in the fabrication of self-driven microfluidic channels." *The International Chemical Congress on Pacific Basin Societies 2015,* December 2015. Hawaii, USA. (Contributed Talk)
54. Fatona A, Chen Y, Brook MA, Moran-Mirabal JM "One-step in-mould modification of PDMS surfaces and its application in the fabrication of self-driven microfluidic channels." *μTAS – The 19th International Conference on Miniaturized Systems for Chemistry and Life Science,* October 2015. Gyeongju, Korea. (Contributed Poster)
55. Fatona AT, Chen Y, Brook MA, Moran-Mirabal JM. "Fabrication of Amphiphilic PDMS Arrays Using Facile One-step Method and Its Application in Self-driven Microfluidic Device". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Talk)
56. Gill U, Sutherland T, Moran-Mirabal JM. "Structuring of Cellulose Nanocrystal Composite Films on Shape Memory Polymers". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Talk)
57. Zhu Y, Moran-Mirabal JM. "Bench Top Fabrication of Stretchable Micro/nanostructured Gold Electrodes for Sensors and Electronics". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Talk)
58. Rahimi-Razin S, Moran-Mirabal JM. "Synthesis of Amine-Functionalized Parylene for Biomaterial Patterning Applications". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Talk)
59. Saem S, Rice N, Adronov A, Moran-Mirabal JM. "Effect of Thermal Treatment on the Conductivity of Single-Walled Carbon Nanotube-Polymer Composite Films". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Poster)
60. West J, Moran-Mirabal JM, Hitchcock A. "Development of a Flow Cell for Scanning Transmission X-Ray Microscopy (STXM) for the Study of Lipid-Anti-Microbial Peptide Interactions". *98th Canadian Chemistry Conference and Exhibition,* Ottawa, ON, June 2015. (Contributed Poster)
61. Boyle J, Zhu Y, Moran-Mirabal JM. "The Effect of Glassy Film Topography on Murine Fibroblast Morphology". *32nd Annual Meeting of the Canadian Biomaterials Society.* Toronto, ON, May 2015. (Contributed Poster)

62. Makaremi S, Novakowski K, Rose M, Bowdish DME, Moran-Mirabal JM. "Investigating the Diffusion of Receptors on Macrophage Membranes Using Single Molecule Tracking". *MSC Annual Meeting.* Hamilton, ON, May 2015. (Contributed Poster)
63. Rose M, Fradin C, Moran-Mirabal JM. "Single Molecule Fluorescence Microscopy and Tracking of Lipids in Mitochondrial-Like Supported Lipid Bilayers". *MSC Annual Meeting.* Hamilton, ON, May 2015. (Contributed Talk)
64. Zhu Y, Moran-Mirabal JM. "Polymer Stencil Lift-Off for Simple and Direct Patterning of Stacked Lipid Bilayers." *Chemical Biophysics Symposium.* Toronto, ON, April 2015. (Contributed Poster).
65. Zhu Y, Moran-Mirabal JM. "Polymer Stencil Lift-Off for Simple and Direct Patterning of Stacked Lipid Bilayers." *7th Annual PolyMac Conference,* McMaster University, Hamilton, ON, December 2014. (Contributed Poster)
66. Rahimi-Razin S, Moran-Mirabal JM. "Synthesis of Amino-Functionalized Parylene for Biomaterials Applications." *7th Annual PolyMac Conference,* McMaster University, Hamilton, ON, December 2014. (Contributed Talk)
67. Zhu Y, Moran-Mirabal JM. "Bench Top Fabrication of Transferrable and Stretchable Micro and Nanostructured Thin Film Electrodes." *5th Annual NanoOntario Conference,* Windsor, ON, November 2014. (Contributed Poster)
68. Saem S, Prestayko R, Naeem F, Nowicki L, Imit M, Adronov A, Moran-Mirabal JM. "Conductive Polymer-Single Walled Carbon Nanotube Composite Nanofibers Through Supramolecular Functionalization and Aqueous Solution Processing." *5th Annual NanoOntario Conference,* Windsor, ON, November 2014. (Contributed Poster)
69. Fatona AT, Brook MA, Moran-Mirabal JM. "Fabrication of Hydrophilic PDMS Microarrays: Mild and Simple Surface Immobilization via Soft Lithography." *The 17th International Symposium on Silicon Chemistry*, Berlin, Germany, July 2014. (Contributed Poster)
70. Moran-Mirabal JM. "Optical Nanoscopy with Real-time Stabilization to Study Cellulose Structure." *97th Canadian Chemistry Conference and Exhibition*, Vancouver, BC, June 2014. (Contributed Talk)
71. Zhu Y, Negmi A, and Moran-Mirabal JM. "Polymer Stencil Lift-off: Simple and Rapid Patterning Arrays of Single or Stacked Phase-Segregated Lipid Bilayers." *97th Canadian Chemistry Conference and Exhibition*, Vancouver, BC, June 2014. (Contributed Talk)
72. Sonney S, Shek N, and Moran-Mirabal JM. "Integration of Micro- and Nanostructured Surfaces within PDMS microfluidics." *97th Canadian Chemistry Conference and Exhibition*, Vancouver, BC, June 2014. (Contributed Talk)
73. Zhu Y, Moran-Mirabal JM. "Polymer Stencil Lift-Off: a Simple and Rapid Method for Patterning Arrays of Single or Stacked Lipid Bilayers Containing Phase-Segregated Domains." *Chemical Biophysics Symposium*. Toronto, ON, May 2014. (Contributed Poster)

74. Zhu Y, Moran-Mirabal JM. "Bench Top Fabrication of Micro and Nanostructured Surfaces for Sensing and Tissue Engineering Applications." 6th Annual PolyMac Conference, McMaster University, Hamilton, ON, December 2013. (Contributed Talk)
75. Moran-Mirabal JM. "High resolution fluorescence microscopy for the study of cellulose-cellulose interactions." *2013 Gordon Research Conference on Cellulases, Cellulosomes and Other Carbohydrate Modifying Enzymes*, Proctor Academy, Andover, NH, August 2013. (Contributed Poster)
76. Bolewski JC and Moran-Mirabal JM. "dSTORM imaging of cellulose nanofibrils." *2013 Gordon Research Conference on Cellulases, Cellulosomes and Other Carbohydrate Modifying Enzymes*, Proctor Academy, Andover, NH, July 2013. (Contributed Poster)
77. Moran-Mirabal JM. "Benchtop fabrication of hierarchically structured high surface area electrodes." *96th Canadian Chemistry Conference and Exhibition,* Quebec City, QC, May 2013. (Contributed Talk)
78. Zhu Y and Moran-Mirabal JM. "Supported Lipid Bilayer Patterning through Polymer Stencil Lift-Off." *96th Canadian Chemistry Conference and Exhibition,* Quebec City, QC, May 2013. (Contributed Talk).
79. Moran-Mirabal JM. "The study of cellulose-cellulase interactions through high resolution fluorescence microscopy." *96th Canadian Chemistry Conference and Exhibition,* Quebec City, QC, May 2013. (Contributed Talk).
80. Zhu Y and Moran-Mirabal JM. "Supported Lipid Bilayer Patterning." *SUNY Buffalo Chemistry Graduate Student Symposium*, SUNY, Buffalo NY, 2012 (Contributed Talk).
81. Moran-Mirabal JM, Bolewski JC, Walker LP. "Do Cellulases Exhibit Diffusion Along Cellulose Surfaces? FRAP and Single Molecule Evidence." *2011 Biophysical Society Meeting,* Baltimore, MA, USA, March 2011. (Contributed Poster)
82. Moran-Mirabal JM, Bolewski JC and Walker LP. "Surface diffusion of cellulases on cellulose fibrils studied through fluorescence spectroscopy." *2010 Biophysical Society Meeting,* San Francisco, CA, USA, February 2010. (Contributed Poster)
83. Moran-Mirabal JM. "Elucidation of cellulase-cellulose interaction at the nanoscale with high-resolution fluorescence microscopy." *2009 Pacific Rim Summit on Industrial Biotechnology and Bioenergy*, Honolulu, HI, USA, November 2009. (Contributed Talk)
84. Moran-Mirabal JM. "Fluorescence labeling and purification of cellulases for single molecule spectroscopy." *2009 Biophysical Society Meeting,* Boston, MA, USA, March 2009. (Contributed Poster)
85. Moran-Mirabal JM. "Electrospun Light-Emitting Nanofibers." *Materials Research Society, Fall Meeting*, Boston, MA, USA, November 2007. (Contributed Talk)
86. Moran-Mirabal JM, Torres AJ, Samiee KT, Baird BA, and Craighead HG. "Cell investigation of nanostructures: Zero Mode Waveguides for Cell Membrane Studies with Single

Molecule Resolution." *2007 Biophysical Society Meeting*, Baltimore, MD, USA, March 2007. (Contributed Poster)

87. Moran-Mirabal JM, Samiee KT, Cheung YK, and Craighead HG. "Zero Mode Waveguides for Single Molecule Spectroscopy on Lipid Membranes", *2006 Biophysical Society Meeting*, Salt Lake City, UT, USA, February 2006. (Contributed Talk)
88. Moran-Mirabal JM, Flaminio MJBF, and Craighead HG. "Induction of immune response and differentiation in equine cells using micropatterned monolayers of bacterial-LPS." *International Congress on Biological Physics*, Gothenburg, Sweden, August 2004. (Contributed Talk)
89. Moran-Mirabal JM, Throckmorton D, Singh AK, and Craighead HG. "Micropatterning of Functional Lipid Domains for Toxin Detection." *Materials Research Society, Fall Meeting*, Boston, Massachusetts, USA, November 2003. (Contributed Poster)
90. Moran-Mirabal JM, Orth RN, Smith AE, and Craighead HG. "Micrometer Scale Lipid and Protein Patterns Inside Microfluidic Channels for Biomolecular Sorting." *Experimental Biology Meeting*, San Diego, California, USA, April 2003. (Contributed Poster)
91. Moran-Mirabal JM, Lopez-Franco R, and Bracker CE. "Cell polarity, a memory system?" *International Congress on Biological Physics*, Kyoto, Japan, August 2002. (Contributed Poster)

17. ADMINISTRATIVE RESPONSIBILITIES

a) Department

- Associate Chair of Graduate Studies **2019 – present**
- Research Tenure Track Hiring Committee – Analytical/Environmental Chemistry **2019 – 2020**
- 1st Year Chemistry Undergraduate Program (Chemistry) **2018 – present**
- Research Tenure Track Hiring Committee – Molecular Medicine **2018 – 2019**
- Research Space Grant – SIF Committee, 2nd Floor Representative **2016 – 2018**
- Chemistry Department Undergraduate Mentorship Circle **2016 – 2017**
- Departmental Website Redevelopment and Social Media **2015 – 2017**
- Recruiting, In-reach and Outreach **2014 – 2019**
- Graduate Colloquium Organizer (Chemistry). **2012 – 2017**
- Level 2 Chemical Biology Instruction Committee. **2012 – 2017**
- Level 3 Chemistry Instruction Committee. **2012 – 2017**
- Level 3 Chemical Biology Instruction Committee. **2012 – 2017**

- Science 1A03 "Investigating Science-Opportunities and Experiences" Committee (Chemistry) **2014 – present**
- Teaching Stream Tenure Track Hiring Committee, Department of Chemistry and Chemical Biology (Chemistry) **2016 – 2017**
- Undergraduate Curriculum Committee. (Chemistry) **2013 – 2014**
- Faculty Advisor to the McMaster Undergraduate Society for the Chemical Sciences. **2012 – 2014**
- Representative to the Chemical Institute of Canada Local Section **2012 – 2014**
- Laboratory Safety Inspection Committee **2011 – 2013**

b) Faculty

- Tenure and Promotion Committee Member **2019 – 2022**
- Chemical Biology Graduate Program Director Selection Committee **2019 – 2020**
- Faculty of Science Canada Research Chair Search Committee **2019 – 2020**
- NSERC Women in Science Chair Competition Committee **2019 – 2020**
- Faculty of Science Faculty Appointments Advisory Committee **2019 – 2020**
- Faculty of Science Scholarships and Awards Committee **2015 – present**
- CGS Scholarship Ranking Committee – Representative from Chemical Biology Program **2014 – 2019**
- Physics 1A03, Ad-hoc Development Committee **2014**
- Ontario Universities' Fair, Faculty of Science Representative **2014 – 2016, 2018 – 2019**

c) University

- BIMR Seminar Committee **2018 – 2019, 2015 – 2016**
- Ad-hoc Committee for Central Microscopy Facility **2015 – present**
- Ad-hoc Committee for BioMaker Laboratory Design **2016 – 2018**
- CFI/IF University Internal Selection and Evaluation Committee **2016-2017**
- CRC in Bioinnovation Committee **2016**
- NSERC CREATE University Internal Selection Committee **2015 – 2016**
- Aditi Foundation International Research Fund, Selection Committee. **2015 – 2016**

18. OTHER RESPONSIBILITIES

- **Executive Council – Councillor-at-Large –** Microscopical Society of Canada. (May 2015 – Present).
- **Executive Committee Member – Treasurer –** Canada Institute of Chemistry, Hamilton Section. (January 2015 – August 2019).
- **External Reviewer – FONDECYT Initiation into Research 2018 –** Chilean National Science and Technology Commission (CONICYT - Chile) (2018)
- **External Reviewer – Collaborative Research Development Grant –** NSERC (2017)
- **External Reviewer – Idea to Innovation Grant –** NSERC (2016)
- **External Reviewer – US-Israel Binational Science Foundation –** BSF (2016)
- **External Reviewer – Discovery Grant, Analytical Chemistry Division –** NSERC (2016)
- **External Reviewer – Human Frontier Science Program Organization –** HSFO (2015)

19. OTHER ACTIVITIES

- **Symposium Organizer: "Hierarchical Assemblies of Polymers and Nanostructures on Surfaces",** 103rd Canadian Chemistry Conference and Exhibition (2019-2020)
- **Session Presider –** 2019 ACS Spring National Meeting and Exhibition, Colloids Division, Biomaterials and Biointerfaces Symposium, Advances in Biomaterials Session. (2019)
- **Session Presider –** 2019 ACS Spring National Meeting and Exhibition, Cellulose Division, Bio-Based Gels and Porous Materials Symposium, 3D printing & Rheology of Cellulose & Nanocellulose Session. (2019)
- **Presenter –** The Magic of Molecules Show, (McMaster, 2013 – 2017).
- **Symposium Organizer: "Light Microscopy: Micro/Nanofluidic Platforms for In-Situ Microscopy",** 2017 Microscopical Society of Canada Annual Meeting. (2016-2017)
- **Session Chair –** 2016 NanoOntario Conference. Focus on NanoBio and Sustainability. (2016)
- **Symposium Organizer: "Microfluidic Platforms for Bioanalytical Applications",** 99th Canadian Chemistry Conference and Exhibition (2015-2016)
- **Organizer – Interdisciplinary Workshop: "Tools for the Investigation of Molecular Mechanisms of Infection & Disease",** McMaster University. (2016)
- **Organizer –** RSC Roadshow at McMaster University (2015).
- **Annual Meeting Organizer and Scientific Program Committee –** 2015 Microscopical Society of Canada Annual Meeting. (2014-2015)
- **Faculty Judge –** Bay Area Science and Engineering Fair (2014-2015)
- **Faculty Judge** – Undergraduate Monsaroff Student Paper Night (2013 – 2014)

- **Organizer –** 41st Southern Ontario Undergraduate Student Chemistry Conference (McMaster, 2013).
- **Faculty Judge –** Present Around the World Competition, The Institution of Engineering and Technology. Hamilton Section. March 23rd 2013.
- **Faculty Judge –** Women in Science and Engineering Symposium (McMaster, 2012)
- **Keynote Speaker –** PolyMac (McMaster, 2012).
- **Organizer –** 40th International Physics Olympiad 2009, Merida, Yucatan, Mexico. (2009)