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Polymer MEMS self-assembly for on-chip millimeter-wave antennas

Sae Won Lee
Simon Fraser University

Thursday 04 December
2-3 pm
ASB9896
Simon Fraser University

Light refreshments served

Information
Electron Devices Chair
Bonnie Gray
bgray@sfu.ca

The operating frequencies for wireless communications have increased well beyond 60 GHz, and on-chip antennas provide a better solution for low-cost production and simpler system integration at the millimeter-wave frequencies. This talk presents a self-assembly technique using a polymer MEMS fabrication process for making on-chip antennas with high efficiency. The self-assembly technique is used to create out-of-plane on-chip antennas structures to achieve excellent radiation efficiency on low resistivity substrates. SU-8 negative photoresist is used as the only structural material and the resulting self-assembled curvatures are defined lithographically allowing fabrication of uniquely shaped antenna structures that were previously difficult to achieve in micro-scale. This presentation discusses on the development of the fabrication process for creating a self-assembled monopole and helical antennas and the simulations and the measurements of the monopole antenna's radiation pattern characteristics.

Speaker: Sae-Won Lee received PhD in microelectronics from Simon Fraser University, Canada in 2012. He is currently a research associate in Communications Research Group of the School of Engineering Science at Simon Fraser University, working on development of 3D on-chip millimeter-wave high-gain antennas. His research interests focus on novel fabrication processes of MEMS and microfluidic devices for wireless and biomedical applications.

IEEE Electron Devices

Plasmonics and ultrafast laser for nanomedicine

Michel Meunier
Polytechnique Montréal

Monday 08 December
3 pm
Room P8445
Simon Fraser University

Light refreshments served

Cosponsors: SFU Graduate School and Northern Telecom

Information
Electron Devices Chair
Bonnie Gray
bgray@sfu.ca
or Karen Kavanagh
kavanagh@sfu.ca

Nanomedicine is the branch of nanotechnology that deals with bringing research biomedical tools and clinically useful devices and approaches to the medical world. At Polytechnique Montreal, we develop and model new plasmonic nanostructured biosensors, ultrafast laser nanosurgery and nanoprocessing techniques with the long term objective to introduce new technologies for nanomedecine applications, such as imaging, biodetection and therapy. After a brief introduction to nanoplasmonics, I will discuss two applications in more details: Plasmonics nano-alloys for hyperspectral bio-imaging: We report on a new size and composition-controlled synthesis of monodispersed AuAg nano-alloy. These are promising for chromatic labelling of biological materials because of their composition-dependent plasmon resonance. Examples of hyperspectral 2D and 3D imaging of cells tagged with these nano-alloys will be presented. Plasmonics ultrafast laser multi-nanoscapel: Irradiating plasmonics nanostructures by ultrafast laser beam produces highly localised processes on the nanoscale in the biological surrounding medium, yielding to the nanosurgery of cells. These nanoparticles could be functionalised to target specific biological entities, thus performing multiple targeted surgeries on the nanoscale. A complete physical model was developed to determine the basic mechanism underlying this new nanosurgery process. Our laser multi-nanoscapel shows promises as an innovative tool for fundamental research in biology and medicine as well as an efficient alternative nanosurgery technology that could be adapted to therapeutic tools in the clinic

Speaker: Michel Meunier obtained his PhD in Materials Science from MIT in 1984 and is Professor of Engineering Physics at Polytechnique Montréal since 1986. He was awarded an NSERC Synergy Prize in 2006 for his fruitful university-industry collaborations with LTRIM Technologies, a company he co-founded. He is Fellow of SPIE, OSA and the Canadian Academy of Engineering. He has a research group of ~20 people and has published over 330 papers.

IEEE Electron Devices Society

IEEE Vancouver Young Professionals Affinity Group
presents
A Double Header

Thomas Ruth
BC Cancer Research

Wednesday
03 December
6:00 – 7:30 pm

BCIT Burnaby
SW1-3555

Medical imaging isotope crisis

With the shutdown of the Chalk River Nuclear Reactor in 2016, almost half of the world's supply of Medical Imaging Isotopes is going to disappear, causing a crisis in Medical Imaging! Dr. Ruth will talk on the looming shortage of imaging isotopes and methods to produce these isotopes.

Speaker: Thomas Ruth, PhD, is Emeritus Senior Research Scientist at TRIUMF and Emeritus Senior Scientist at the British Columbia Cancer Research Centre. Dr. Ruth holds Adjunct Professorships in Chemistry at Simon Fraser University, Physics at the University of Victoria and Medicine at the University of British Columbia. He is a leader in the production and application of radioisotopes for research in the physical and biological sciences. He has served on a multitude of national and international committees, including the Institute of Medicine's Committee on Medical Isotopes (1995) and on the National Academy of Science's Committee on the State of the Science in Nuclear Medicine (2009), the panel for the Production of Medical Isotopes without Highly Enriched Uranium (2010) and the Nuclear Physics Decadal Report 2010-2020. He serves as an expert on radioisotope production for the IAEA. Most recently he served on the Subcommittee of the Nuclear Science Advisory Committee's Subcommittee on Isotopes for the Nuclear Physics Program of the US DOE. He has published more than 280 peer reviewed papers and book chapters.

Ahmed Hussein
UNBC

Wednesday
03 December
7:30 – 8:30pm

BCIT Burnaby
SW1-3555

Dual fluid reactor

The Fukushima Nuclear Reactor disaster has put Reactor Safety in the public eye. A cascading chain of failures caused by an earthquake generated tsunami has led to an increased focus on Reliability and safe shutdown of nuclear reactors.

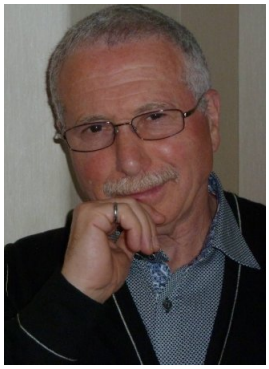
The Dual Fluid Reactor (DFR), is a novel nuclear reactor concept based on the Generation IV Molten-Salt Reactor (MSR) concept and the liquid-metal cooled reactors (SFR, LFR) with the major improvement that the molten-salt fuel is not used as coolant but the heat is removed in a separate liquid-lead loop. DFR has a negative fission rate temperature coefficient; if the lead (coolant) circulation slows down, the fission rate slows down as well. This prevents a runaway fusion reaction which may lead to core meltdown and radioactive discharge.

Speaker: Dr. Ahmed Hussein, a co-inventor of DFR reactors, is a Professor Emeritus at the University of Northern British Columbia (UNBC) and a Resident Visitor Emeritus at TRIUMF in Vancouver.

IEEE members are asked to register for these events at http://vancouver.ieee.ca/
and registration for non-members is at the door at a cost of $5.00
For more information please contact
Rahul Khopkar
rahul.khopkar@gmail.com

IEEE Okanagan Subsection
Presents

Ark Tsisserev, P.Eng.
EFS Engineering Solutions Ltd.



Bonding and Grounding - What, Why and how?

Time & Date: 4:00 pm – 5:00 pm, Monday December 8th, 2014
Location: E 103, Okanagan College, 1000 KLO Rd., Kelowna, BC V1Y 4X8 (parking info.)

Talk Abstract: Understanding the objective of bonding of electrical equipment and methods of bonding. Difference between grounding of electrical equipment and grounding of electrical systems. Specific functions of bonding and grounding conductors. Particular requirements for grounding of High Voltage Installations. Issues of step and touch potential in HV installations. Fundamentals of understanding requirements for High Voltage station and station ground electrode. Principal difference between bonding, grounding and neutral conductors and their sizing.

Speaker Biography: Arkady Tsisserev is the President of the EFS Engineering Solutions Ltd, electrical and fire safety consulting company. Before joining the world of the electrical consulting business, Ark was the Electrical Safety Regulator for more than 25 years. Since 1993 he has held the position of the Electrical Safety Manager, Chief Electrical Inspector & City Electrician for the City of Vancouver. Before moving to the City of Vancouver he was Head of Electrical Section for the City of Winnipeg Inspections Department. Ark has written and published many articles, course notes, and taught various CE Code and fire alarm and emergency system courses at UBC, University of Manitoba and via other venues, such as industry associations and community colleges. Ark writes by-monthly columns for the "International Association of Electrical Inspectors News" and for "Electrical Line" journals. Ark is an active member of many industry associations and is involved in numerous technical committees with such organizations as CSA, NFPA, IEEE, ULC, SCC, SFPE and IEC. Mr. Tsisserev was for many years chairing the BC Electrical Code Adoption Committee. Ark is Chair of the CSA Technical Committee for the development of the CE Code and Chair of the CSA Strategic Steering Committee for the Requirements of Electrical Safety. He also actively participates in the ULC Technical Committee for the development of ULC S500 series standards. Ark represents the CSA on the NEC Technical Committee, and he chairs the Canadian National Committee on the IEC TC 64. Ark started his work in the electrical industry in 1962 as a construction electrician. Ark is a certified electrical inspector in the Province of BC and a member of various provincial engineering associations in Canada. He has obtained his PhD Degree in Electrical Engineering from the State University in Kharkov, Ukraine in 1972 and Master's Degree in Electrical Engineering from the University of Manitoba in 1984.

Refreshments will be provided. For further information please contact:
Youry Khmelevsky (email: youry@ieee.org). Registration Page: http://is.gd/dRCB8Q

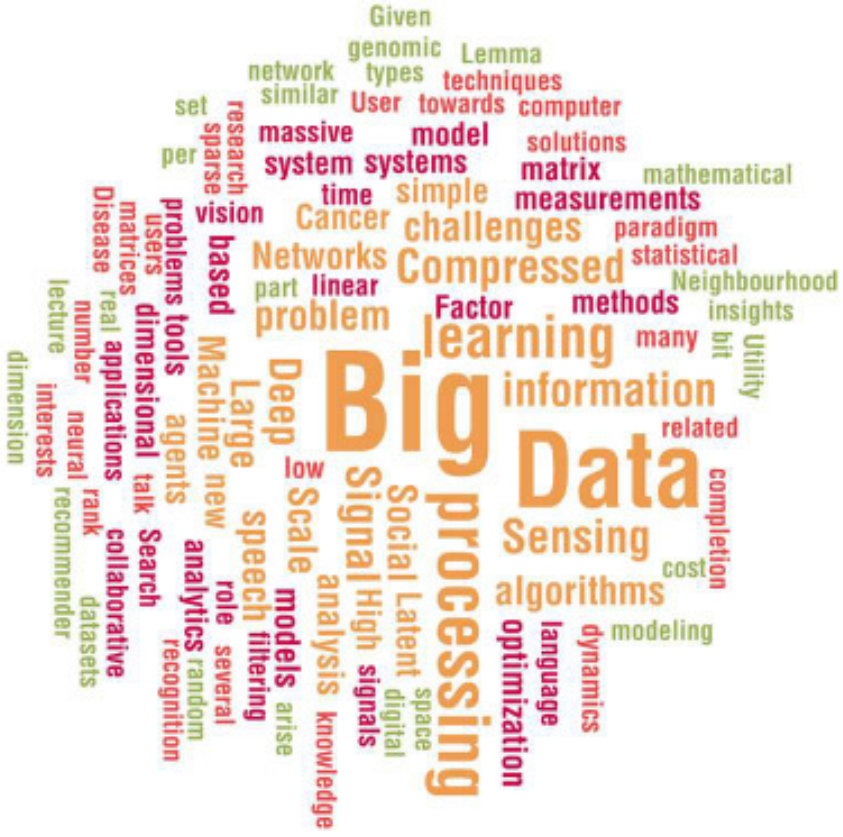
IEEE SPS / UBC ICICS Summer School on Signal Processing and Machine Learning for Big Data

Earlier this year, the IEEE SPS Vancouver Chapter organized a Summer School on Signal Processing and Machine Learning for Big Data. The School took place at the UBC Vancouver campus between July 29th and August 1st, 2014. The School featured 14 lecturers by prominent scholars in the field and attracted about 100 attendees of which 77 were registered attendees.

Participants came from 6 countries in North America, Asia and Europe. All lecture slides are posted on the School's website (https://sites.google.com/site/s3pbigdata2014/), and are freely accessible. Moreover, all lectures have been recorded and are currently in the process of being edited and uploaded to SigView. Due to the high interest and registration count, the School was financially successful. The feedback from attendees was highly positive.

In addition to the technical program, participants were also invited to a social event - a visit to the Capilano River Hatchery and the Stanley Park. The event capitalized on the fantastic weather we have this time of year in Vancouver. Out-of-town guests were especially impressed by the scenery and Vancouver's proximity to nature.

The School organizers (Rabab Ward, Z. Jane Wang, Parvaneh Saeedi, and Ivan Bajic) would like to thank all lecturers and participants for being a part of this memorable event. Special thanks go to the IEEE vancouver Section's multimedia team (Ron Heaps, Lead, Zulfiquar Bhotto, and Victor Mateescu) and student volunteers (Xun Chen, Joyce Chiang, Aiping Liu, Huan Qi, Hiba Shahid, Yue Sun, Yiming Zhang, and Jiannan Zheng), without whom the School would not have been possible.



A BIG THANK YOU

IEEE Vancouver Kinect and Structure Sensor Hackathon

The IEEE Vancouver Joint Computing Chapter would like to thank **Microsoft** and **Occipital** for sponsoring our 28-hour Hackathon, which took place on November 8–9. Their group of engineers and support staff truly brought us a very successful unforgettable event. I would like to especially thank Microsoft's **Ben Lower** and **David Torres**; their hackathon expertise made for a worry-free, fun event. We would also like to thank IEEE member **Rahul Khopkar** for his suggestion and persistence in wanting a hackathon and IEEE Vancouver Past Chair **Alon Newton** for connecting the various groups. Thank you, **Michelle Cavallo**, BCIT Events Coordinator, for her help and **Chris Koroneos** (and his team) at BCIT Food Services for providing good food. Thank you, **Shebia Leung** and **Dean Hildebrand**, BCIT School of Computing for support and gifts. Special thanks to IEEE Member **Thomas Au** for volunteering.

With sincerest gratitude,

S. Makonin

Dr. Stephen Makonin,
Chapter Chair.

An important message from the IEEE Vancouver 2015 Nomination Committee

The lists below represent candidates for Section officers and Chapter chairs for IEEE Vancouver 2015 as recommended by the IEEE Vancouver 2014 Executive. Except for the chair of the Consultant Network affinity group no other position is being contested. We will hold an election for the CN chair. If you wish to become a member of the CN affinity group and have not done so, please email the current chair jbmckay@telus.net and myself, anewton@ieee.org, before the end of this month. Remember you must be an IEEE member in good standing in order to hold office and to vote. Thank you for your membership and please consider volunteering in 2015. Have a happy and successful new year everyone!

Alon Newton P.Eng smIEEE, IEEE Vancouver Past Chair & 2015 Election Committee Chair

Name	Office	Section/sub-section
Bob Gill	Chair	Vancouver
Lee Vishloff	Vice Chair	Vancouver
Ophir Kendler	Treasurer	Vancouver
Rama Vinnakota	Secretary	Vancouver
Steven McClain	Past Chair	Vancouver
Matthew Reid	Chair	Northern BC
Liang Chen	Vice Chair	Northern BC
Youry Khmelevsky	Chair	Okanagan
Stephen O'Leary	Vice Chair	Okanagan
Julian Cheng	Vice Chair	Okanagan

Name	Office	Chapter name	Society(ies)
Bonnie Gray	Chair	Electron Devices	ED15
Sara Khosravi	Chair	Engineering in Medicine and Biology	EMB18
Robert Rohling	Vice Chair	Engineering in Medicine and Biology	EMB18
Dave Michelson	Chair	Joint Aerospace & Electromagnetics	AES10/GRS29/RL07/PSE43/MTT17/EMC27/AP03
Peter Lim	Vice Chair	Joint Aerospace & Electromagnetics	AES10/GRS29/RL07/PSE43/MTT17/EMC27/AP03
Ahmed Hussein	Chair	Joint Applied Physics	IM09/MAG33/NPS05/UFFC20
Michael Hughes	Vice Chair	Joint Applied Physics	IM09/MAG33/NPS05/UFFC20
Ljiljana Trajkovic	Chair	Joint Circuits and Systems	CAS04
Deepali Arora	Vice Chair	Joint Circuits and Systems	CAS04
Parvaneh Saeedi	Treasurer	Joint Circuits and Systems	CAS04
Parvaneh Saeedi	Secretary	Joint Circuits and Systems	CAS04
Vincent Wong	Chair	Joint Communications	VT06/COM19/PHO36/BT02/IT12/ITS38
Lee Vishloff	Vice Chair	Joint Communications	VT06/COM19/PHO36/BT02/IT12/ITS38
Alon Newton	Vice Chair	Joint Communications	VT06/COM19/PHO36/BT02/IT12/ITS38
Stephen Makonin	Chair	Joint Computing	C16/CIS11
Bob Gill	Vice Chair	Joint Computing	C16/CIS11
Ryozo Nagamune	Chair	Joint Control, Robotics, and Cybernetics	CS23/RA24/SMC28
Pan Zhao	Vice Chair	Joint Control, Robotics, and Cybernetics	CS23/RA24/SMC28
Ljiljana Trajkovic	Vice Chair	Joint Control, Robotics, and Cybernetics	CS23/RA24/SMC28
Carlo Menon	Vice Chair	Joint Control, Robotics, and Cybernetics	CS23/RA24/SMC28
Jeff Bloemink	Chair	Joint Industry Applications and Electronics	IE13/IA34
Pooya Taheri	Vice Chair	Joint Industry Applications and Electronics	IE13/IA34
Darrell Koskinen	Chair	Joint Management	TM14/PC26/E25/SIT30
Tristan Crees	Chair	Oceans, Geoscience & Remote Sensing	OE22
Atefeh Palizban	Vice Chair	Joint Power & Energy	PE31/DEI32
Dipendra Rai	Chair	Joint Power & Energy	PE31/DEI32
Shahriar Mirabbasi	Chair	Joint Solid State Circuits & Technology	SSC37/CE08/CPMT21
Rasvan Mihai	Chair	Power Electronics	PEL35
Dan Petrulian	Vice Chair	Power Electronics	PEL35
Ivan Bajic	Chair	Signal Processing	SP01
Parvaneh Saeedi	Secretary	Signal Processing	SP01

Name	Office	Affinity group
Abhijit Sen	Chair	Life membership
Parastoo Dehkordi	Chair	Women In Engineering
Sean Garrity	Chair	Young Professionals

CCECE 2015

The 28th IEEE Canadian Conference on Electrical and Computer Engineering

Technically Sponsored by
IEEE Canada
IEEE Canada Atlantic Section

May 3-6, 2015, Halifax, Nova Scotia Canada

Contact
Cathie Lowell
contact@ccece2015.org
CCECE 2015
PO Box 63005, University Postal Outlet
102 Plaza Drive, Dundas, ON, L9H 4H0

Call for Papers

Celebrating 30 Years of Ocean Frontiers

The 2015 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2015) will be held in Halifax, Nova Scotia Canada, May 3-6, 2015, which offers a medium for researchers and practitioners to exchange and explore the issues and opportunities of electrical and computer engineering research and development from Canada and around the world. All papers accepted by CCECE 2015 will be indexed by **EI** and included in **IEEE Xplore**. Papers are invited, in French or English, for the following symposia.

Power Electronics and Energy Systems
Chairs: Magdy Salama, *University of Waterloo*
Xiaoyu Wang, *Calreton University*

Communications and Networking
Chairs: Cheng Li, *Memorial University of Newfoundland*
Anader Benyamin-Seeyar, *Concordia University*

Signal and Multimedia Processing
Chairs: Gary Kenward, *Dalhousie University*
Ling Guan, *Ryerson University*

Biomedical and Health Informatics
Chairs: Hamid Mcheick, *Université du Québec à Chicoutimi*
Jeremy Brown, *Dalhousie University*

Modeling, Simulation & Analysis
Chairs: Adel Merabet, *Saint Mary University*
Yuanlong Yu, *Fuzhou University, China*

Ocean Engineering and Marine Technology
Chairs: Ferial El-Hawary, *Dalhousie University*
Michael Benjamin, *MIT, USA*

Circuits, Devices and Systems
Chairs: Kamal El-Sankary, *Dalhousie University*
Jie Chen, *University of Alberta*

Computers, Software and Applications
Chairs: Man Lin, *St. Francis Xavier University*
Danny Silver, *Acadia University*

Control and Robotics
Chairs: Howard Li, *University of New Brunswick*
Greg Dudek, *McGill University*

Systems, Man, Cybernetics
Chairs: Sidney Givigi, *Royal Military College*
Yajun Pan, *Dalhousie University*

All submissions (including papers, proposals of invited sessions) should be completed via the website: https://www.softconf.com/e/ccece2015

Nov. 15, 2014	**Submission of full papers in PDF and organized session proposals**
Dec. 1 , 2014	**Submission of tutorial and workshop proposals**
Jan. 15, 2015	**Notification of paper acceptance**
Feb. 28, 2015	**Submission of final camera-ready papers**

http://ewh.ieee.org/reg/ccece15/ or http://www.ccece2015.org

Watch for these upcoming events..!!

Youry Khmelevsky - Chair, Okanagan Sub-section
has a couple of potential events on the table
youry@ieee.org

- December, 2014 (date is not confirmed yet): Raghwa Gopal, Executive in Residence - Accelerate Okanagan: “Angel Investing for Technology Companies” (https://www.linkedin.com/in/raghwagopal)

- We are still not sure - we have just tentative confirmation for 5 pm on Friday, December 5th. GPN-Perf: Investigating performance of game private networks, WTFast and COSC, Okanagan College (including COSC 470 Capstone SE Project). NSERC CCI ARD Level 1 Grant ($24,990). This talk is supported by the COSC Department, OC as well.