Title: Conjugated Polymer Composites for Biologically Inspired Sensing and Energy Storage/Conversion Systems

Abstract

Conjugated polymers are an exciting class of materials that hold great promise in emerging electronic, sensing and energy applications. The excitement surrounding the field has resulted from the tremendous possibilities presented by merging the vast knowledge base of synthetic organic chemistry and polymer science with critically important areas of electronic materials and solid-state physics. This rapidly growing field presents opportunities for revolutionizing material science and electronics in ways we are just beginning to imagine. This presentation will discuss the development of conjugated polymers for use in artificial photosynthesis and artificial olfaction, inspired by biological systems. In particular, recent developments in the design of membranes consisting of electronically and ionically conducting polymers will be discussed including their figures of merit and engineering challenges for use in coupling the absorption of light with the generation of solar fuels. In the area of artificial olfaction, the development of chemically diverse conjugated polymer sensing elements compatible with CMOS integrated circuits will be described.