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# III-V Semiconductor Unipolar Barrier Infrared Detectors

*A Seminar of the IEEE WA joint EDS/SSCS/IPS Chapter*

**Professor David Ting**
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## Friday, 7 December 2018 @ 4.00 PM

**Venue**: **Billings Room 3.04, 3rd floor. Electrical & Electronic Engineering Building**
**University of Western Australia, Crawley**

This seminar is open to the public and admission is free to all IEEE members and non-members

## *Abstract:*

The past decade has seen accelerated progress in III-V semiconductor infrared photodetector technology. The advent of the unipolar barrier infrared detector device architecture has in many instances greatly alleviated generation-recombination (G-R) and surface-leakage dark current issues that had been problematic for many III-V photodiodes. Meanwhile advances in a variety type-II superlattices (T2SLs) such as InGaAs/GaAsSb, InAs/GaSb, and InAs/InAsSb, as well as in bulk III-V material such as InGaAsSb and metamorphic InAsSb, have provided continuously adjustable detector cutoff wavelength coverage from the short wavelength infrared (SWIR) to the very long wavelength infrared (VLWIR). The confluence of these developments has led to a new generation of versatile, cost-effective, high-performance infrared detectors and focal plane arrays based on robust III-V semiconductors, providing a viable alternative to HgCdTe (MCT).

## *Biography:*

David Z. Ting received the B.S. degree (Hons.) in physics from the California Institute of Technology, Pasadena, and the M.S. and Ph.D. degrees in physics from the University of Illinois at Urbana-Champaign. He was a Senior Research Fellow in the Department of Applied Physics, Caltech, before joining the National Tsing Hua University, Hsinchu, Taiwan, as an Associate Professor of Physics. He is a Senior Research Scientist, Principal Member of Engineering Staff, and Deputy Director of the Center for Infrared Photodetectors at the NASA Jet Propulsion Laboratory, Caltech, Pasadena. His research activities include the studies of electronic and optical properties of semiconductors, quantum transport in tunnel devices and nanostructures, spintronics, and infrared photodetectors. Results of his work have been reported in 250 research publications and in over 160 conference presentations and technical seminars. He holds 17 patents. He received the NASA Exceptional Technology Achievement Medal in 2014 for contribution and leadership in the invention and implementation of advanced infrared detector technology for space and terrestrial applications. Dr. Ting is a senior member of the IEEE, and a Fellow of the SPIE.