

# **Langis Roy, PhD**

**Dean, Graduate Studies at University of Ontario Institute of Technology**

Oshawa, ON, CA

International wireless sensor technology expert leads new era of Graduate Studies at UOIT

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## **Description**

Graduate education is more important than ever in today's knowledge-driven economy; it creates opportunities for next-generation research which is fundamental to economic growth and environmental sustainability. Appointed Dean of Graduate Studies in 2015, Langis Roy, PhD, is passionate about shaping the university's graduate program portfolio to enhance collaborative research capabilities among students, faculty and industry.

Formerly Carleton University's Associate Dean of Planning in the Faculty of Graduate/Post-doctoral Affairs, Dr. Roy led strategic enrolment to achieve the Ottawa, Ontario institution's highest domestic and international enrolment in 2014-2015. In that role, he developed and implemented Carleton's international Cotutelle Policy, which allows doctoral students to complete program requirements while jointly enrolled at two universities. During his 15-year tenure, he held appointments as an Associate Professor, Professor, and Chair in the Department of Electronics, while guiding the research success of nearly 50 graduate students, many of whom received prestigious awards.

An international wireless technology expert, Dr. Roy applies sensing and communicating electronic devices to innovative component-level and system-level integrated solutions, particularly for the biomedical and aerospace industries. Equipped with a proven track record of collaborative and cross-disciplinary research work, he aims to improve current products and processes with embedded intelligence and enhanced functionality. Remarkably, Dr. Roy and his research team have developed the world's first on-chip antennas using commercial CMOS silicon, and are global leaders in the development of system-on-package LTCC componentry for microwave and mm-wave wireless applications. His research has extended to THz biosensing and wireless power harvesting.

Dr. Roy earned his Bachelor of Applied Science in Electrical Engineering at the University of Waterloo, Ontario in 1987; and obtained both his Master of Engineering and his Doctorate in Engineering from Carleton University in Ottawa in 1989 and 1993, respectively. He completed a post-doctoral fellowship at Universit  de Toulouse in France and became an Assistant Professor at the University of Ottawa. An Invited Professor in Finland and France, Dr. Roy has established leading international research partnerships in wireless and sensing technologies.

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## **Industry Expertise**

Semiconductors, Biotechnology, Aerospace, Education/Learning, Electrical Engineering, Research

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## **Topics**

High-Performance Electronic Circuit Packaging, Integrated Active Antennas, Microwave Electronics (Si GaN GaAs), System-on-Package Design, System-on-Chip Design, Low Temperature Co-Fired Ceramics, Reconfigurable Microwave Components, Wireless Sensors

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## **Affiliations**

Institute of Electrical and Electronics Engineers (IEEE), Ontario Aerospace Consortium, Professional Engineers Ontario

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## **Past Talks**

### **Advances in Tunable Microwave Ferrite-LTCC Components**

WM04 Workshop on MM-Wave Multilayer MCM/SoP and Heterogeneous Integration Techniques, European Microwave Week

### **Characterization of GaN-based HEMTs as Varactor Diode Devices**

European Microwave Week 2015

### **A Novel Multi-Layer Electromagnetic Band Gap Structure (EBG) Comprised of 3D Lattice of Square Rings**

IEEE International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization for RF, Microwave, and Terahertz Applications (NEMO)

### **Modeling Substrate Integrated Waveguide Structures Using Effective Material Properties**

IEEE International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization for RF, Microwave, and Terahertz Applications (NEMO),

### **Modeling and Simulation of a Partially-Magnetized Ferrite LTCC Circulator**

IEEE International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization for RF, Microwave, and Terahertz Applications

### **Circulateur LTCC Ferrite Large-Bande $\tilde{\Lambda}$ Structures Empilées en Bande K**

19<sup>èmes</sup> Journées Nationales Microondes

### **Health Implications of Radio-Wave Exposure**

Discovery Café, Blackburn Community Centre

### **How Safe is Wireless Technology**

Innovations in Antenna Engineering, Faculty of Engineering and Design, Carleton University Talks, Ottawa Public Library

### **Schottky-contact Plasmonic Rectenna for Biosensing**

Photonics North 2013

### **Zero-biased Optically Controlled RF Switch in 0.13 $\mu$ m CMOS Technology**

IEEE 2011 International Topical Meeting on Microwave Photonics Conference

## **A New Optically Controlled CdS-Polymer Capacitor for Tunable Microwave Components**

European Microwave Week 2011

## **A 60 GHz System-on-Package Balanced Antipodal Vivaldi Antenna with Stepped Dielectric Director (BAVA-SDD) in LTCC**

European Microwave Week 2011

## **Electric Energy and Power Educational Programs Development Workshop**

118th ASEE Annual Conference and Exposition

## **60 GHz SoP Active Array Design**

The 27th International Review of Progress in Applied Computational Electromagnetics

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## **Education**

### **Carleton University**

PhD Electrical Engineering

### **Carleton University**

MEng Electrical Engineering

### **University of Waterloo**

BASc Electrical Engineering

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## **Accomplishments**

### **Board of Directors, Canadian Association for Graduate Studies (CAGS)**

Appointed to this role for a two-year term from 2017 to 2018, Dr. Roy is committed to the promotion of graduate education and university research through meetings, publications and advocacy. CAGS brings together 58 Canadian universities with graduate programs and the three federal research-granting agencies, as well as other institutions and organizations with an interest in graduate studies.

### **Strategic Engagement Editorial Board, Council of Ontario Universities (COU)**

Dr. Roy has been appointed to this COU board for a two-year term from 2017 to 2018. The board is part of a year-long campaign to engage students and parents in province-wide dialogue about future economic needs across all sectors, and determine how universities can contribute to a brighter future for everyone.

### **NSERC Advisory Committee on University-Industry Grants (ACUIG)**

Dr. Roy has been appointed to the ACUIG for a three-year term, from 2017 to 2019. This multidisciplinary committee has broad experience in university-industry interactions. The ACUIG makes funding recommendations for large scale NSERC Collaborative Research and Development applications as well as Industrial Research Chair applications, taking into account the recommendations of site visit committees and external peer reviews.

### **NSERC Research Tool and Instrument Selection Committee**

An appointed member of this committee from 2016 to 2018, Dr. Roy plays a role in evaluating and awarding Research Tools and Instruments (RTI) grants which foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering (NSE).

### **Best Conference Paper Award, European Wireless Technology Conference (EuWiT)**

Awarded for his co-authored paper entitled, *Wireless Interconnect Between On-Chip and LTCC Antennas for System-in-Package Applications*, at the EuWiT conference held in Amsterdam, Netherlands.

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