



*Emerging Technologies*

Communications   Microsystems   Optoelectronics   Sensors

# 2018 Conference Program

May 9 - 11, 2018

Hilton Whistler Resort & Spa

Whistler, Canada

**May 9, 2018**

**Session P1: Plenary I**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Norbert J. Pelc, Stanford University (pelc@stanford.edu)

*Photon Counting X-Ray Detectors for Diagnostic Imaging: Opportunities and Challenges*

Sorin Voinigescu, University of Toronto (sorinv@eecg.toronto.edu)

*Silicon Device and Circuit Scaling to the End of the ITRS 2030 Time Horizon and natural Evolution into Si QC at the Atomic Scale*

Seung Kang, Qualcomm (kang@qti.qualcomm.com)

Drew Evans, University of South Australia (Drew.Evans@unisa.edu.au)

**Session A1: Devices, Circuits and Systems**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Tetsuo Endoh, Tohoku University (tetsuo.endoh@cies.tohoku.ac.jp)

*Impact of Nonvolatile Brain-Inspired VLSIs with CMOS/MTJ Hybrid Technology*

Antonio Liscidini, University of Toronto (antonio.liscidini@utoronto.ca)

*Complex Poles with Passive Switched Capacitor Filters*

Carlos Galup Montoro, Universidade Federal de Santa Catarina (carlosgalup@gmail.com)

*Ultra Low Voltage/Power LNA and Mixers*

Naoya Onizawa, Tohoku University (nonizawa@m.tohoku.ac.jp)

*Energy-Efficient Brainware LSI Based on Stochastic Computation*

Sarit Dhar, Auburn University (sarit\_dhar@auburn.edu)

Ramesh Harjani, University of Minnesota (harjani@umn.edu)

Tohru Ishihara, Kyoto University (ishihara@i.kyoto-u.ac.jp)

Alex James, Nazarbayev University (apj@ieee.org)

Francois Leonard, Sandia National Laboratories (fleonar@sandia.gov)

Hassan Maher, Université de Sherbrooke (hassan.maher@Usherbrooke.ca)

Seung-Tak Ryu, KAIST (stryu@kaist.ac.kr)

Zhihua Wang, Tsinghua University (zhihua@tsinghua.edu.cn)

Zhengya Zhang, University of Michigan (zhengya@umich.edu)

Huilong Zhu, Chinese Academy of Sciences (zhuhuilong@ime.ac.cn)

**Session B1: Nanotechnology**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Aida Todri-Sanial, Centre National de la Recherche Scientifique (aida.todri@lirmm.fr)  
*Charge-based Doping of Carbon Nanotubes as Back-end-of-line Interconnect Material*

Guihua Yu, University of Texas (ghyu@austin.utexas.edu)  
*Functional Nanostructured Polymers for Energy Storage and Environmental Technologies*

An Chen, Nanoelectronics Research Initiative (anthen04@gmail.com)

Malgorzata Chrzanowska-Jeske, Portland State University (jeske@ece.pdx.edu)

Shamik Das, Mitre Corporation (sdas@mitre.org)

Scott Retterer, Oak Ridge National Laboratory (rettererst@ornl.gov)

Heike Riel, IBM Zurich (hei@zurich.ibm.com)

D. Keith Roper, University of Arkansas (dkroper@uark.edu)

**Session C1: Energy Harvesting and Storage**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Daniel Guay, INRS (guay@emt.inrs.ca)  
*Microsupercapacitor Has On-board Energy Storage Device*

Darren Frew, BC Bioenergy Network (frew.darren@gmail.com)

Terry J. Hendricks, NASA (terry.j.hendricks@jpl.nasa.gov)

Fangxing Li, University of Tennessee, Knoxville (fli6@utk.edu)

Sigurd Wagner, Princeton University (wagner@princeton.edu)

**Session D1: Biotechnology**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Hui Fang, Northeastern University (fangh05@gmail.com)

*Chronically Stable, Flexible Bio-electronics for Brain and Heart Activity Mapping.*

Michael Canva, Université de Sherbrooke (Michael.Canva@USherbrooke.ca)

Fabio Cicoira, École Polytechnique de Montréal (fabio.cicoira@polymtl.ca)

Brian Cunningham, University of Illinois at Urbana-Champaign (bcunning@illinois.edu)

Massimo De Vittorio, Università del Salento (massimo.devittorio@unisalento.it)

Myeongsub (Mike) Kim, Florida Atlantic University (kimm@fau.edu)

Sunil Patil, Technische Universität Braunschweig (sunilpatilhere@gmail.com)

Clara Santato, École Polytechnique de Montréal (clara.santato@polymtl.ca)

Jonathan Rivnay, Centre Microélectronique de Provence (rivnay@emse.fr)

Monika Weber, Fluid-Screen Inc. (monika.weber@fluid-screen.com)

Edmond W.K. Young, University of Toronto (eyoung@mie.utoronto.ca)

**Session E1: Smart Materials and Technologies**

**13:30**

**TBD**

**Chairs: John Madden, University of British Columbia (jmadden@ece.ubc.ca)**

**Peyman Servati, University of British Columbia (peymans@ece.ubc.ca)**

Peyman Servati, University of British Columbia (peymans@ece.ubc.ca)

*Smart Textile Innovations for Technology Connected Health (STITCH)*

John Madden, University of British Columbia (jmadden@ece.ubc.ca)

*Ionic Skin--Towards Smart, Compliant and Active Skin for Robots and Wearables*

**May 10, 2018**

**Session A2: Memories and Computing**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Kerem Camsari, Purdue University (kcamsari@purdue.edu)

*Stochastic p-bits for Invertible Logic*

Zhihong Chen, Purdue University (zhchen@purdue.edu)

Bastien Giraud, CEA (bastien.giraud@cea.fr)

Markus Levy, EEMBC (markus.levy@eembc.org)

Vikas Rana, Research Center Juelich (v.rana@fz-juelich.de)

Seiji Kajihara, Kyushu Institute of Technology (kajihara@cse.kyutech.ac.jp)

Nasser Kurd, Intel (nasser.a.kurd@intel.com)

Luc Thomas, Headway Technologies, Inc. (luc.thomas@headway.com)

Jian-Gang (Jimmy) Zhu, Carnegie Mellon University (jzhu@ece.cmu.edu)

**Session B2: Nanoscale Devices and Circuits**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Krishna Saraswat, Stanford University (saraswat@stanford.edu)

*Emerging Interconnect Technologies for Nanoelectronics*

Hagen Klauk, Max Planck Institute for Solid State Research (h.klauk@fkf.mpg.de)

*Organic Thin-Film Transistors and Complementary Circuits for Flexible Electronics Applications*

Ji Ung Lee, SUNY Polytechnic Institute (jlee1@sunypoly.edu)

*Reconfigurable Logic Devices in 2D Materials*

Andreas Ruediger, INRS (ruediger@emt.inrs.ca)

Gregory Snider, University of Notre Dame (snider.7@nd.edu)

Toshiyuki Tsuchiya, Kyoto University (tutti@me.kyoto-u.ac.jp)

Fabrice Vallee, Université de Lyon (fabrice.vallee@univ-lyon1.fr)

Feng Xiong, University of Pittsburgh (f.xiong@pitt.edu)

Peng Zhou, Fudan University (pengzhou@fudan.edu.cn)

**Session C2: Radiation Detection and Imaging**

**9:00**

**TBD**

**Chairs: Krzysztof (Kris) Iniewski, Redlen (kris.iniewski@redlen.com)**

Paul Lecoq, CERN-European Organization for Nuclear Research (paul.lecoq@cern.ch)

*A Metamaterial Approach to Reach 10 ps Timing Resolution with a Scintillator-Based Detector*

Maurice Garcia-Sciveres, Lawrence Berkeley National Laboratory (mgarcia-sciveres@lbl.gov)

Mehadi Hassan, Duke University (mehadi.hassan@duke.edu)

Ralph James, Savannah River National Laboratory (ralph.james@srnl.doe.gov)

Ali Khenchaf, ENSTA Bretagne (ali.khenchaf@ensta-bretagne.fr)

Pierre Khuri-Yakub, Stanford University (khuri-yakub@stanford.edu)

Yi-Hwa Liu, Yale University (yi-hwa.liu@yale.edu)

Val O'Shea, University of Glasgow (val.o'shea@glasgow.ac.uk)

Alvaro Pena-Quevedo, University of Puerto Rico (alvarojpena@gmail.com)

Paul Seller, Science and Technology Facilities Council (paul.seller@stfc.ac.uk)



**Session D2: Medical Technologies**

**9:00**

**TBD**

**Chairs: William Barber, DxRay, Inc. (william.barber@dxray.com)**

Thomas Webster, Northeastern University (th.webster@neu.edu)

*Design, Fabricating, and Commercializing In The Body Nano Sensors: The Future of Health*

Soojin Lee, University of British Columbia (soojin.lee.e@gmail.com)

*Engineering Approaches to Non-invasive Electrical Stimulation of the Brain: Application to Parkinson's Disease*

Ferruccio Pisanello, Istituto Italiano di Tecnologia (ferruccio.pisanello@iit.it)

*Micro and Nanotechnologies for Multipoint Control of Neural Activity in Deep Brain Regions*

Philip Butler, University of Canterbury (phil.butler@canterbury.ac.nz)

Bonnie Gray, Simon Fraser University (bgray@sfu.ca)

Kullervo Hynynen, University of Toronto (khynynen@sri.utoronto.ca)

Diego Mantovani, Université Laval (Diego.Mantovani@gmn.ulaval.ca)

Ross Walker, University of Utah (ross.walker@utah.edu)

**Session E2: Advanced Materials**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Deji Akinwande, University of Texas (deji@ece.utexas.edu)

*Materials and Electronic Systems based on 2D Atomic Layers*

André Ivanov, University of British Columbia (ivanov@ece.ubc.ca)

*Modeling of Hydrogen Diffusion in Different Semiconductor Dielectric Materials, Using Molecular Dynamics Simulation Approaches*

Rehan Kapadia, University of Southern California (rkapadia@usc.edu)

*Compound Semiconductors on Anything*

Federico Rosei, INRS (rosei@emt.inrs.ca)

*Multifunctional Materials for Electronics and Photonics*

Fernando Calle, Universidad Politécnica de Madrid (fernando.calle@upm.es)

Yvon Cordier, Centre National de la Recherche Scientifique (Yvon.Cordier@crhea.cnrs.fr)

Byron Gates, Simon Fraser University (bgates@sfu.ca)

Hasina Huq, University of Texas, Pan American (hhuq@utpa.edu)

Daniel J. Inman, University of Michigan (daninman@umich.edu)

Cengiz Ozkan, University of California, Riverside (cozkan@engr.ucr.edu)

Marco Rahm, Technische Universität Kaiserslautern (marco.rahm@eit.uni-kl.de)

Guangrui (Maggie) Xia, University of British Columbia (gxia@mail.ubc.ca)

**Session A3: Sensors**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

**Tracey Mozel, ETCMOS (tracey@etcmos.com)**

Mohammad Al Sharman, American University of Sharja (alsharman.mohammad@gmail.com)  
*State Estimation, Sensor Fusion, Control Theory*

Lado Filipovic, Technische Universität Wien (filipovic@iue.tuwien.ac.at)  
*CMOS-Compatible Semi-Conducting Metal-Oxide Gas Sensors*

Fabio Di Francesco, Università di Pisa (fabio.difrancesco@unipi.it)

Boris Mizaikoff, Universität Ulm (boris.mizaikoff@me.com)

Yves-Alain Peter, École Polytechnique de Montréal (yves-alain.peter@polymtl.ca)

Brett Smolenski, SUNY Polytechnic Institute (bsmolens@gmail.com)

**Session B3: MEMS and NEMS**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Farrokh Ayazi, Georgia Tech (ayazi@ece.gatech.edu)

Vamsy Chodavarapu, University of Dayton (vchodavarapu1@udayton.edu)

Edmond Cretu, University of British Columbia (edmondc@ece.ubc.ca)

Raafat Mansour, University of Waterloo (raafat.mansour@ece.uwaterloo.ca)

Alan Mathewson, Tyndal National Research Lab (alan.mathewson@tyndall.ie)

Mina Rais-Zadeh, University of Michigan (minar@umich.edu)

Matthew Spencer, Harvey Mudd College (mspencer@g.hmc.edu)

Harry van der Graaf, National Institute for Subatomic Physics (vdgraaf@nikhef.nl)

**Session C3: Optics and Photonics**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Antonio Agresti, Università degli Studi di Roma "Tor Vergata" (antonio.agresti@uniroma2.it)

*Perovskite Solar Cells*

Daniel Amkreutz, Institut für Silizium-Photovoltaik (daniel.amkreutz@helmholtz-berlin.de)

Pablo Bianucci, Concordia University (pablo.bianucci@concordia.ca)

Abderraouf Boucherif, Canada-3IT (abderraouf.boucherif@usherbrooke.ca)

Lukas Chrostowski, University of British Columbia (lukasc.ubc@gmail.com)

Andy Knights, McMaster University (aknight@mcmaster.ca)

Zhaojun Liu, SYSU-CMU Joint Institute of Engineering (liuzhaojun@mail.sysu.edu.cn)

Rusli, Nanyang Technological University (erusli@ntu.edu.sg)

**Session D3: Medical Imaging**

**13:30**

**TBD**

**Chairs: Jan Iwanczyk, DxRay, Inc. (jan.iwanczyk@dxray.com)**

**Yi-Hwa Liu, Yale University (yi-hwa.liu@yale.edu)**

William Barber, DxRay, Inc. (william.barber@dxray.com)

Chin-Tu Chen, University of Chicago (chintuchen@gmail.com)

with C. Kao, L. Leoni, H. Zhang, S. Cheng, M. Bhuiyan, N. Chen, N. Eclov, H. Kim, J. George, B. Quigley, H. Tsai, A. Kucharski, J. Souris, C. Pelizzari, R. Freifelder, I. Balyasnikova, L. Meng, P. La Riviere and L. Lo

*Imaging-Guided X-Ray Induced Photodynamic Therapy (XPDT) Using Novel Nanoparticles*

Vesna Sossi, University of British Columbia (vesna@phas.ubc.ca)

Takashi Tokuda, NAIST (tokuda@ms.naist.jp)

**Session E3: Nanomaterials**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Kyle Alvine, Pacific Northwest National Laboratory (kyle.alvine@pnnl.gov)

Francis Balestra, MINATEC (balestra@minatec.grenoble-inp.fr)

Thierry Baron, LTM-CNRS Grenoble (thierry.baron@cea.fr)

Karen Kavanagh, Simon Fraser University (kavanagh@sfu.ca)

Jeffry Kelber, University of North Texas (kelber@unt.edu)

Shankar Ranavare, Portland State University (ranavas@pdx.edu)

## May 11, 2018

### Session A4: Circuits and Systems Design

9:00

TBD

#### Chairs: Chair to be Announced

Tanbir Haque, InterDigital (tanbir.haque@interdigital.com)

*Developing Flexible Architectures for Wideband Data Reception and Rapid Interference Detection for Cognitive Radio Type Applications*

Salvador Pinillos Gimenez, Centro Universitário da FEI (sgimenez@fei.edu.br)

*Layout Techniques for MOSFETs*

Edoardo Charbon, EPFL, Technische Universitat Delft (e.charbon@tudelft.nl)

Yue Fu, Crosslight Software (fred@crosslight.com)

Carlos Gracios-Marin, CERN-European Organization for Nuclear Research (cgracios@cern.ch)

Maciej Ogorzalek, Uniwersytet Jagiellonski Krakow (maciej.ogorzalek@uj.edu.pl)

Juan Rey, Mentor Graphics (juan\_rey@mentor.com)

Lubab Sheet, Lam Research Corporation (lubab.sheet@lamrc.com)

Sidney Tsai, IBM (htsai@us.ibm.com)

Peter Wilson, Transphorm (peterhwilson@msn.com)

**Session B4: Quantum Technologies**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Michael Adachi, Simon Fraser University (mmadachi@sfu.ca)

*Colloidal Quantum Dot Solids*

Benoit Bertrand, CEA (Benoit.BERTRAND@cea.fr)

*Using Si CMOS Technology as a Platform for Quantum Computing*

Kirk Bevan, McGill University (kirk.bevan@mcgill.ca)

Dieter Bimberg, Technische Universität Berlin (bimberg@physik.tu-berlin.de)

Jan Dubowski, Université de Sherbrooke (Jan.J.Dubowski@USherbrooke.ca)

Mark Eriksson, University of Wisconsin-Madison (maeriksson@wisc.edu)

Jean-Marie George, CNRS (jeanmarie.george@cnrs-thales.fr)

Mark Johnson, D-Wave Systems (mwjohnson@dwavesys.com)

Marek Korkusinski, National Research Council (Marek.Korkusinski@nrc-cnrc.gc.ca)

**Session C4: Wireless Technologies**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

John Ho, National University of Singapore (johnho@nus.edu.sg)

*Wireless Technologies for Bioelectronic Therapies*

Manos Tentzeris, Georgia Tech (etentze@ece.gatech.edu)

*3D-/4D-Printed RF and Millimeter-Wave Components and Modules for IoT applications*

Shuhei Amakawa, Hiroshima University (amakawa@hiroshima-u.ac.jp)

Syed Kamrul Islam, University of Tennessee, Knoxville (sislam@utk.edu)

Rouzbeh Kananizadeh, University of California, Davis (rkanani@ucdavis.edu)

Harish Krishnaswamy, Columbia University (hk2532@columbia.edu)

Besh Ray, Aether Spectrum, Inc. (besh.ray@aetherspectrum.com)

Jacques C. Rudell, University of Washington (jcrudell@u.washington.edu)

Farhana Sheikh, Intel (engenia@gmail.com)

Yahya Tousi, University of Minnesota (ymtousi@umn.edu)

Fei Yuan, Ryerson University (fyuan@ryerson.ca)



**Session D4: Thin Film Devices and Electronics**

**9:00**

**TBD**

**Chairs: Zhehui (Jeff) Wang, Los Alamos National Laboratory (zwang@lanl.gov)**

Zhehui (Jeff) Wang, Los Alamos National Laboratory (zwang@lanl.gov)

*Novel Semiconductor Processing Techniques for Imaging and Sensor Applications*

Emmanuel Defay, LIST (emmanuel.defay@list.lu)

*Transparent Piezoelectric Films on Glass for Haptic Applications*

Rama Venkatasubramanian, Johns Hopkins University (Rama.Venkatasubramanian@jhuapl.edu)

*Thin Film Thermoelectric Materials and Devices for High-Performance Electronics*

Joachim Burghartz, Institut für Mikroelektronik Stuttgart (burghartz@ims-chips.de)

Weng W. Chow, Sandia National Laboratories (wwchow@sandia.gov)

Majeed Foad, Applied Materials (Majeed\_Foad@amat.com)

Kyung-In Jung, Daegu Gyeongbuk Institute of Science and Technology (kijang@dgist.ac.kr)

Saleem Shaikh, Thin Film Devices, Inc. (sales@tfdinc.com)

Sheng Xu, University of California, San Diego (shengxu@ucsd.edu)

**Session E4: Optical Materials and Devices**

**9:00**

**TBD**

**Chairs: Chair to be Announced**

Magnus Borgström, Lund University (magnus.borgstrom@ftf.lth.se)

Beatrice Fraboni, University of Bologna (beatrice.fraboni@unibo.it)

Zubin Jacob, University of Alberta (zjacob@ualberta.ca)

Nick Jaeger, University of British Columbia (nick\_jaeger@ieee.org)

Swastik Kar, Northeastern University (S.Kar@neu.edu)

Gary Leach, Simon Fraser University (gleach@sfu.ca)

Lance Li, King Abdullah University of Science & Technology (lance.li@kaust.edu.sa)

Paul McIntyre, Stanford University (pcm1@stanford.edu)

Muhammad Sayyad, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (hsayyad62@gmail.com)

Fiorenzo Vetrone, INRS (vetrone@emt.inrs.ca)

**Session P3: Plenary III**

**13:30**

**TBD**

**Chairs: Chair to be Announced**

Kourosh Kalantar-Zadeh, RMIT University (kourosh.kalantar@rmit.edu.au)

Ricardo Reis, Universidade Federal do Rio Grande do Sul (reis@inf.ufrgs.br)

Hidemitsu Furukawa, Yamagata University (furukawa@yz.yamagata-u.ac.jp)

Om karam (Om) Nalamasu, Applied Materials (Om\_Nalamasu@amat.com)



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