Nanotechnology Special Seminar, Wednesday 2.07.2014 , 12:00

IKI Auditorium, Building 51, room 015

Part 1: Challenges in OLED Science & Technology

Joseph Shinar
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Professor, Department of Physics & Astronomy
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Abstract:
Commercialization of OLED displays is rapidly growing (see your Samsung Galaxy smartphone or tablet), and white OLED (WOLED) lighting panels are also making their first commercial baby steps. This talk will review the current challenges in OLED science and technology that focus on fundamental challenges in OLED efficiency and stability, and the various approaches in OLED materials and architecture to overcome these challenges.

Part 2: OLEDs and Organic Solar Cells in Optical (Bio)chemical Sensing

Ruth Shinar
Adjunct Professor of Electrical and Computer Engineering
Iowa State University

Abstract:
As an example of organic electronics application, we describe an all-organic optical sensing platform, where an OLED pixel array, a sensing element, and a polymer or small-molecule organic photodetector are integrated to form a compact monitor. Sensing element design and monitoring of e.g., O2, pH, relative humidity, ethanol, lactate, and glucose, including detecting multiple bioanalytes using a lab-on-CD, will be described. Monitoring dissolved O2 as a tool to study respiratory function and hence remediation of bacteria spectrophotometer on a chip using microcavity OLED pixels for analytical applications.