Science Program presents

How Do We Design Organic and Inorganic Materials for Flexible, Transparent, Printed Electronic Circuitry?

Dr. Tobin J. Marks
Professor of Chemistry and Materials Science, Department of Chemistry and the Materials Research Center, Northwestern University
Adjunct Professor, Texas A&M University at Qatar

Tuesday, January 17, 2017
11-12 PM
LH 144

This lecture focuses on the challenging design, realization, and implementation of new materials for creating unconventional electronic circuitry. Fabrication methodologies to achieve these goals include high-throughput, large-area, high-resolution printing techniques. Materials design topics to be discussed include: 1. Rationally designed high-mobility p- and n-type organic semiconductors for printed organic CMOS, 2. Self-assembled and printable high-k nanodielectrics enabling ultra-large capacitance, low leakage, high breakdown fields, minimal trapped interfacial charge, and device radiation hardness, 3. Polycrystalline and amorphous oxide semiconductors for transparent and mechanically flexible electronics, 4. Combining these materials sets to fabricate a variety of high-performance thin-film transistor-based circuitries, 5. The relevance of these advances to realizing unconventional photovoltaic materials.

Tobin Marks is Vladimir N. Ipatieff Professor of Catalytic Chemistry and Professor of Materials Science and Engineering at Northwestern University. He received a B.S. degree from the University of Maryland and a Ph.D. degree from MIT. Among his recognitions, he received the 2006 U.S. National Medal of Science, the 2008 Principe de Asturias Prize in Science and Technology, the 2009 the MRS Von Hippel Award, the 2011 Dreyfus Prize in the Chemical Sciences, the 2012 U.S. National Academy of Sciences Award in the Chemical Sciences, and the 2017 ACS Priestley Medal. He is an elected member of the U.S., German, and Indian National Academies of Sciences, an elected member of the U.S. National Academy of Engineering, a Fellow of the Royal Society of Chemistry, and of the American Academy of Arts and Sciences. He has 1245 peer-reviewed publications and 243 issued U.S. patents.

FOR MORE INFORMATION:
Hala Eldakak
hala.el-dakak@qatar.tamu.edu
(+974)4423-0147