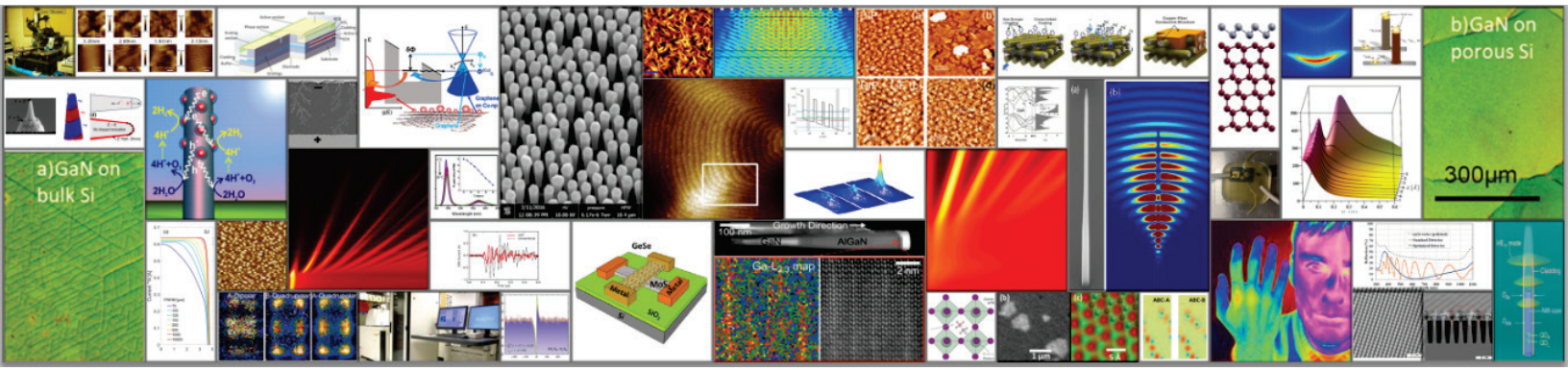
CSSTC 18TH CANADIAN SEMICONDUCTOR SCIENCE AND TECHNOLOGY CONFERENCE
Aug. 20-24, 2017 in Waterloo, Canada

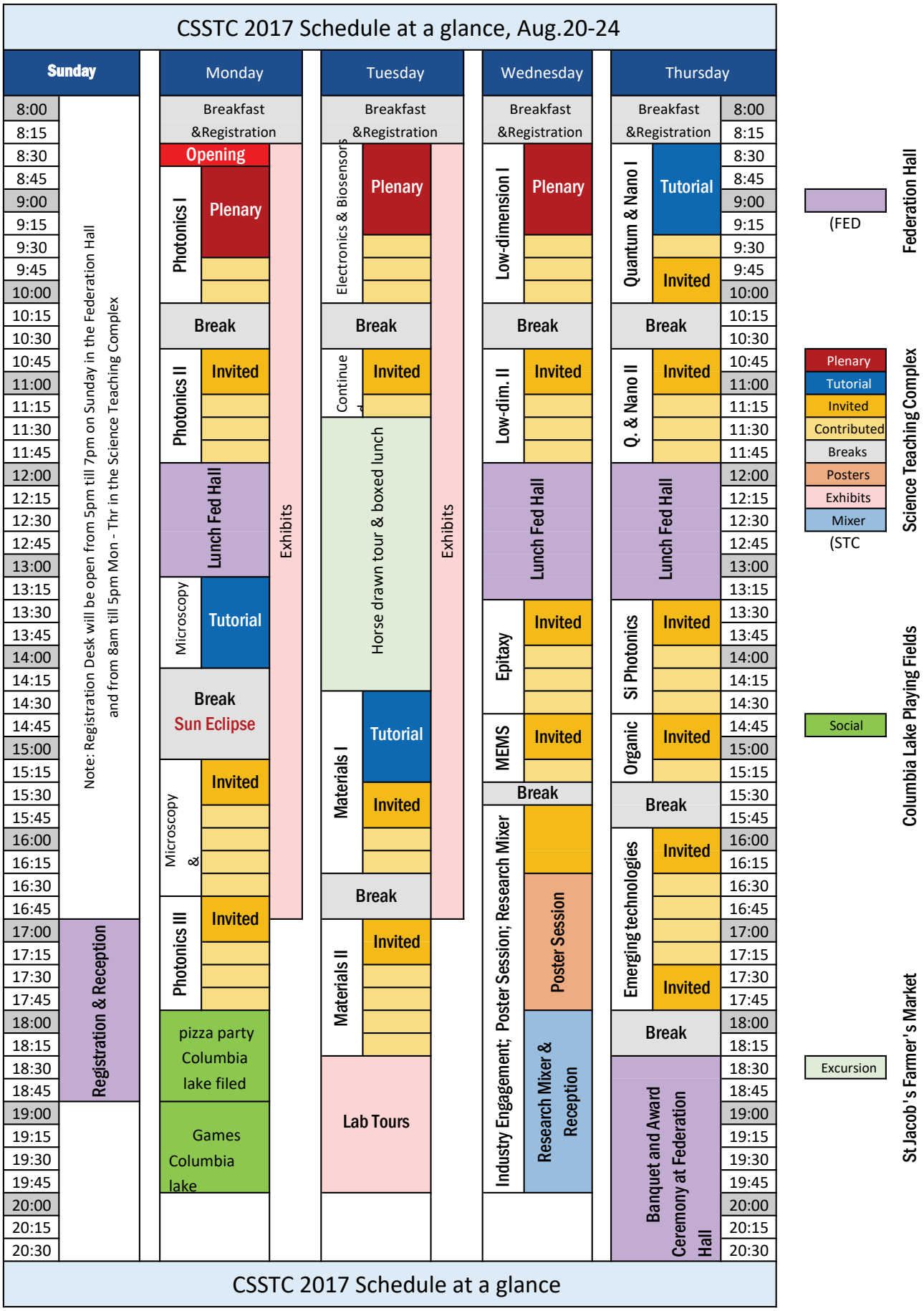
Program Schedule

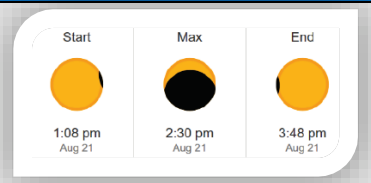


Explanation of the notation in the program listing section:

8:45	The start time of the presentation
p.2	Page number in the abstract section of the book
0821.01*	Partial file name of the abstract. The full name for this file would be CSST2017.0821.01. In the electronic version of the program book, this entry is hyperlinked to the latest version of the abstract on the server.

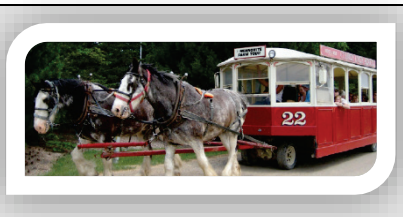
NOTE: If you need to update the electronic version of your abstract (e.g. found errors, made changes in response to the comments received or would like to add a page with reference to future journal paper from your group on this topic), please email it to **abstracts@csstc.ca** using the same file name as presently on the server. On the other hand, if you want to cite an abstract from this meeting in your publication, please use the usual conference entry and add the http address: http://www.eng.uwaterloo.ca/CSSTC/2017/Abstracts/CSSTC2017.0821.01.pdf (for the example abstract above).


CSSTC 2017 Schedule at a glance, Aug.20-24
Sunday
Monday
Tuesday
Wednesday
Thursday
Note: Registration Desk will be open from 5pm till 7pm on Sunday in the Federation Hall and from 8am till 5pm Mon - Thr in the Science Teaching Complex
Registration & Reception
Breakfast &Registration
Opening
Photonics I
Plenary
Break
Photonics II
Invited
Lunch Fed Hall
Microscopy
Tutorial
Break
Sun Eclipse
Microscopy &
Invited
Photonics III
Invited
pizza party Columbia lake filed
Games Columbia lake
Exhibits
Electronics & Biosensors
Plenary
Break
Continue
Invited
Horse drawn tour & boxed lunch
Materials I
Tutorial
Invited
Break
Materials II
Invited
Lab Tours
Exhibits
Low-dimension I
Plenary
Break
Low-dim. II
Invited
Lunch Fed Hall
Epitaxy
Invited
MEMS
Invited
Break
Industry Engagement; Poster Session; Research Mixer
Poster Session
Research Mixer & Reception
Quantum & Nano I
Tutorial
Invited
Break
Q. & Nano II
Invited
Lunch Fed Hall
Si Photonics
Invited
Organic
Invited
Break
Emerging technologies
Invited
Invited
Break
Banquet and Award Ceremony at Federation Hall
(FED
Federation Hall
Plenary
Tutorial
Invited
Contributed
Breaks
Posters
Exhibits
Mixer
(STC
Science Teaching Complex
Social
Columbia Lake Playing Fields
Excursion
St Jacob's Farmer's Market
CSSTC 2017 Schedule at a glance

8:30	**Welcome Remarks**	
Photonics I (session chair: Karen Kavanagh)		
8:45 p.2 0821.01*	Next Generation Optoelectronics for a Brighter Future	Manijeh Razeghi *Center for Quantum Devices, Northwestern University, USA*
9:45 p.4 0821.02*	High efficiency nanowire quantum light sources and detectors	A. Ahmadi, M. Zeeshan, S.J. Daley, N. Sherlekar, S.J. Gibson, D. Dalacu, P.J. Poole, A. Fognini, K. Jöns, V. Zwiller and M.E. Reimer *University of Waterloo, National Research Council of Canada, Delft University of Technology, Royal Institute of Technology*
10:00 p.6 0821.03*	Photonic Power Converter Performance Used in Gate Drive Power Supplies	K. Hinzer, C. E. Valdivia, M. M. Wilkins, S. S. Chahal, F. Proulx, P.-O. Provost, D. P. Masson, S. Fafard, and M. Ishigaki *University of Ottawa, Azastra Opto, Inc., Toyota Central R&D Labs*
10:15	Break and Exhibits	
Photonics II (session chair: Dan Gale)		
10:45 p.8 0821.04*	Quantum Photonics in Monolithic Compound Semiconductors	Amr Helmy *University of Toronto*
11:15 p.10 0821.05*	Si-based Core-Shell and Axial GaAs Nanowire Solar Cells	M. H. T. Dastjerdi, B. Wood, R. R. LaPierre *McMaster University*
11:30 p.12 0821.06*	Modulation response of 3s-DBR lasers	Yao Zhu, Ye Liu, Yonglin Yu *Huazhong University of Science and Technology, China*
11:45 p.14 0821.07*	Nanostructured Optical Diffusers for Light Management in Optoelectronic Devices	Q. Xu, S. M. Mahpeykar, X. Wang *University of Alberta*
12:00	Lunch at Federation Hall	
Microscopy & Spectroscopy (session chair: Paul Bazylewski)		
13:15 p.16 0821.08*	Advances in microscopy applications to semiconductor materials and devices	Gianluigi Botton *McMaster University*
14:15	Group Photo; Sun eclipse observation (2:30 pm EDT); Coffee break	
Microscopy & Spectroscopy (session chair: Jan Dubowski)		
15:15 p.18 0821.09*	Transmission He Ion Microscopy	Karen Kavanagh, *Simon Fraser University*
15:45 p.20 0821.10*	Silicon nitride interface and photovoltaic device performance: ion beam analysis studies	M. Brocklebank, L.V. Goncharova, D. Barchet, and N. P. Kherani *Western University, University of Toronto*

16:00 p.22 0821.11*	Study of Black Phosphorus Using Angle-Resolved Polarized Raman Spectroscopy with 442 nm Excitation	Weijun Luo, Qian Song, Guangnan Zhou, David Tuschel, Guangrui (Maggie) Xia, *University of British Columbia, HORIBA Scientific Inc.,*
16:15 p.24 0821.12*	Electronic Raman as an Ultra-Sensitive Probe of Strain in Semiconductors	A. Mascarenhas, B. Fluegel, D.A. Beaton, J.L. Reno *National Renewable Energy Laboratory, Sandia National Laboratories, USA*
16:30 p.26 0821.13*	Multispectral Infrared Absorptance for Large-Diameter InAsSb Nanowire Arrays in a Single Epitaxial Growth on Silicon	Mitchell Robson, K.M. Azizur-Rahman, Daniel Parent, Peter Wojdylo, David Thompson, Jonathan Baugh, Ray LaPierre, *McMaster University, University of Waterloo, ITMO University*
Photonics III (session chair: Safa Kasap)		
16:45 p.28 0821.14*	Novel Near-Infrared and Mid-Infrared Photodetectors	Y. Luo, Z.-B. Hao, B. Xiong, L.-L. Xie, J. Li, C. Wang *Tsinghua University, China*
17:15 p.30 0821.15*	Enhanced efficiency of multi-junction narrowband phototransducers under off-normal source illumination	Mark C. A. York, Francine Proulx, Richard Arès, Vincent Aimez, and Simon Fafard *Université de Sherbrooke, Azastra Opto Inc.*
17:30 p.32 0821.16*	Scattering Assisted dual color THz quantum-cascade laser operating up to 144K with large dynamic range	B. Wen, X. Chao, S. Wang, D.Ban, Z. R. Wasilewski *University of Waterloo*
17:45 p.34 0821.17*	Modeling of Electron Hole Pair Creation Energy for High Energy Photons in Amorphous Selenium	Nour Hijazi, D. Panneerselvam, M. Z. Kabir,*National Concordia University*
18:00	Young scientists/engineers & graduate students on-campus social time, FREE pizza party at Columbia lake playing fields 5 and 7 (weather permitting)	
19:00	Young scientists/engineers & graduate students on-campus Soccer games, Frisbee games at Columbia lake playing fields 5 and 7 (weather permitting)	

Tuesday, August 22

Electronics & Biosensors (session chair: Oussama Moutanabbir)		
8:30 p.36 0822.01*	Electronics beyond Moore's Law era	Meyya Meyyapan *NASA Ames Research Center, USA*
9:30 p.38 0822.02*	Quantum Dots Based Sensors for Sustainable Development	N. Singh *Indian Institute of Technology Ropar, India*
9:45 p.40 0822.03*	Modification of zeta potential of bacteria for enhanced detection with a photocorrosion based GaAs/AlGaAs biosensor	Mohammad Reza Aziziyan, Walid M. Hassen, Hemant Sharma, Ehsan Shirzaei Sani, Nasim Annabi, Eric H. Frost, Jan J. Dubowski *Université de Sherbrooke, Northeastern University, Harvard Medical School*
10:00 p.42 0822.04*	ZnO-GaAs acoustic biosensor: focus on ZnO thin film characterization	J. Chawich, A. Bartasyte, J.-C. Orlianges, C. Elie-Caille, T. Leblois, Jan J. Dubowski, *Université de Sherbrooke, FEMTO-ST Institute, XLIM*
10:15	Coffee Break	
Electronics & Biosensors (session chair: Zetian Mi)		
10:45 p.44 0822.05*	Silicon MOSFET Quantum Dots	E. A. Barrera, B. Buonacorsi. M. Khoshnegar, G. W. Holloway. J. Baugh *University of Waterloo, Oxford University*
11:15 p.46 0822.06*	UV Laser Regeneration of GaAs/AlGaAs Biochips for Quasi-Continuous Detection of Electrically Charged Biomolecules	H. Sharma, Kh. Moumanis, J. J. Dubowski *Université de Sherbrooke*
11:30	Horse drawn tour, St Jacob's Farmer's Market; box lunch	
Materials I (session chair: Peter Mascher)		
14:30 p.48 0822.07*	Photoconductivity: Fundamentals and Typical Photoconductive Materials	Safa Kasap *University of Saskachewan*
15:30 p.50 0822.08*	Materials and devices for sustainable electronics	Clara Santato *Polytechnique Montréal*
16:00 p.52 0822.09*	Correlating Electrical Conductivity with Defects in NiOx thin Films	Angela Ezugwu, Paul Bazylewski, Giovanni Fanchini *University of Western Ontario*
16:15 p.54 0822.10*	Al-ZnO/(n)Si Heterojunction: Analysis, Optimization and Application	Z. Gao, S. Sivoththaman *University of Waterloo*
16:30	Coffee Break	
Materials II (session chair: Phillip Poole)		
17:00 p.56 0822.11*	Emerging applications of III-nitride nanostructures: from deep UV photonics to artificial photosynthesis	Z. Mi, S. Zhao, X. Liu, S. Sadaf, F. A. Chowdhury, S. Vanka, S. Y. Woo, and G. A. Botton *University of Michigan, McGill University, McMaster University*

17:30 p.58 0822.12*	Isotopically Engineered Semiconductor Nano and Quantum Structures	S.Mukherjee and O.Moutanabbir *Polytechnique Montréal*
17:45 p.60 0822.13*	Characterization of Cd1-xZnxTe Single Crystals Using Low Temperature Photoluminescence Spectroscopy	S. S. Kostina, S. Penkova, and T. Tiedje *University of Victoria*
18:00 p.62 0822.14*	The underlying physics of laser-assisted atom-by-atom field evaporation of diamond nanotips	Anis Attiaoui Samik Mukherjee and Oussama Moutanabbir *École Polytechnique de Montréal*
18:15 p.64 0822.15*	Quasi-equilibrium distribution of carriers in wide-gap semiconductors excited by a high-energy irradiation	V.G. Tyuterev, V.P.Zhukov, E.V.Chulkov *Tomsk State Pedagogical University, Institute of Solid State Chemistry, Tomsk State Pedagogical University, Russia.* *Donostia International Physics Center (DIPC), Spain*
18:30	Lab Tours	

Wednesday, August 23

Low-dimension I (session chair: Ray LaPierre)		
8:30 p.66 0823.01*	Design of advanced one-dimensional semiconductor materials	K. Thelander *Lund University, Sweden*
9:30 p.68 0823.02*	Molecule Doping strategy and its application for Mn doped CsPbClxBr3-x nanocrystals	Chunlei Wang, Shuhong Xu *Southeast University, China*
9:45 p.70 0823.03*	Synthesis of Two-Dimensional Antimony on Germanium	M. Fortin-Deschênes, O.Waller, T. O. Menteş, Locatelli, S. Mukherjee, F. Genuzio, P.-L. Levesque, A. Hébert, R. Martel, Moutanabbir *Polytechnique Montréal, Université de Montréal* *Elettra - Sincrotrone Trieste S.C.p.A., Italy*
10:00 p.72 0823.04*	Numerical Device Simulations for MoSe2 Field-Effect Transistors (FETs): Effective Mass vs. Tight-Binding Approximations	Gyuchull Han, Demin Yin, and Youngki Yoon *University of Waterloo*
10:15	Coffee Break	
Low-dimension II (session chair: Shirley Scott)		
10:45 p.74 0823.05*	Two-dimensional Materials and Nanoscale Devices	Wenjuan Zhu, Jialun Liu, Zihan Yao, Wui Chung Yap *University of Illinois at Urbana-Champaign*
11:15 p.76 0823.06*	CVD growth of 2D graphitic carbon-nitride: a wide bandgap analog to graphene	M. Masaki, Y. Li, D. Schmidt, and J. Therrien *U. Massachusetts Lowell*
11:30 p.78 0823.07*	Novel functionalization technique for 2-dimesional semiconductor materials using ultrafast laser pulses.	Khaled H. Ibrahim, M. Irannejad, B. Wales, J. Sanderson, M. Yavuz, K. P. Musselman *University of Waterloo*
11:45 p.80 0823.08*	Thermal Properties and Electron-Phonon Interaction in Graphene thin films decorated by Copper Nanoparticles	Sina Kazemian, Sabastine Ezugwu, Dong-Yup William Choi, Giovanni Fanchini *University of Western Ontario*
12:00	Lunch at Federation Hall	
Epitaxy (session chair: Maggie Xia)		
13:30 p.82 0823.09*	Bright InAsP Quantum Dots in Site-selected InP Nanowires-Pushing to Longer Wavelength	P.J. Poole, S. Haffouz, D. Dalacu, K. Mnaymneh, J. Lapointe, G.C. Aers, D. Poitras, and R.L. Williams *National Research Council Canada*
14:00 p.84 0823.10*	Optimal Substrate Offcut Angle for the Suppression of Hillocks on the MBE Grown AlInSb Buffers on GaAs Substrate	Y. Shi, F. Sfigakis, J. Baugh, Z.R. Wasilewski, *University of Waterloo*
14:15 p.86 0823.11*	Growth of high optical quality GaAsBi Semiconductor alloys using UV light assisted MBE	Daniel A. Beaton, T. Christian, A. Mascarenhas, K. Alberi *National Renewable Energy Laboratory, USA*
14:30 p.88 0823.12*	Low-temperature epitaxial deposition of InN layers on AlN templates	J. Tot, D. Alexandrov *Lakehead University*
MEMS (session chair: Matthew Wilkins)		
14:45 p.90 0823.13*	Semiconductor Nanomembranes: Sheet Science and Technology	Shelley Scott *University of Wisconsin-Madison*

15:15 p.92 0823.14*	Nanomaterial/polymer hybrid based digital microelectromechnical (MEM) sensors for wearable technologies	Lingju Meng, Shicheng Fan, Dan Li, Anastasia Elias and Xihua Wang *University of Alberta*
15:30	Coffee Break	

Industry Engagement, Poster Session and Research Mixer	
15:50	Communitech presentation
16:00	Accelerator Center presentation
16:10	Velocity presentation
16:20	NSERC Presentation
16:30	Poster Session
18:00	Reception and Research Mixer

Quamtum & Nano I (session chair: Jens Schmid)		
8:30 p.178 0824.01*	Beauty and wonder of microcavity exciton-polaritons: Past, Present and Future	Na Young Kim *University of Waterloo*
9:30 p.180 0824.02*	Developing Superconducting Semiconductors for Topological Qubits	A. E. Bergeron, Y. Shi, F. Sfigakis, K. Gharavi, Z. Wasilewski, J. Baugh *University of Waterloo*
9:45 p.182 0824.03*	Hole Hybrid Qubit in a Gated Double Quantum Dot – Spin-Flip Tunneling, Anisotropic g-Factor, and Spin Coherence Time of a Single Hole	A. Bogan, S. Studenikin, M. Korkusinski, G. Aers, L. Gaudreau, P. Zawadzki, A. Sachrajda, L. Tracy, J. Reno, and T. Hargett *National Research Council of Canada* *Sandia National Laboratories, USA*
10:15	Coffee break	
Quamtum & Nano II (session chair: Wenjuan Zhu)		
10:45 p.184 0824.04*	Semiconductor Nanowire Quantum Dot Molecule for Photon Triplet Generation	A.H. Majedi, M. Khoshnegar, T. Huber, A. Predojevic, D. Dalacu, M. Prilmuller, J. Lapointe, X. Wu, P. Tamarat6, B. Lounis, P.J. Poole, G. Weihs *University of Waterloo, Universitat Innsbruck, National Research Council of Canada, Universite Bordeaux*
11:15 p.186 0824.05*	Optical and Structural Properties of Arrays of Mg-doped ZnO Nanorods Grown by a Low Temperature Hydrothermal Method	A. Hassanpour, L. Vayssieres, P. Bianucci *Concordia University,* *Xi'an Jiaotong University, China*
11:30 p.188 0824.06*	Broad-band Terahertz Quantum Cascade Lasers	C. Xu, S. Wang, B. Wen, X. He, Y. Zhuo, D. Gosselink, A. Tam, Z. Wasilewski,and D. Ban *University of Waterloo*
11:45 p.190 0824.07*	Plasma etching, defect formation and changes in the electronic and structural properties of InP/InAsP quantum wells	J.P. Landesman, J. Jiménez, C. Levallois, C. Frigeri, A. Torres, Y. Léger *Université Rennes-1, McMaster University, Universidad de Valladolid, INSA-Rennes, CNR-IMEM Istituto*
12:00	Lunch at Federation Hall	
Si Photonics (session chair: Ayse Turak)		
13:30 p.192 0824.08*	Subwavelength engineering for silicon photonic devices	J. H. Schmid, R. Halir, P. Cheben, D.-X. Xu, S. Janz, J. Lapointe, S. Wang, M. Vachon, A. Ortega-Moñux, G. Wangüemert-Pérez, I. Molina-Fernández, A. Sánchez-Postigo, J.M. Luque-Gonzalez, J.D. Sarmiento-Merenguel *National Research Council of Canada, Universidad de Málaga*
14:00 p.194 0824.09*	3DdSiPM - Digital Photon Counting Microsystem Based on 3D Integration: Architechture and Measurements on 1st Prototype	S.A. Charlebois, X. Bernard1, B.-L. Bérubé, A. Corbeil Therrien, T. Dequivre, F. Dubois, L. Maurais, F. Nolet, S. Parent, V.-P. Rhéaume, S. Martel, H. Dautet1, R. Fontaine, J.-F. Pratte *Université de Sherbrooke, Laboratoire Nanotechnologies Nanosystèmes (LN2) – CNRS, Teledyne DALSA Semiconductor Inc., Centre de collaboration miqro innovation (C2MI)*
14:15 p.196 0824.10*	SiGeSn Nanowire Heterostructures for Monolithic Silicon Photonics	S. Assali, A. Attiaoui, E. Bouthillier, J. Nicolas, S. Mukherjee, and O. Moutanabbir *École Polytechnique de Montréal*

14:30 p.198 0824.11*	Impact of SiCl4 precursor flow rate on growth rates and doping of VLS-grown microwires.	S. Majety, Derek R. Oliver *University of Manitoba*
Organic (session chair: Oleksandr Voznyy)		
14:45 p.200 0824.12*	Solution-processed materials and devices for photon/electron energy conversion	Zhenyu (Kevin) Yang, Edward H. Sargent *University of Toronto*
15:15 p.202 0824.13*	Role of LiF nanoparticle interlayer dispersion in degradation stability of OLEDs and OPVs	F. Maye, L. Kojovic, L. S. Hui, K. Liang, G. Hanta, J. Heidkamp, M. Bumstead, A. Turak *Max-Planck-Institute for Intelligent Systems, Germany, McMaster University*
15:30	Coffee break	
Emerging technologies (session chair: Lyudmila Goncharova)		
16:00 p.204 0824.14*	Towards High-performing and stable perovskites and their analogues for solar cells and light emission	O. Voznyy, E. H. Sargent *University of Toronto*
16:30 p.206 0824.15*	Scalable writing of ultraminiature graphene micro-supercapacitors with enhanced performances	Daozhi Shen, Guisheng Zou, Lei Liu, Walter W. Duley, and Y. Norman Zhou *Tsinghua University, University of Waterloo*
16:45 p.208 0824.16*	On the relationship between donor/acceptor interface energy levels and open-circuit voltages	P. Li, W. Hong, Y. Li, G. Ingram, Z.-H. Lu *University of Toronto, Yunnan University, China*
17:00 p.210 0824.17*	Facile Fabrication of Hybrid Copper-fiber Conductive Features with Enhanced Durability and Ultra-Low Sheet Resistance for Low-Cost High-Performance Paper-Based Electronics	T. Zhang, X. Cai, J. Liu, M. Hu,Q. Guo1, J. Yang *Western University*
17:15 p.212 0824.18*	Role of dielectric saturation and steric effects in the electrolyte used for gating a graphene layer	L. Daniels, M. Scott, Z. L. Miskovic *University of Waterloo*
17:30 p.214 0824.19*	Development of an Infrared Imager	Z. Abboud, E. Al Alam, G. Beaudin, O. Bernard, B.-L. Berube, N. Bongard, C. Cadieux, B. Cardin St-Antoine, D. Chagnon, T. Courcier, T. Dequivre, M. Guilmain, A. Hayat, D. Isik, C. Masclaux1, P. Newby, J.-P. Richard, C. Spits, P.-J. Zermatten, S.A. Charlebois L. Frechette, D. Drouin, Y.A. Peter, O. Moutanabbir, P. Desjardins and P. Charrette *Universite de Sherbrooke, Ecole polytechnique de Montreal*
18:00	End of Technical Session	
18:30	Conference Banquet and Award Ceremony at the Federation Hall	

Wednesday, August 23 17:00 – 18:30

Poster Session

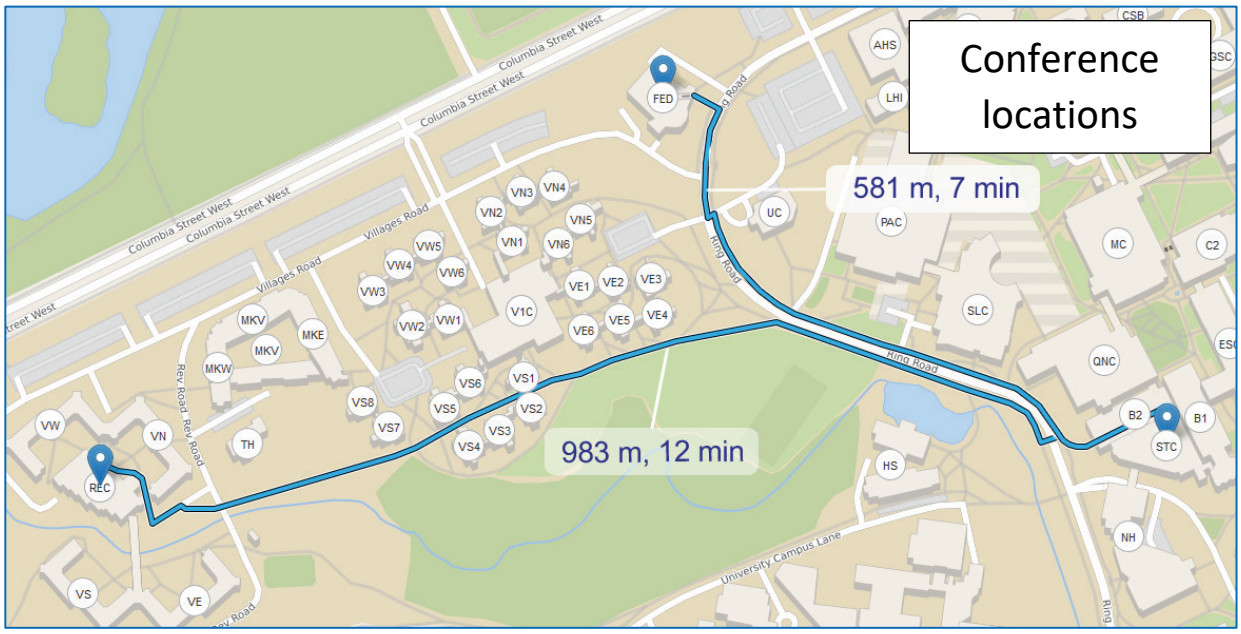
P1 p.94 0823.15*	Oscillations of the open circuit potential in photocorroding GaAs/AlGaAs nano-heterostructures	Srivatsa Aithal, Jan J. Dubowski *Université de Sherbrooke*
P2 p.96 0823.58*	Dirac Plasmon Polaritons and Terahertz Radiation in Multilayer Graphene Induced by a Fast Electron	Kamran Akbari, Zoran L. Miskovic *University of Waterloo*
P3 p.98 0823.16*	Again about the energy band gap of InN	Dimiter Alexandrov *Lakehead University*
P4 p.100 0823.17*	Low temperature GaN epitaxial deposition on Si substrates	J. Tot, R. Dubreuil, D. Alexandrov *Lakehead University*
P5 p.102 0823.18*	High Nitrogen doping TiO2 by Plasma Assisted Atomic Layer Deposition (PAALD)	Abdullah H. Alshehri ,N Nelson-Fitzpatrick, Khaled H. Ibrahim, Mustafa Yavuz, Kevin P. Musselman *University of Waterloo, Prince Sattam bin Abdul Aziz University, Saudi Arabia*
P6 p.104 0823.19*	Effects of Carrier Trapping on Direct Conversion Amorphous Selenium Avalanche Detector for X-ray Imaging	Salman M. Arnab, M. Z. Kabir *Concordia University*
P7 p.106 0823.55*	Electron Beam Lithography using Grafted Polystyrene Monolayer Brush	F. Aydinoglu, R.-K. Dey, B. Cui *University of Waterloo*
P8 p.108 0823.20*	The effect of the light spectrum on the optimum thickness of silicon photovoltaic devices for indoor energy harvesting applications	V. Bahrami-Yekta, T. Tiedje *University of Victoria*
P9 p.110 0823.21*	Vacuum deposition of Carbon Dots over large areas via a combined plasma-thermal evaporation technique	Jaewoo Park, Paul Bazylewski, Giovanni Fanchini *University of Western Ontario*
P10 p.112 0823.22*	Graphene-Mesoporous Si Nanocomposite as a Compliant Substrate for Heteroepitaxy	A. R. Boucherif, A. Boucherif, G. Kolhatkar, A. Ruediger, R. Arès *Université de Sherbrooke, Nanoelectronics-Nanophotonics INRS-EMT*
P11 p.114 0823.23*	The Optical and Electrical Properties of Self-Assembled Silicon Nanoparticles	C. Cadogan, T. Leutheusser, L. V. Goncharova, P. J. Simpson *Western University*
P12 p.116 0823.59*	Improving the Luminescence of Self-Assembled Silicon Nanoparticles in Silicon Nitride using Al dopants	C. Cadogan, L. V. Goncharova, P. J. Simpson *Western University*
P13 p.118 0823.24*	Dark current behavior of thick selenium detectors with a polyimide hole blocking layer for high energy X-ray imaging applications	A.Camlica, G. Belev, J. Liang, D. Lee , S. Kasap, K.S. Karim *University of Waterloo, University of Saskatchewan, Direct-Xray Digital Imaging*
P14 p.120 0823.25*	Local Strain Validation in Bonding Wires	T. Dagdelen, E. Abdel-Rahman, M. Yavuz *University of Waterloo*
P15 p.122 0823.26*	Zinc Oxide and Polyethyeleneimine as an Electron Transport Layer Substitute for Efficient, Solution-Processed Phosphorescent OLEDs	T. Davidson-Hall, H. Aziz *University of Waterloo*
P16 p.124 0823.27*	Novel Ion Beam Lithography for High-density Memristor Device Fabrication	Xiaoyi (Frank) Guan, S. Srivastava, L. Zhang,J.P. Thomas, N.F. Heinig, K. T. Leung

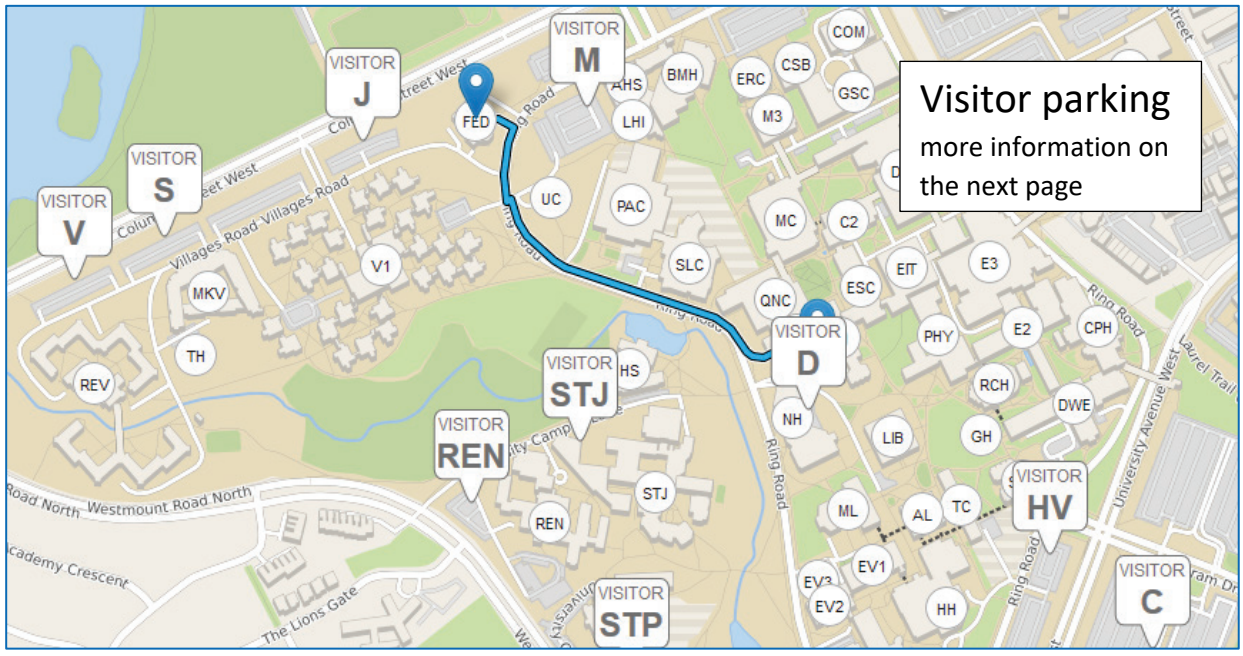
		University of Waterloo, Singapore-MIT Alliance for Research and Technology
P17 p.126 0823.28*	Chemotaxis assisted GaAs/AlGaAs photocorrosion biosensor for detection of Legionella pneumophila	Walid M. Hassen, Srivatsa Aithal, Mohammad Reza Aziziyan, Lilian Sirbu, Khalid Moumanis, Eric H. Frost, Jan J. Dubowski *Université de Sherbrooke*
P18 p.128 0823.30*	Surface Functionalization for precise control of single walled carbon nanotube deposition	M. Kulak, S. Selmani, D. Schipper *University of Waterloo*
P19 p.130 0823.31*	Diameter controlled GaAs quantum dots embedded within GaP nanowires	P. Kuyanov, A. A. Zavareh, R. R. LaPierre *McMaster University*
P20 p.132 0823.32*	Mechanical Stress in InP Structures Etched in an Inductively Coupled Plasma Reactor with Chlorine Chemistry	J.P. Landesman, D.T. Cassidy, E. Pargon, C. Levallois, M. Mokhtari, J. Jiménez, A. Torres *Université Rennes-1, McMaster University, Univ. Grenoble Alpes, UMR FOTON, CNRS, INSA-Rennes, Universidad de Valladolid*
P21 p.134 0823.33*	Time-dependent stress relaxation study in Through Silicon Vias by Raman Spectroscopy	Aura D. Lubio, Gitanjali Kolhatkar, Thomas Dequivre, Andreas Ruediger Serge A. Charlebois *Université de Sherbrooke, Institut National de la Recherche Scientifique*
P22 p.136 0823.34*	Fabrication of a Gallium Phosphide Nanowire Betavoltaic Device using Ni-63	S. McNamee, R.R. LaPierre *McMaster University*
P23 p.138 0823.35*	Simulated Electron Affinity Tuning in Metal-Insulator-Metal (MIM) Diodes	K. Mistry, M. Yavuz, K. Musselman *University of Waterloo*
P24 p.140 0823.36*	A Fringing Field Electrostatic Actuator	M. Arab, K. Mistry, D. Bath, E. Brace, E. Fernandes, N. Khaira, Y. Zhao, A. Kamel, E. Abdel-Rahman *University of Waterloo*
P25 p.142 0823.37*	Carbon nanotube based composite to eliminate the effect of low frequency interferences in PET/MRI scanners	Narjes Moghadam, Nicolas Viscogliosi, Roger Lecomte, Réjean Fontaine *Université de Sherbrooke*
P26 p.144 0823.38*	Investigation of processing-induced defects in GaAs based vertical cavity surface emitting lasers with Al oxide confinement layers	M. Mokhtari, Ph. Pagnod-Rossiaux, F. Laruelle, J.P. Landesman, A. Moréac, C. Levallois, D.T. Cassidy, *3SP Technologies S.A.S, Université de Rennes 1, FOTON INSA Rennes, McMaster University*
P27 p.146 0823.39*	Polymer insulated Through Silicon Via (TSV) for advanced 3D packaging	A. Ndieguene, L. Recoules, T. Dequivre, E. Al Alam, S. A. Charlebois *Université de Sherbrooke*
P28 p.148 0823.40*	Simultaneously B:N co-doped reduced graphene oxide nanoflakes volume fabrication using femtosecond laser ablation.	I. Novodchuck, M. Irannejad, B. Wales, J. Sanderson, M. Bajcsy, M. Yavuz *University of Waterloo*
P29 p.150 0823.41*	Numerical evaluation of organic perovskite photoconductors for X-ray image detectors	Dhilippan M. Panneerselvam and M. Z. Kabir *Concordia University*
P30 p.152 0823.42*	Identification of Crystal Orientation-dependent Surface Acoustic Wave Velocity	Mats Powlowski, Na-Young Kim *University of Waterloo*
P31 p.154 0823.43*	Cost-Performance analysis of Multiple Stage Thermoelectric Generator	E.V. Sempels and F.J. Lesage *Université du Québec en Outaouais*
P32 p.156 0823.44*	Modeling of the photoluminescence monitored photocorrosion of GaAs/AlGaAs nano-heterostructures	Lilian Sirbu, Srivatsa Aithal, Mohammad Reza Aziziyan, Khalid Moumanis, Jan J. Dubowski *Université de Sherbrooke*

P33 p.158 0823.45*	InP based nanowire single photon avalanche photodetectors	B. Tekcan, S. Gibson, D. Ban, M. Reimer *University of Waterloo*
P34 p.160 0823.57*	Nanowire electron transport layers (ETLs) for high efficiency halide peroviskite solar cells (HPSCs)	U. K. Thakur, A.S Lele, Km Shankar *University of Alberta, NRC-National Institute*
P35 p.162 0823.46*	Spectrally-dependent Z-scan measurement of the nonlinear refractive index of Graphene	S.Thakur, B.Semnani, A.H.Majedi *University of Waterloo*
P36 p.164 0823.47*	Characterization for mid-infrared quantum cascade lasers operating up to 350 K on pulse-mode	Xiaoliang He, Siyi Wang, Seyed Ghasem Razavipour, Guocheng Liu, Chao Xu, Boyu Wen, Alam Mahmud, Denise Gosselink, Alan Tam, Zbig. R. Wasilewski, Dayan Ban *University of Waterloo*
P37 p.166 0823.48*	Effect of Dopant Position on Impurity Scattering Time and Optical Gain in Terahertz Quantum Cascade Lasers	K.X. Wang, B. Wen, D. Ban *University of Waterloo*
P38 p.168 0823.50*	Effect of Dopant Concentration and Distribution In Nanowires for Solar Cell Applications	D. Paige Wilson, Ray R. LaPierre *McMaster University*
P39 p.170 0823.51*	Femtosecond Laser Irradiation Engineering Resistive Switching Performance based on TiO2 Nanowire Arrays	Ming Xiao, Kevin P. Musselman , Walter W. Duley, Norman Y. Zhou *University of Waterloo*
P40 p.172 0823.52*	Synthesis of nontoxic Co:CuInS2@ZnS and CuNiInS nanocrystals with both fluorescence and room temperature ferromagnetism	S.H. Xu, J. Shen, C. L. Wang, Y. P. Cui Southeast University, China
P41 p.174 0823.56*	Mixture of Polystyrene and PDMS with high dry etch resistance as negative tone e-beam resist for potential HSQ replacement	H. Yamada, Y. Liu, and B. Cui *University of Waterloo*
P42 p.176 0823.54*	Grating Coupler Simulation of Quantum Well Infrared Photodetector	Yue Zhuo, Chao Xu, Chao Wang, Zhibiao Hao, Yi Luo,2 D. Ban *University of Waterloo*
P43 p.176b 0823.60*	*in situ* Monitoring of Microstructure and Phase Changes of AuSn Solders for Hermetic Wafer-Level Packaging	D. Chagnon, Z. Abboud, O. Moutanabbir *University of Waterloo*

Conference locations:

- Science Teaching Complex (STC) – oral sessions, posters, exhibits, research mixer & breakfasts
- Federation Hall (FED) – Sunday reception, lunches & conference banquet
- University Accommodations (REC)





Visitor Parking

Credit card payments are currently available at the machines in **C Lot**, **N Lot**, **S Lot** and **W Lot**. Machines in these lots do not issue change.

The following parking lots are available for use by visitors to campus (daily rates);

- Parking **Lot C** - $5.00
- Parking **Lot N** - $5.00
- Parking **Lot W** - $5.00
- Parking **Lot M** - $6.00
- Parking **Lot X** - $5.00 (Free on Weekends beginning on Fridays at 4:30p.m)

Parking **Lot H** - $2.00 hourly Max $10 (during non co-op days)

After 3:45 p.m. **H Lot** is a flat rate of $5.00 as well as on weekends.

Parking **Lot D** - $2.00 hourly Max $15

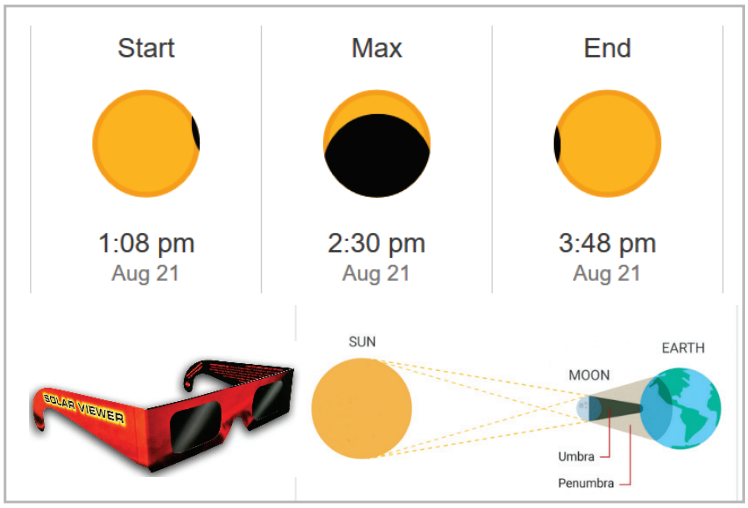
After 3:45 p.m. **D lot** is flat rate of $5.00 as well as on weekends.

Entry machines at **D** and **H lot** will only take **MasterCard or Visa**. It will not accept Amex, Tim Hortons Visa, MasterCard Debit or Visa Debit. There are signs on the machine at both the entrance and exit to indicate same. There are help buttons on all machines, which will ring into the office.

Lots B, R, A, are available for entry by coin evenings and weekends after 3:45 pm at a cost of $5.00

***Parking **lots T and L are not available** for visitors at any time.

Special Events



This year we are very lucky. The sun eclipse is taking place on the first day of our conference. The panel to the left shows what we should see in Waterloo (weather permitting).

We made room for this historical event in our program. In your conference tote bag you should have found special eclipse-friendly glasses. **Please make sure to wear them when looking at the sun!**

Monday, after the sessions, we will have two outdoor events at Columbia lake playing fields (also weather permitting): Young scientists/ engineers & graduate students FREE pizza party followed by the soccer games in field 7 and Frisbee games in field 5.

Tuesday, we will take you for the horse drawn tour, and exploration of the largest farmers market in North America - the St Jacob's Farmer's Market. There is much to it than the apples and tomatoes!

The busses will be departing from STC at 11:30am. It is only about 10 min ride from the University.