

# SEMINAR NOTICE

Department of Electrical and Systems Engineering

## PHOTONICS FOR MICROWAVE GENERATION, TRANSMISSION, AND PROCESSING

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**REVISED - Abstract:** This talk will provide an overview of state-of-art photonic technologies for microwave generation, transmission and processing. After briefly introducing DARPA and the Microsystems Technology Office, the needs and challenges associated with operating in today's electromagnetic spectrum will be reviewed. Microwave photonics offers numerous features for the RF system designer. RF technologies to be discussed include: low phase noise RF oscillators, high-fidelity fiber-optic links, and applications of photonics to RF filtering and processing. Past, current and future DARPA programs will be drawn upon to illustrate status and future directions. This talk is intended to promote new ideas and interactions with DARPA that could stimulate future DARPA programs both in this area or others.

Thursday, April 30, 2009

4:00 p.m.

Bryan Hall, Room 305

Host: Daniel Rode

**Bio:** Ron Esman joined the DARPA Microsystems Technology Office (MTO) as a Program Manager in June of 2007. His primary interest is in the areas of technology, components, and modules for RF/microwave photonics, fiber-optic communication, and radar/EW signal processing.

Prior to joining DARPA, Dr. Esman served as Vice President in charge of Optical Product Development at Essex Corporation from 2004-2006, where he focused on the areas of optical processors, optical spectrum analysis, and optical encryption. Dr. Esman also served as Executive Engineer for Transmission Technology at Corvis Corporation from 2000-2004, where he oversaw optical telecommunication transmission technologies and served as a member of the Technical Advisory Board. Dr. Esman was responsible for both terrestrial long haul and ultra long haul Tx/Rx products and the submarine line terminal equipment.

Dr. Esman also spent 14 years at the Naval Research Laboratory serving first as the Leader of the Fiber-Optic Microwave Group, where his activities focused on microwave applications of fiber optics. Dr. Esman then served as Head of the Microwave Photonics Section and finally Head of the Photonics Technology Branch, which performed research at the forefront of opto-electronic science and technology; guided-wave and free-space optics; optical communications; and RF signal processing. Dr. Esman received his B.A. (Physics and Math) from Kalamazoo College and his M.S. and Ph.D. (Electrical Engineering) from Washington University in St. Louis. Dr. Esman has co-authored 66 journal articles, 92 conference presentations (21 invited), and has 16 patents. He has served on numerous conference committees including Technical Program Co-chair for OFC2002, General Co-Chair for OFC2004 and Technical Program Chair for MWP99. He is a member of the Optical Society of America and the IEEE/Photonics Society (formerly LEOS). Dr. Esman is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for contributions to the development of fiber optic systems for microwave applications and optical fiber research.

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