Electrical Engineering

THE UNIVERSITY OF TEXAS AT DALLAS

UTD

Colloquium

Organic Electronics: Fundamentals to Devices

Eric W. Forsythe
Team Leader, Display Technologies
Army Research Laboratory, Adelphi, MD

Research and development on electronic materials form the foundation of the modern Information Technology revolution. Organic semiconductor materials have demonstrated their potential as a new class of electronic materials for commercial applications that includes; electrophotography, information displays, transistors, and sensors. Organic light emitting diodes (OLEDs) are an emerging technology for flat panel displays. OLEDs are fundamentally solid-state devices that offer improved attributes of; an ultra-thin rugged profile, greater power efficiency, and potentially a flexible form-factor as compared to liquid crystal displays. These OLED attributes are important for portable information display applications. This seminar will cover the fundamental properties of OLED technology in the context of charge injection and charge transport in organic electronic materials. Experimental results for interface engineering and charge injection will be presented. In addition, experimental results on charge transport will be correlated with disorder state spectroscopy data for electron and hole transporting organic materials. The experimental results will be specific to OLED technology followed by a generalization to organic thin film transistors. The emerging field of organic electronics will provide exciting new opportunities for the next generation of Information Technology applications.

DATE: Monday, March 27th
TIME: 11:00 a.m. – 12:00 p.m.
LOCATION: TI Auditorium

Biography

Eric W. Forsythe is a Staff Physicist and Team Leader for Display Technologies at the Army Research Laboratory (ARL). Prior to joining the ARL, he was a Senior Research Associate at the University of Rochester, in the Physics Department and the Chemistry Department, where he worked on electronic interfaces and carrier transport in organic light emitting devices in collaboration with the Eastman Kodak Company. Dr. Forsythe received his Ph.D. in Physics from Stevens Institute of Technology, Hoboken NJ in 1996, where he study Si nanocrystalline based light emitting devices, Raman Spectroscopy, and 1/f noise. Currently, Dr. Forsythe's research activities include the study of organic light emitting devices for flexible displays, organic based thin film transistors and photovoltaics. He is the Associate Program Manager for Technology of the Army's Flexible Display Center. He has authored/coauthored more than 50 papers and has given more than 20 invited talks and seminars. Dr. Forsythe is an active member of the Society for Information Displays. He has served as the Program Chair and General Chair for SIDMAC. He has/will serve as a Conference Chair at SPIE and OSA/ASC.