Seminar Series

Nanomembranes for silicon photonics and flexible optoelectronics

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Abstract
Research in nanoscale crystalline materials, dominated by studies of nanocrystal quantum dots and nanowires/nanotubes, now incorporates a growing focus on 2D sheets with nanoscale thicknesses, referred to as nanomembranes (NMs). In addition to their scientific significances and size dependent physical properties, NMs offer unprecedented opportunities for unique electronic and photonic devices for vertically stacked multi-functional photonic/electronic integrated super-chips, high performance flexible electronics, and adaptive flexible/conformal photonics. In this talk, I will review major progresses made over the last few years on this emerging and exciting field, with focuses on PDMS transfer printed photonic crystal nanomembrane lasers on Si (Nature Photonics, Sept. 2012) for Si photonics, Fano resonance photonic crystal membrane reflectors and filters, and high speed flexible RF electronics, etc. The convergence of nanomembranes and Fano resonance photonic crystals and metamaterials will also be discussed, with potential applications in the areas of 3D Si CMOS photonics, flexible, bio-inspired/integrated photonic/electronic systems, and multi-spectral multi-color infrared imaging and sensing systems, etc.

Biography of Speaker

Professor Weidong Zhou obtained his BS and ME degrees from Tsinghua University, Beijing, China. He obtained his PhD degree in Electrical Engineering from University of Michigan, Ann Arbor, majoring in optoelectronics and solid state electronics. Before joining University of Texas at Arlington (UTA), he worked as a lead engineer at CIENA Corporation for three years, working on active photonic devices for optical communication systems. He is currently a Professor of Electrical Engineering at UTA. Dr. Zhou has authored and co-authored over 200 journal publications and conference presentations, including ~70 journal publications, and 70 invited conference talks and seminars. Dr. Zhou is a senior member of IEEE, a member of APS, OSA and SPIE.