

Making Printable Mechanically Agile Electronics & Opto-Electronics a Reality. Electroactive Polymers and Amorphous Oxides

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This lecture focuses on the challenging, understanding-based design, creation, and realization of new materials combinations for unconventional, flexible/bendable/stretchable electronic circuitry. Fabrication methodologies include high-throughput, large-area, high-resolution patterning techniques. Materials design issues for next-generation electronics and sensors build upon the above findings and include: 1. Designing mechanical agility into semiconducting molecular and polymeric electronics, 2. Harmonizing electron/hole and ion conduction for iontronic circuitry, 3. Hybridizing organic and oxide electronics. In all areas, the symbiosis of green materials synthesis, computational modeling and simulation, and materials characterization over multiple length and time scales are central to progress.

BIOSKETCH



Tobin Marks received a Chemistry BS from the U. of Maryland, and an Inorganic Chemistry PhD from MIT. Recognitions include the U.S. National Medal of Science, Spanish Principe de Asturias Prize, MRS Von Hippel Award, Dreyfus Prize in the Chemical Sciences, NAS Award in Chemical Sciences, ACS Joseph Priestley Medal, the Israel Harvey Prize, and the German Chemical Society Karl Ziegler Prize. He is an elected fellow of the U.S., German, Italian, European, and Indian National Academies of Sciences, U.S. National Academy of Engineering, American Academy of Arts and Sciences, American Philosophical Society, and the U.S. National Academy of Inventors. Fellow: U.K. Royal Society of Chemistry, MRS, ACS, Chinese Chemical Society, and Israel Chemical Society. Approximately 250 other national and international awards and recognitions. He has published 1500 peer-reviewed articles and holds 210 issued U.S. patents. Honorary Doctorate Degrees: Hong Kong U. of Science and Technology, U. of South Carolina, Ohio State U., and Technical U. of Munich. He has founded or participated in the founding of 15 start-up companies, with his technologies leading to approximately \$100 billion in sales.