



10th Annual Nano Ontario Conference
November 28 and 29, 2019
York University, Toronto

Understanding and exploiting nanoscale science
in novel materials and devices

Second Student Centre, 2nd Floor
15 Library Lane



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MESSAGE FROM THE CHAIR OF NanoOntario



Welcome to the 10th edition of NanoOntario annual conference! Ten years ago, the first NanoOntario conference was held at Western University. Since then, multiple events held across Ontario have highlighted the excellence of our Universities in nanoscale research as well our talented students and postdoctoral fellows whose imagination and drive to innovation are always a source of inspiration. NanoOntario is here to federate our research in the field of nanoscale science and protect the numerous investments used to create, support and modernize our nanoscale fabrication and characterization facilities. NanoOntario's voice is important to feature our field and enables access to new instrumentation leading to further innovation and job creation. Our involvement in provincial, federal and international events is key to represent the leadership of our schools in Canada and abroad, thus participating to spread Ontario's excellence in fundamental and applied nanotechnologies and nanosciences. Unifying our strengths make us stronger, in particular when new large facilities are needed and when large scale grants are being assembled. Today, many talks from our faculty and students will feature a variety of research results showing again the potential of our field. The NanoOntario annual conference is the place to network and expand new concepts and ideas as well as to realize the full potential that the province of Ontario offers to provide access to tools and instrumentations.

François Lagugné-Labarthet

Chair of the Board of Directors of NanoOntario Inc.

NanoOntario MEMBERS



CONFERENCE ORGANIZATION

General Chair and Organizer:

Dr. Simone Pisana (York University)

Technical Program Contributions:

Dr. François Lagurné-Labarhet (Western University)

Dr. Cuiying Jian (York University)

Tweet about the conference [@NanoOntario](https://twitter.com/NanoOntario)



CONFERENCE INFORMATION

Contact information

For questions you can contact the conference general chair: Dr. Simone Pisana at pisana@yorku.ca

Presenter information

It is recommended that you prepare your presentation using a 16:9 aspect ratio (widescreen) to match the projection system. The video connection to your laptop will be using an HDMI port – please ensure that you bring with you any adapters needed. Note that the video connection is not located at the podium, so you will be able to control your presentation using a remote clicker we will provide. Alternatively, you can provide a PPT/PPTX copy of your presentation prior to the beginning of the session.

For flash talks, we will require that you send your slides at least 24 hours in advance of your scheduled presentation in PPT/PPTX format to pisana@yorku.ca. Note that flash talk presenters will also be able to present their poster during the poster sessions.

For poster presentations, the available size of the poster board will be 4' (H) x 6' (W) or 1.2m (H) x 1.8m (W). Please refer to the poster number in the program to locate your assigned poster board.

Dietary restrictions

If you have any dietary restrictions, please indicate them during the registration process.

Wi-fi access

You can connect to guest wi-fi networks within the conference venue. Connect to AirYorkGUEST and follow the instructions on the page you are redirected to. Service registration and verification can be done through email or SMS.

WE SHARE THE AIR

Scented products release chemicals which can trigger serious health reactions in people with asthma, migraines, allergies or chemical sensitivities.



Please avoid the use of perfume, cologne, scented hairspray and other scented products in this area.

Thank you for your cooperation

10th NanoOntario Conference

November 28-29, 2019

Understanding and exploiting nanoscale science in novel materials and devices

Time	DAY 1: Thursday, November 28
12:00 – 1:00 PM	Registration – 2 nd floor, Second Student Centre
1:00 – 1:20 PM	Opening remarks Associate Dean Regina Lee, Lassonde School of Engineering
1:20 – 1:40 PM	Prof. Gerd Grau, York University “Laser-induced graphene for flexible electronics: Morphology control and resistance minimization”
1:40 – 2:00 PM	Prof. Stefania Impellizzeri, Ryerson University “Optical Imaging and Patterning with Photoactivated and Metal-Enhanced Fluorescence”
2:00 – 2:20 PM	Prof. Ruby Sullan, University of Toronto “Nanomechanics of bacterial biofilm formation”
2:20 – 2:40 PM	Break
2:40 – 3:00 PM	Prof. Germán Sciaini, University of Waterloo “The Ultrafast electron Imaging Laboratory of Waterloo”
3:00 – 3:20 PM	Prof. Giovanni Fanchini, Western University “Scanning-near-field optical microscopy for nanoscale design of light and heat management”
3:20 – 3:40 PM	Prof. Sideh Kabiri Ameri, Queen’s University “Graphene Based Wearable Sensors”
3:40 – 3:50 PM	Flash Talk - Taylor Stimpson, McMaster University “Mechanical Property Characterization of Thin-Film Polymer Nanocomposites via Strain-Induced Buckling”
3:50 – 4:00 PM	Flash Talk - Sina Talebi-Moghaddam, University of Waterloo “Inferring the morphology of carbonaceous nanoparticles through elastic light scattering: a Bayesian artificial neural network approach”
4:00 – 4:10 PM	Flash Talk - Spencer Boisjoli, Carleton University “Monitoring fibril formation of monomeric α -synuclein in Parkinson’s Disease using DNA aptamers”

4:10 – 5:00 PM	Poster Session
5:00 – 6:00 PM	Dinner
6:00 – 7:30 PM	Panel Discussion: “Translating nanoscale research to the marketplace” <i>Panelists</i> <ul style="list-style-type: none"> - Keith Thomas, Executive Chair, Vive Crop Protection - Andrew Maxwell, Director, Bergeron Entrepreneurs in Science and Technology - Gordon Harling, President and CEO, CMC - Aarash Sofla, CEO, uFluidix - Robert Wang, CEO, AnalogX - Mehdi Sanjari, CTO, NanoPhyll <i>Moderator</i> <ul style="list-style-type: none"> - Prof. François Lagugné-Labarthet, Western University
	DAY 2: Friday, November 29
8:00 – 8:30 AM	Breakfast – 2 nd floor, Second Student Centre
8:30 – 8:40 AM	Flash Talk - Eduardo González Martínez, McMaster University “Nanoroughening: Enhancing the surface area of gold electrodes for electrochemical sensors”
8:40 – 8:50 AM	Flash Talk - Denis A.B. Therien, Western University “Plasmon-Mediated Reduction of Diazonium Salts on Metallic Metastructures”
8:50 – 9:00 AM	Flash Talk - Hannah Ramsay, Queen’s University “Light Activated Synthesis of the Atomically Precise Fluorescent Silver Cluster Ag ₁₈ (Capt) ₁₄ ”
9:00 – 9:20 AM	Prof. Cécile Malardier-Jugroot, Royal Military College “Bioinspired nanosystems for green chemistry and responsive drug delivery”
9:20 – 9:40 AM	Prof. Arghya Paul, Western University “DNA based Nanocomposite Hydrogels for Drug Delivery”
9:40 – 10:00 AM	Prof. Scott Hopkins, University of Waterloo “Establishing a Canadian Free Electron Laser Research Program”
10:00 – 10:10 AM	Flash Talk - Stephen Robinson-Enebeli, University of Waterloo “Time-resolved laser-induced incandescence measurements on silver nanoparticles: evidence of bremsstrahlung emission”

10:10 – 10:20 AM	Flash Talk - Keuna Jeon, University of Toronto “pH Control of Polyserotonin Nanospheres (PSeNSs) for Anti-Bacterial Applications”
10:20 – 10:30 AM	Flash Talk - Shany Mary Oommen, York University “Effect of ultrathin metal interlayer properties on the thermal transport at metal-dielectric interfaces”
10:30 – 10:45 AM	Break
10:45 – 11:30 AM	Keynote – Prof. Tricia Carmichael, University of Windsor “How Wearable is Your Wearable? Solution Metallization for Conformable Electronics”
11:30 – 11:40 AM	Flash Talk - Emmanuel Lalla, York University “Structural analyses of CePO ₄ nanoparticles samples under an optimized precipitation process”
11:40 – 11:50 AM	Flash Talk - Sperydon Koumarianos, York University “Effect of Chain Length on the Layered Adsorption of Polyelectrolytes to Surfaces: Theory and Experiment”
11:50 – 12:00 PM	Flash Talk - Monika Snowdon, University of Waterloo “Improvements in the alignment of single-walled carbon nanotubes using a liquid crystal relay technique”
12:00 – 12:45 PM	Poster Session
12:45 – 1:40 PM	Lunch
1:40 – 2:00 PM	Prof. Ozzy Mermut, York University “Exploring magneto-optic effects with nano contrast agents: A new molecular dosimeter for photodynamic therapy”
2:00 – 2:20 PM	Prof. Nazir Kherani, University of Toronto “Multiwavelength Surface Enhanced Raman Spectroscopy using Deep-Subwavelength Gratings”
2:20 – 2:40 PM	Prof. Irene Goldthorpe, University of Waterloo “Silver nanowires for printable, flexible transparent electrodes and e-textiles”
2:40 – 3:00 PM	Student Prizes Closing Remarks

POSTER PRESENTATIONS

- 1) **Shaghayegh Goudarzi**, H. Zarrin – Ryerson University “Biofunctionalized Hexagonal Boron Nitride Nanosheet Sponges as Efficient Assemblies for Hydrocarbon Separation and Degradation from Water”
- 2) **Lavanya Nehru**, C. Sekar, G. Neri – Alagappa University “MgNi₂O₃ nanoparticles as novel and versatile sensing material for non-enzymatic electrochemical sensing of glucose and gas sensing of acetone”
- 3) **Lavanya Nehru**, C. Sekar, G. Neri – Alagappa University “SnO₂-SnS₂ nanocomposite based electrochemical sensor for simultaneous determination of depression biomarkers serotonin and tryptophan”
- 4) **Redhouane Henda**, A. Ali, J. Alluha, N. Abatzoglou – Laurentian University “Nanocomposites of Co-doped ZnO as Model Nanocatalysts in Fischer-Tropsch Synthesis”
- 5) **Monika Snowdon**, D. Schipper – University of Waterloo “Improvements in the alignment of single-walled carbon nanotubes using a liquid crystal relay technique”
- 6) **Taylor Stimpson**, D.A. Osorio, E.D. Cranston, J.M. Moran-Mirabal – McMaster University “Mechanical Property Characterization of Thin-Film Polymer Nanocomposites via Strain-Induced Buckling”
- 7) **Sina Talebi-Moghaddam**, F. Bauer, F.J.T. Huber, S. Will, K.J. Daun – University of Waterloo “Inferring the morphology of carbonaceous nanoparticles through elastic light scattering: a Bayesian artificial neural network approach”
- 8) **Spencer Boisjoli** – Carleton University “Monitoring fibril formation of monomeric α -synuclein in Parkinson’s Disease using DNA aptamers”
- 9) **Denis A.B. Therien**, D.M. McRae, C. Ireland-Adkin, F. Lagagné-Labarthet – Western University “Plasmon-Mediated Reduction of Diazonium Salts on Metallic Metastructures”
- 10) **Eduardo González Martínez**, S. Saem, N. Beganovic, J.M. Moran-Mirabal – McMaster University “Nanoroughening: Enhancing the surface area of gold electrodes for electrochemical sensors”
- 11) **Ara Ghukasyan**, R. LaPierre – McMaster University “Efficient thermoelectric conversion via one-dimensional electrical and thermal conduction in nanowires”

- 12) **Graham Beaton**, A. Bottomley, K. Stamplecoskie – Queen’s University “Substrate-Mediated Photochemical Shape Control of Highly Stable Silver Nanoparticles”
- 13) **Hannah Ramsay**, M. Silverman, K. Stamplecoskie – Queen’s University “Light Activated Synthesis of the Atomically Precise Fluorescent Silver Cluster Ag₁₈(Capt)₁₄”
- 14) **Irfani Ausri**, Y. Wang, Z. Wang, C. Derry, X. Tang – University of Waterloo “A Transdermal Membrane Biosensor for the Detection of Lactate in Body Fluids”
- 15) **Goonay Yousefalizadeh**, K. Stamplecoskie – Queen’s University “Non-Linear Optical Properties of Gold and Silver Clusters: Choosing the Right Cluster and Laser”
- 16) **Stephen Robinson-Enebeli**, S. Talebi Moghaddam, R. Liang, K. Daun – University of Waterloo “Time-resolved laser-induced incandescence measurements on silver nanoparticles: evidence of bremsstrahlung emission”
- 17) **Nebile Isik Goktas**, R.R. LaPierre – McMaster University “Doping-related twinning superlattices in Te-doped GaAs nanowires”
- 18) **Amanda Thomas** – McMaster University “Fabrication of III-V Nanowire Diodes for a Betavoltaic Device”
- 19) **Alexa Zayadi**, R.M.A. Sullan – University of Toronto “Differential mechanisms of bacterial adhesion in response to substrate stiffness”
- 20) **Keuna Jeon**, Y. Xue, R. Sullan - pH Control of Polyserotonin Nanospheres (PSeNSs) for Anti-Bacterial Applications”
- 21) **Ian Hamilton**, Christopher Ehlert - Wilfrid Laurier University “Iron Doped Gold Cluster Nanomagnets: A Computational Study”
- 22) **Shany Mary Oommen**, L. Fallarino, O. Hellwig, S. Pisana – York University “Effect of ultrathin metal interlayer properties on the thermal transport at metal-dielectric interfaces”
- 23) **Nik Kovich**, X. Gao, M. Adams, Md. Asraful Jahan, N. Wu, N. Kovich – York University “Genetic Transformation of the Pharmaceutical Plant Cannabis sativa using Cationic Polymer-modified Silica Coated Gold Nanoparticles”
- 24) **Madison Ferguson**, M. DeRosa – Carleton University “Islet Amyloid Polypeptide (IAPP) Confirmed Nanostructural Conformation Changes Induced by Inhibitors or Activators”

- 25) **Patrick Gicala**, N. Rivas, S. Zhong, T. Dekker, M. Cheng, F. Chen, X. Luo, Y. Sun, A. Petruk, K. Pichugin, A. Tsen, G. Sciaini – University of Waterloo “Generation and detection of acoustic waves in ultrathin 1T'-MoTe₂ flakes”
- 26) **Yun Wu** – University of Waterloo “3D Bioprinting of Bicellular Liver Lobule-Mimetic Structures via Microextrusion of Cellulose Nanocrystal-Incorporated Shear-Thinning Bioink”
- 27) **Meixin Cheng**, N. Rivas, S.J. Lim, K. Pichugin, A.A. Petruk, A. Klinkova, R.D.L. Smith, W.S. Hopkins, G. Sciaini – University of Waterloo “Trapping a Photoelectron behind a Repulsive Coulomb Barrier in Solution”
- 28) **Emmanuel Lalla**, S. Shkolyar, C.M. Gilmour, M. Konstantinidis, A.D. Lozano-Gorrin, J. Freemantle, M.G. Daly – York University “Structural analyses of CePO₄ nanoparticles samples under an optimized precipitation process”
- 29) **Quinn Daigle**, P. O'Brien – York University “Lumenscent Solar Concentrators for Spectral Splitting Agrivoltaic Applications”
- 30) **Menelaos Konstantindis**, E. Lalla, G. Lopez-Reyes, M.G. Daly – York University “Statistical Learning for the quantification of Judd-Ofelt parameters in Erbium doped tellurite glasses”
- 31) **Richa Pandey** – McMaster University “Enhanced clinical performance of DNAzyme based electrochemical assay on nanostructured star electrodes”
- 32) **Tyler Lott**, A.A. Petruk, X. Medvedeva, A. Klinkova, T. Prozorov, G. Sciaini – University of Waterloo “Liquid cell electron microscopy of nanomaterials and biospecimens”
- 33) **Fiona Ebanks**, M.C. DeRosa – Carleton University “The development of an aptamer-based gold nanoparticle colorimetric assay for the detection of Aflatoxin B₁”
- 34) **Remus Anders**, M. Ferguson, B. Ho, R. Velu, M.C. DeRosa – Carleton University “Ink-jet printing of nano-sized aptasensor components for paper-based fluorescence detection of Ochratoxin A”
- 35) **Nour Mashmoushi**, R. Di Lorenzo, J.L. Campbell, W.S. Hopkins – University of Waterloo “Employing differential mobility spectrometry to investigate the diverse clustering interactions of THC with solvent vapours”
- 36) **Elysee Iraganje** – Carleton University “Aptamer-Based Lateral Flow Assay for the Detection of Histamine in Bed Bugs and Allergy Diagnosis”
- 37) **Olga Andriyevska**, R. Salikhov, O. Hellwig, S. Pisana – York University “Ultrafast Magnetization Dynamics at High Temperatures”

- 38) **Mohammadreza Shahzadeh**, O. Andriyevska, R. Salikhov, O. Hellwig, S. Pisana – York University “Thermal boundary conductance and anisotropic thermal conductivity of Co/Pt Interfaces”
- 39) **Sperrydon Koumarianos**, R. Kaiyum, C. Barrett, N. Madras, O. Mermut – York University “Effect of Chain Length on the Layered Adsorption of Polyelectrolytes to Surfaces: Theory and Experiment”
- 40) **Kapil Narwal**, R. Kempers, P. O'Brien – York University “Solar-Driven Thermal Energy Storage for Residential Applications”
- 41) **Fiorella Villanueva Heldmaier**, N.J.A. Coughlan, J.L. Campbell, W.S. Hopkins – University of Waterloo “Exploring the UV-PD action spectra of cationic adenine protomers”
- 42) **Victoria Jarvis**, J.F. Britten – McMaster University “XRD3 Characterization of Nanomaterials: Texture Analysis and Reciprocal Space Mapping of Thin Films and Nanowires”
- 43) **Khalilallahman Dehviri**, Y.-R. Hsu, J.-Y. Chang – National Taiwan University of Science and Technology “Photoluminescent Quaternary Zn-Cu-In-Se Quantum Dots for Bio-Imaging and In Vitro Sensing of Lead Ions”
- 44) **Ta-Chien Hsieh**, H.W. Zhang – Massachusetts College of Pharmacy and Health Sciences “Lipid nanoparticles for the intracellular delivery of antisense oligonucleotides to pancreatic cancer cells”
- 45) **Devan Wagner**, R.R. LaPierre, D.R. Novog – McMaster University “Simulation and Optimization of the Hundred-Year Battery”
- 46) **James Leibold**, R.G. Sabat – Royal Military College of Canada “Fabrication of beat interference surface relief gratings using interference lithography”
- 47) **Leila Mazaheri**, F. Lagugné-Labarthet – Western University “Hyperspectral wide-field Raman imaging”
- 48) **Stanislav Musikhin**, J. Corbin, C. Schulz, K. Daun, G. Smallwood – University of Waterloo “Optical properties of a few-layer graphene aerosol: foundation for the in situ laser-based measurements”
- 49) **Maria Olivia Avilés**, P. Farhat, F. Lagugné-Labarthet – Western University “Tip-Enhanced Raman Spectroscopy of 2D MoSe₂ flakes prepared by Liquid Exfoliation”
- 50) **Nima Talebzadeh**, P. O'Brien – York University “Elliptic-based Selective Solar Spectrum Splitter for Self-powered Photobioreactors”

- 51) Curtis Goosney**, V. Jarvis, D. Wilson, N. Goktas, R. LaPierre – McMaster University “InSb Nanowires for Multispectral Infrared Detection”
- 52) Colin Bridges**, S. Lo, T. Baumgartner – York University “Viologen Containing Polymers for Sustainable Battery Electrodes”
- 53) Ebrahim Ghafar-Zadeh**, N. Masoudifar, A. Saberbaghie, H. Ossuli, Q. Owen – York University “Recent Advances of Biologically Inspired Sensors and Actuators (BioSA) for Drug Development Applications”



11th Annual Nano Ontario Conference

Hindsight is 20/20: Opportunities & New
Challenges in Nanotechnology

DATES

November 26 and
November 27, 2020

LOCATION

Ryerson University
350 Victoria Street
Toronto, ON

HOSTED BY

Dr. Stefania Impellizzeri
Department of Chemistry and Biology

Dr. Nariman Yousefi
Department of Chemical Engineering

Dr. Hadis Zarrin
Department of Chemical Engineering