ELECTRICAL AND COMPUTER ENGINEERING

ECE DISTINGUISHED LECTURE

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Semiconductor Nanowires for Optoelectronics Applications

Friday, November 17, 2017
3:30 – 4:30 PM | 1303 EECS Bldg.

Applied Electromagnetics & RF Circuits

Communications

Computer Vision

Control Systems

Embedded Systems

Integrated Circuits & VLSI

MEMS & Microsystems

Optics & Photonics

Power & Energy

Robotics

Signal & Image Processing and Machine Learning

Solid State & Nanotechnology

ABSTRACT — Semiconductors have played an important role in the development of information and communications technology, solar cells, solid state lighting. Nanowires are considered as building blocks for the next generation electronics and optoelectronics. In this talk, I will introduce the importance of nanowires and their potential applications and discuss about how these nanowires can be synthesized and how the shape, size and composition of the nanowires influence their structural and optical properties. I will present results on axial and radial heterostructures and how one can engineer the optical properties to obtain high performance lasers, THz detectors and solar cells. Use of nanowires for artificial photosynthesis and engineering of neuronal networks will be discussed. Future prospects of the semiconductor nanowires will be discussed.

BIO — Professor Jagadish is a Distinguished Professor and Head of Semiconductor Optoelectronics and Nanotechnology Group in the Research School of Physics and Engineering, Australian National University. He is currently serving as President-Elect of IEEE Photonics Society and President of Australian Materials Research Society. His research interests have been in MOVPE growth of semiconductor heterostructures and nanowires, their characterization and optoelectronics device applications. He was an early pioneer in the study of impurity induced disordering in semiconductor heterostructures. His research contributions have been recognized by many international awards including the Quantum Device Award from ISCS in 2010, Electronics and Photonics Division Award of the Electrochemical Society in 2012, 2013 Walter Boas Medal, 2015 IEEE Pioneer Award in Nanotechnology, 2015 IEEE Photonics Society Engineering Achievement Award, 2016 Distinguished Fellow of Chinese Academy of Sciences, 2016 OSA Nick Holonyak Jr Award, 2017 Welker Award and 2017 IUMRS Somiya Award. He has received Australia's highest civilian honor, Companion of the Order of Australia, as part of the 2016 Australia day honors from the Office of the Governor General for his contributions to physics and engineering, particularly nanotechnology.

Professor Chennupati Jagadish

The Australian National University Canberra, Australia

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