Washington University in St. Louis

Engineering

Preston M. Green Department of Electrical & Systems Engineering

Seminar Announcement

Dr. Weidong Zhou

Department of Electrical Engineering

University of Texas at Arlington

Thursday, February 18, 2016

Green Hall, Room 0120

10:10 AM

Scaling of Semiconductor Membrane Photonics for Energy Efficiency Photonics and Flexible Optoelectronics

Abstract: The history of science and technology has been fueled by people's dreams to pursue the ultimate limit of physical systems. Continued scaling in physical systems presents us great opportunities along with grand challenges in extreme energy efficiency and adaptability. With a long term vision on extreme performance solid state physical devices and systems, we have been focus on semiconductor membrane photonics, flexible electronics and optoelectronics, based on nanoscale crystalline materials and photonic crystal/metamaterial cavities. In this talk, I will discuss some of the research progresses made in my group, in the area of photonic crystal Fano resonance photonics for light-matter interactions, imaging, and sensing, with the focus on the scaling of ultra-compact on-chip membrane lasers for integrated photonic/electronic systems. The convergence of transfer printed semiconductor nanomembranes and Fano resonance photonic crystals/nanocavities will also be discussed, with potential applications in the areas of energy efficient computing/communication/sensing/imaging systems, flexible bio-inspired/integrated photonic/electronic systems, IoT and cyber-physical systems, etc.

Bio: Professor Weidong Zhou obtained his BS and ME degrees from Tsinghua University, Beijing, China, in 1993 and 1996, respectively. He obtained his PhD degree in Electrical Engineering from University of Michigan, Ann Arbor, in 2001. From 2001-2004, he worked as a lead engineer at CIENA corporation, working on active photonic devices for optical fiber communication systems. He is currently a Professor of Electrical Engineering at the University of Texas at Arlington (UTA). Dr. Zhou has authored and co-authored over 280 journal publications and conference presentations, including over 50 invited conference talks. Dr. Zhou and his group have made significant contributions in the area of photonic crystal flat optics and membrane photonics, especially membrane lasers and imagers, for integrated silicon photonics and flexible optoelectronics. Dr. Zhou is a fellow of SPIE, a senior member of IEEE, and a member of OSA, APS, MRS, and AAAS. He also serves and chairs in various conference committees and editorial boards. Dr. Zhou's major awards include UTA Outstanding Research Achievement Award (2015), College of Engineering Excellence in Research Award (2013), Rackham Predoctoral Fellowship award (Univ. of Michigan, 2000-2001), IEEE/LEOS Graduate Student Fellowship award (IEEE/LEOS, 2000), Outstanding Graduate Award (Tsinghua Univ., Gold medal, 1993), Outstanding Student of Beijing (Beijing, 1992), etc.

Host: Dr. Arye Nehorai