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Visualization of magnetic field

Neda Pekaric-Nadj
University of Novi Sad

Friday 15 September

2:00 — 3:30 PM

Rm: ASB 10901
Applied Sciences Building
Simon Fraser University

Information
Circuits and Systems
Chair Ljiljana Trajkovic
ljilja@cs.sfu.ca

Magnetic field calculation and measurement must be finalized by attractive data visualization. Such data presentation is more likely to convince decision makers to take an action and improve working environment both for professionals as well as general population. Our group is dealing with protection of workers and staff from increased levels of primarily magnetic field in industrial and generally accessible environments. The talk is illustrated with several successful examples.

Speaker: Over 30 years, Neda Pekaric Nad is a professor of Fundamental electrical engineering at the Faculty of technical sciences, University of Novi Sad (UNS), Serbia, Europe. She established Electrical engineering as a core course in many of the multidisciplinary options of the studies at the UNS: Hazard management, Protection at work, Transportation etc. As a researcher, she has continuous interest in limiting human exposure from magnetic field generated by modern appliances.

Light refreshments served
Open to public

Kindly register so we may more accurately estimate the room size and refreshments.
https://events.vtools.ieee.org/meeting_registration/register/46643

CAS
IEEE CIRCUITS AND SYSTEMS SOCIETY
IEEE VANCOUVER/VICTORIA JOINT CHAPTER

Advanced control of electric vehicles and development of wireless in-wheel motors for dynamic charging

Hiroshi Fujimoto
University of Tokyo

Friday 08September

11:00am to noon

Rm 418 MacLeod Bldg

2356 Main Mall

UBC

Sponsored by
the joint chapters of
IEEE Control Systems,
Robotics and Automation,
and Systems, Man and
Cybernetics societies

Electric vehicles (EVs) have attractive potential not only for energy and environmental performance but also for vehicle motion control because electric motors have quick and measurable torque response. The speaker's laboratory has developed a completely original EV which has active front and rear steering systems. We installed high-torque direct-drive in-wheel motors and lateral force sensors to all wheels.

In the first part of this talk, our recent studies on advanced motion control and autonomous driving to enhance safety, driving comfort, and energy efficiency will be briefly introduced. In the second part, a new type of in-wheel motor, which receives electric power by wireless power transfer using magnetic resonance coupling and control signals by wireless communication, in order to avoid the disconnection of power and signal cables have been developed.

This system is called Wireless In-Wheel Motor (W-IWM). In this system, it is also possible to directly transmit power to the in-wheel motor without cables from underground coils for dynamic charging in order to extend the cruising range. This paper introduces the overview and design methods of the W-IWM. We also evaluate the characteristics of the W-IWM when installed on an electric vehicle and demonstrate its effectiveness by driving tests.

Speaker: Hiroshi Fujimoto received the Ph.D. degree in the Department of Electrical Engineering from the University of Tokyo in 2001. In 2001, he joined the Department of Electrical Engineering, Nagaoka University of Technology, Niigata, Japan, as a research associate. From 2002 to 2003, he was a visiting scholar in the School of Mechanical Engineering, Purdue University, U.S.A. In 2004, he joined the Department of Electrical and Computer Engineering, Yokohama National University, Yokohama, Japan, as a lecturer and he became an associate professor in 2005. He is currently an associate professor of the University of Tokyo since 2010. He received the Best Paper Awards from the IEEE Transactions on Industrial Electronics in 2001 and 2013, Isao Takahashi Power Electronics Award in 2010, Best Author Prize of SICE in 2010, and The Nagamori Grand Award in 2016.

His interests are in control engineering, motion control, nano-scale servo systems, electric vehicle control, motor drive, visual servoing, and wireless motors. Dr. Fujimoto is a senior member of IEE of Japan and IEEE. He is also a member of the Society of Instrument and Control Engineers, the Robotics Society of Japan, and the Society of Automotive Engineers of Japan.

He is an associate editor of IEEE/ASME Transactions on Mechatronics from 2010 to 2014, IEEE Industrial Electronics Magazine from 2006, IEE of Japan Transactions on Industrial Application from 2013, and Transactions on SICE from 2013 to 2016. He is a chairperson of JSAE vehicle electrification committee from 2014 and a past chairperson of IEEE/IES Technical Committee on Motion Control from 2012 to 2013.

Robotics & Automation Society

Information
CS/RA/SMC
Joint chapter Chair
Ryozo Nagamune
nagamune@mech.ubc.ca

CSS IEEE Control Systems Society

Systems, Man, & Cybernetics Society

Peter Helland
Midgard Consulting Inc

United States Navy submarine rescue: project strategies

Effective project management is about motivating people to do the right things at the right time. Peter Helland, CEO of Midgard Consulting, will be presenting lessons learned managing the project turn around and delivery of a Submarine Rescue Vehicle to the United States Navy.

Peter shares his unique experiences developing and delivering a first in class submarine vehicle designed to rescue submariners trapped under 2000 feet of seawater on the ocean floor.

Speaker: Peter Helland is a professional engineer and the Chief Executive Officer of Midgard Consulting Incorporated which does work for groups such as BC Hydro, FortisBC, ATCO Electric, Yukon Energy, SaskPower, and the Ontario Energy Board.

Peter holds a Master of Business Administration from the Sauder School of Business and a Master of Applied Science in Systems Engineering. Throughout his career he has worked in engineering, project management and leadership roles across a variety of industries including electricity, oil & gas, military, telecommunications and social services.

Peter is the father of twin six year old girls, and in what little spare time he has, Peter is an amateur archaeologist with the Underwater Archaeology Society of BC, enjoys cycling, and can occasionally be found canoeing in Canada's backcountry

Wednesday 13 September

12:00 —1:00 (noon)

Southpoint Auditorium
BC Hydro Edmonds Office
6911 Southpoint Dr, Bby

Information
Joint Power & Energy Chair
Dipendra Rai
Dipendra.Rai@bchydro.com

IEEE PES Power & Energy Society®

DEIS

Rumour has it that joint Solid-state Circuits chapter is planning ***two events*** on September 29

- one will be an information session on career advice
- one will be a technical talk on migrating analog/mixed-signal design to emerging finFET technology

...and not only that but..

- the speaker is Dr. Alvin Loke of Qualcomm Technologies, San Diego

However, chapter chair Shahriar Mirabbasi is still waiting to receive the abstracts but promises to rush them to Contact when they arrive to post to online Contact and send an IEEE Vancouver tweet letting interested followers know.

Online Contact <==> www.ieeecontact.org

Powertech Labs Tour

Interested in electrical power engineering, smart grid, and electrical testing?

Join the IEEE Vancouver Joint Industrial Applications chapter for a technical tour of Powertech Labs.

Powertech Labs Inc. is one of the largest testing and research laboratories in North America. They provide routine testing capabilities, product development, research and consulting services to support many industrial operations and electrical equipment manufacturers.

Areas of the tour may include, depending on availability:

- Electrical Labs (High Power Lab, High Voltage Lab, High Current Lab)
- Smart Utility & Electric Vehicle Lab
- Applied Chemistry
- Mechanical and Applied Materials Laboratories.

The tour is free but registration is required

Space is limited

Bring ID

Arrive at least 15 minutes before the tour is scheduled to begin and sign in at main reception. If unable to attend, please contact the organizer to allow for your spot to be filled. Upon conclusion of the tour, join the group for networking at Boston Pizza (12060 Nordel Way, Surrey)

Register:
https://events.vtools.ieee.org/meeting_registration/register/46514

Information
Jeff Bloemink
JointIAS/IES Chair
j.m.bloemink@ieee.org

1951-2011 IES 60th anniversary

Selyne Chen
Project Manager (Research)

Thursday 21 September
6:30 – 7:30 PM

VenutreLabs
1200 – 555 West Hastings Street
Vancouver, British Columbia
Canada V6B 4N4

Light refreshments served
Opened to public

Limited seating
available

Registration closing on
September 20th, 2017

Build your self-awareness, become more resilient and increase your productivity with this interactive workshop!

Registration and Details
https://goo.gl/ggQ7Vq

Information
Ana Laura Gonzalez-Rios, Chair
Women in Engineering
ana.gr1019@ieee.org

Activate Your Self-Esteem Using Metacognition

Description

An interactive workshop on helping the audience to activate their self-esteem using metacognitive strategies. The main objective of the workshop is to help them to create self-awareness so as to discover themselves through reflection, build up their resilience and to increase their performance in terms of personally and professionally.

The effectiveness of metacognitive skills is based on researchers that are in Mathematics Education, Linguistics, Clinical Psychology, Cognitive Psychology as well as Educational Psychology.

Biography

Selyn Chen was a former researcher in National Institute of Education, Singapore (NIE). She researched on Metacognition under Dr. Lee Ngan Hoe in the department of Mathematics and Mathematical Education (MME). Their research topics were focused on the discrepancy between teachers' knowledge of metacognition as well as how metacognitive strategies are used in the teachers' classroom.

With the valuable guidance from her professor, she got intrigued to explore other applications of Metacognition in helping people (such as clinical psychology, leadership and performance development, personal development and effective communication).

She has a very diverse work experience ranging from educational and psychological research, project management, entrepreneurship, innovation labs, engineering, and coaching. She is a person who loves to learn and share her knowledge. Selyn believes that the basis of real living is constant learning and sharing knowledge in helping others.

VentureLabs

VentureLabs® SFU is a founding member of the pan-Canadian Incubate Innovate Network of Canada is partnership with Ryerson University, the university of Ontario Institute of Technology, sponsored in party by the Government of Canada's National Research Council. VentureLabs® partners include leading universities, government, industry and investment section partners who collaborate in supporting innovation, acceleration, and scale-up of world class Canadian technology businesses.

IEEE EDS Vancouver Mini-Colloquium (MC): Integrating Nano/Micro Electronic & Related Devices

Date:
02 October 2017

Time:
09:30 to 16:30

Location:
ASB 9896, Applied Sciences Building, Simon Fraser University, 8888 University Dr, Burnaby, Canada

Breakfast, Lunch, and Coffee Breaks will be catered

Space is limited
To reserve your seat, please RSVP your first and last name to:
bgray@sfu.ca and
mmadachi@sfu.ca

Please look on the SFU web site for room location and directions; organizers will only confirm reservation via email.

Sponsored by: IEEE Electron Devices Society (EDS), National Science and Engineering Research Council (NSERC), Simon Fraser University

The Vancouver IEEE EDS hosts the following four EDS Distinguished Lecturers from academia, government, and commercial laboratories on the topic of micro/nano devices and systems:

Dr.Meyya Meyyappan
NASA Ames Research Center
Title: Something Different: Nanoscale Vacuum Electronics

Prof. Mina Rais-Zadeh
U. of Michigan
Title: Gallium Nitride Based Integrated Microsystems

Prof. Paul Berger
The Ohio State University
Title: Highly repeatable room temperature negative differential resistance in AlN/GaN resonant tunneling diodes

Dr. Héctor J. De Los Santos
NanoMEMS Research, LLC
Title: Theory of Nano-Electron-Fluidic Logic (NFL): A New Digital "Electronics" Concept

Agenda

9:30 am - 9:50 am:	Coffee/Continental breakfast (catered)
9:50 am:	Welcome address
10 am - 11 am:	Mina Rais-Zadeh, Assoc. Professor, U. of Michigan
11 am - 12 pm:	Paul Berger, Professor, Ohio State University
12 pm - 12:50 pm:	Lunch break and networking (catered)
12:50 pm - 1 pm:	Afternoon welcome
1 - 2pm:	Meyya Meyyappan, Chief Scientist for Exploration Technology, NASA Ames Research Center
2 - 2:30pm:	Coffee break (catered)
2:30 - 3:30pm:	Hector De Los Santos, Founder, NanoMEMS Research
3:30 - 4:30pm:	Panel Discussion
4:30pm:	Closing remarks

IEEE ELECTRON DEVICES SOCIETY® NSERC CRSNG SFU SIMON FRASER UNIVERSITY ENGAGING THE WORLD

IEEE EDS Vancouver Mini-colloquium, Date: Oct 2nd, 2017, 9:30 am -4:30 pm
Location: ASB 9896, Simon Fraser University, Burnaby, BC, Canada

Dr. Meyya Meyyappan
NASA Ames Research Center
Moffett Field, CA 94035

Title: Something Different: Nanoscale Vacuum Electronics

Abstract: We have been fabricating nanoscale vacuum tubes over the last three years using entirely and exclusively silicon technology. Vacuum is superior to any semiconductor in terms of electron transport, in addition to being immune to all radiations. We have combined the best of vacuum transport and silicon technology to fabricate surround gate nanoscale vacuum transistors on 8 " wafers with a channel dimension of 50 nm. These vacuum transistors, operating at a drive voltage of only 2 V, which is remarkable for vacuum devices, have the potential for THz electronics and several other applications. This talk will also provide an overview of our recent activities in printable electronics including gas sensors, antennas and triboelectric nanogenerators. To enable a one-step printing without the need for post-deposition thermal treatment, we have developed an atmospheric pressure plasma jet printing technology. This is an alternative to inkjet printing for depositing conducting, semiconducting, insulating and other materials on a variety of flexible substrates. The author thanks Jin-Woo Han, Ram Prasad Gandhiraman, Jessica Kohene, Dongil Moon, Myeonglok Seoul, Sunjin Kim, Daniel Kim, Kyung Jean Yoon, Furman Thompson and Niki Werkheiser.

Biography: Meyya Meyyappan is Chief Scientist for Exploration Technology at NASA Ames Research Center in Moffett Field, CA. Until June 2006, he served as the Director of the Center for Nanotechnology. He is a founding member of the Interagency Working Group on Nanotechnology (IWGN) established by the Office of Science and Technology Policy (OSTP). The IWGN is responsible for putting together the National Nanotechnology Initiative.

Dr. Meyyappan has authored or co-authored over 360 articles in peer-reviewed journals and made over 250 Invited/Keynote/Plenary Talks in nanotechnology subjects across the world and over 200 seminars at universities. His research interests include carbon nanotubes, graphene, and various inorganic nanowires, their growth and characterization, and application development in chemical and biosensors, instrumentation, electronics and optoelectronics. Dr. Meyyappan is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), Electrochemical Society (ECS), American Vacuum Society (AVS), Materials Research Society (MRS), Institute of Physics (IOP), American Institute of Chemical Engineers (AIChE), American Institute of Mechanical Engineers (ASME), National Academy of Inventors, and the California Council of Science and Technology. He is currently the IEEE Electron Devices Society (EDS) Distinguished Lecturer, and was the Distinguished Lecturer on Nanotechnology for both the IEEE Nanotechnology Council and ASME. For his contributions and leadership in nanotechnology, he has received numerous awards including: a Presidential Meritorious Award; NASA's Outstanding Leadership Medal; Arthur Flemming Award given by the Arthur Flemming Foundation and the George Washington University; IEEE Judith Resnick Award; IEEE-USA Harry Diamond Award; AIChE Nanoscale Science and Engineering Forum Award; Distinguished Engineering Achievement Award by the Engineers' Council; Pioneer Award in Nanotechnology by the IEEE-NTC; Sir Monty Finniston Award by the Institution of Engineering and Technology (UK); Outstanding Engineering Achievement Merit Award by the Engineers' Council; IEEE-USA Professional Achievement Award; AVS Nanotechnology Recognition Award; IEEE Nuclear and Plasma Sciences Society Merit Award; Distinguished Grumman Project Engineering Award by the Engineers' Council. For his sustained contributions to nanotechnology, he was inducted into the Silicon Valley Engineering Council Hall of Fame in 2009. He received an Honorary Doctorate in 2015 from the University of Witwatersrand, Johannesburg, South Africa for his scientific contributions. For his educational contributions, he has received: Outstanding Recognition Award from the NASA Office of Education; the Engineer of the Year Award (2004) by the San Francisco Section of the American Institute of Aeronautics and Astronautics (AIAA); IEEE-EDS Education Award; IEEE-EAB (Educational Activities Board) Meritorious Achievement Award in Continuing Education.

IEEE EDS Vancouver Mini-colloquium, Date: Oct 2nd, 2017, 9:30 am -4:30 pm
Location: ASB 9896, Simon Fraser University, Burnaby, BC, Canada

Dr. Paul R. Berger
Professor
The Ohio State University
Columbus, OH

Title: Highly repeatable room temperature negative differential resistance in AlN/GaN resonant tunneling diodes

Abstract: III-nitride RTDs have attracted a great deal of interest in recent years as they have potential to increase the power output and operating temperature of RTDs due to the large band offsets available in pseudomorphic and III-nitride heterojunctions (~2 eV for AlN/GaN). Subsequently, intraband tunneling could enable a new class of tunneling injection devices. For example, the combination of RTDs with plasmonic modes in a III-nitride HEMT structure could lead to power gain at high frequencies. AlN/GaN resonant tunneling diodes (RTD) grown on low dislocation density semi-insulating (SI) bulk GaN substrates via plasma-assisted molecular-beam epitaxy (MBE) will be reported here. The devices were fabricated using a six mask level, fully isolated process. Stable room temperature negative differential resistance (NDR) was observed. The NDR exhibited no hysteresis, background light sensitivity, or degradation of any kind after more than 1000 continuous up-and-down voltage sweeps. Results exhibited a ~90% yield of operational devices which routinely displayed an average peak current density of 2.7 kA/cm2 and peak-to-valley current ratio (PVCR) of ~ 1.15 across different sizes.

Biography: Paul R. Berger (S'84 M'91 SM'97 F'11) is a Professor in Electrical & Computer Engineering at Ohio State University and Physics (by Courtesy). He is also a Distinguished Visiting Professor at Tampere University of Technology in Finland. He received the B.S.E. in engineering physics, and the M.S.E. and Ph.D. (1990) in electrical engineering, respectively, all from the University of Michigan, Ann Arbor. Currently, Dr. Berger is actively working on quantum tunneling devices, printable semiconductor devices & circuits for IoT, bioelectronics, novel devices, novel semiconductors and applied physics. Formerly, he worked at Bell Laboratories, Murray Hill, NJ (1990-'92) and taught at the University of Delaware in Electrical and Computer Engineering (1992-2000). In 1999, Prof. Berger took a sabbatical leave while working first at the Max-Planck Institute for Polymer Research, Mainz, Germany while supported by Prof. Dr. Gerhard Wegner and then moved on to Cambridge Display Technology, Ltd., Cambridge, United Kingdom working under Dr. Jeremy Burroughes. In 2008, Prof. Berger spent an extended sabbatical leave at IMEC (Interuniversity Microelectronics Center) in Leuven, Belgium while appointed as a Visiting Professor in the Department of Metallurgy and Materials Engineering, Katholieke Universiteit Leuven, Belgium. And more recently he took a sabbatical leave in 2015-2016 at Tampere University of Technology with the Prof. Don Lupo in the Printed and Organic Electronics Group. He has authored over 110 articles, 5 book sections and been issued 22 patents with 6 more pending from 60 + disclosures with a Google Scholar H-index of 33. Some notable recognitions for Dr. Berger were an NSF CAREER Award (1996), a DARPA ULTRA Sustained Excellence Award (1998), a Lumley Research Award (2006, 2011), a Faculty Diversity Excellence Award (2009) and Outstanding Engineering Educator for State of Ohio (2014). He has been on the Program and Advisory Committees of numerous conferences, including the IEDM, ISDRS, EDTM meetings. He currently is the Chair of the Columbus IEEE EDS/Photonics Chapter and Faculty Advisor to Ohio State's IEEE Student Chapters. He is a Fellow and Distinguished Lecturer of IEEE EDS and a Senior member of Optical Society of America.

IEEE EDS Vancouver Mini-colloquium, Date: Oct 2nd, 2017, 9:30 am -4:30 pm
Location: ASB 9896, Simon Fraser University, Burnaby, BC, Canada

Dr. Mina Rais-Zadeh
Associate Professor
University of Michigan
Ann Arbor, Michigan

Title: Gallium Nitride Based Integrated Microsystems

Abstract: In the last few years we have seen rapid growth of III-V semiconductors geared towards a variety of applications where silicon performance falls short. GaN, a III-V semiconductor, is proven to be the material of choice for high-frequency, high-power, and high-temperature applications. GaN also offers a number of excellent mechanical properties, making it a suitable material for MEMS. This talk discusses the application of GaN micromechanical devices in timing and integrated sensing.

Biography: Mina Rais-Zadeh received the B.S. degree in electrical engineering from Sharif University of Technology and M.S. and Ph.D. degrees both in Electrical and Computer Engineering from Georgia Institute of Technology in 2005 and 2008, respectively. From 2008 to 2009, she was a Postdoctoral Research Fellow at Georgia Institute of Technology. In 2009, she joined the University of Michigan, Ann Arbor, as an Assistant Professor of Electrical Engineering and Computer Science (EECS). Since 2014, she has been an Associate Professor in EECS with courtesy appointment in the Department of Mechanical Engineering. She is currently at NASA JPL and on leave of absence from U. of Michigan.

Dr. Rais-Zadeh is the recipient of the NSF CAREER Award (2011), IEEE Electron Device Society Early Career Award (2011), NASA Early Career Faculty Award (2012), the Crosby Research Award from the University of Michigan (2013), National Academy of Engineering Frontiers of Engineering (2013), ONR Young Investigator Award (2014), IEEE Sensors Council Early Career Technical Achievement Award (2015), and University of Michigan EECS Outstanding Achievement Award (2016). Together with her students, she received the best poster award at the Transducers conference (2013), the best paper award at the IEEE SiRF conference (2014, 2016), honorable mention at the IEEE IMS (2014), and was the finalist in student paper competitions at the SiRF (2007) and IMS (2011) conferences. She is an associate editor for the IEEE Journal of Microelectromechanical Systems (JMEMS) and on editorial board of Nature Scientific Reports. Her research interests include electron devices for wireless communication and sensing applications and the related device physics, resonant micromechanical devices, RF MEMS, gallium nitride MEMS, and micro/nano fabrication process development.

IEEE EDS Vancouver Mini-colloquium, Date: Oct 2nd, 2017, 9:30 am -4:30 pm
Location: ASB 9896, Simon Fraser University, Burnaby, BC, Canada

Dr. Héctor J. De Los Santos
NanoMEMS Research, LLC
Irvine, California 92604 USA

Title: Theory of Nano-Electron-Fluidic Logic (NFL): A New Digital "Electronics" Concept

Abstract: As predicted by Gordon Moore more than 40 years ago, the number of transistors able to fit on a computer chip has doubled approximately every 18 months. But if the trend is to continue for the years to come, it will have to be with technology other than the conventional CMOS design. As the size of transistors gets down to the nanoscale, CMOS devices begin to suffer from several issues, in particular, increased resistance, decreased channel mobility, and increased manufacturing costs. To overcome the challenges involved with scaling, researchers from around the world have begun to look for alternatives to CMOS technology. Our recently introduced concept, called nano-electron-fluidic logic (NFL), is based, not on electron particle transport, but on the generation, propagation, and manipulation of surface plasma waves (plasmons) in an electron fluid. NFL gates are projected to exhibit femtojoule power dissipations and femtosecond switching speeds at finite temperatures, while taking full advantage of established semiconductor manufacturing infrastructure. NFL represents a paradigm shift in digital technology, and is poised as a strong candidate for "beyond-CMOS" digital logic. This talk presents the theory, physics and design principles of NFL.

Biography: Héctor J. De Los Santos received the Ph.D. degree in electrical engineering from Purdue University, West Lafayette, IN, in 1989. He founded NanoMEMS Research, LLC, Irvine, CA, a company engaged in Nanoelectromechanical Quantum Circuits and Systems (NEMX) and RF MEMS (NanoMEMS) research, consulting, and education, where he focuses on discovering fundamentally new devices, circuits and design techniques. Prior to founding NanoMEMS in 2002, he spent two years as a Principal Scientist, RF MEMS, at Coventor, Inc., Irvine, CA. From 1989 to 2000, he was with Hughes Space and Communications Company, Los Angeles, CA, where he served as Principal Investigator and the Director of the Future Enabling Technologies IR&D Program. Under this program he pursued research in RF MEMS, quantum functional devices and circuits and photonic bandgap crystal devices and circuits. He holds over 30 U.S., European, German and Japanese patents and is author of bestseller textbooks, including, *Introduction to Microelectromechanical (MEM) Microwave Systems,* Norwood, MA: Artech House, 1999 [This book was the first in the RF MEMS field and has become an Artech House classic, now being in their IPF® (In-Print-Forever®) program], *RF MEMS Circuit Design for Wireless Communications,* Norwood, MA: Artech House, 2001, and *Principles and Applications of NanoMEMS Physics*, Dordrecht: The Netherlands: Springer, 2005. His most recent book, *Radio Systems Engineering: A Tutorial Approach*, was published by Springer, New York, in 2014. His research interests include, theory, modeling, simulation, design and demonstration of emerging devices (electronic, plasmonic, nanophotonic, mechanical systems in the quantum regime, etc.), and wireless communications.

During the 2010-11 academic year he held a German Research Foundation (DFG) *Mercator Visiting Professorship* at Institute for High-Frequency Engineering and Electronics, Karlsruhe Institute of Technology/University of Karlsruhe, Germany, where his activities included teaching, and conducting research on his DFG-funded project "Nanoelectromechanical Interferometric Tuning with Non-Equilibrium Cooling for Microwave and mm-Wave Electronics". From 2001-2003 he lectured worldwide as an IEEE Distinguished Lecturer of the Microwave Theory and Techniques Society. Since 2006 he has been an IEEE Distinguished Lecturer of the Electron Devices Society. He is a member of Tau Beta Pi, Eta Kappa Nu and Sigma Xi. He is an IEEE Fellow.