BOSE COLLOQUIUM

Friday, 21 March 2014 4.00 pm Fermion

Speaker:
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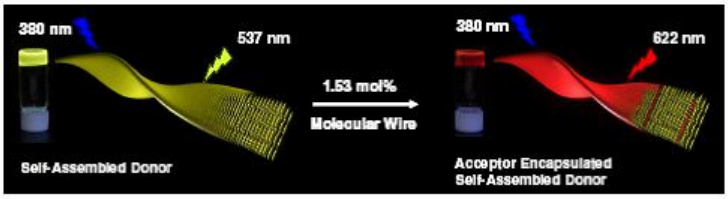
Title:
Excited State Properties of Fluorescent Molecular Assemblies and Gels

Abstract:

Self-assembly of functional molecules such as linear π-systems is important in the field of advanced materials for optoelectronic applications. During self-assembly, the electronic interaction within the molecules induces significant changes in properties such as absorption, fluorescence and electronic conductivity. Oligo(*p*-phenylenevinylene)s (OPVs) are a class of fluorescent linear -systems that are being used for a variety of applications. For the past several years we have been investigating the self-assembly of OPVs, which form a variety of fluorescent supramolecular structures leading to gelation of organic solvents.[1-3] As a result of self-assembly and gelation, significant change occurs to the emission properties of the gelator molecules.[4] These soft materials are excellent scaffolds as energy donors.[5] Encapsulation of different acceptor molecules into the self-assembled nanostructures facilitates energy transfer in a controlled fashion resulting in emission from the acceptors. Many of

these self-assemblies can be used for the sensing of specific analytes such as explosives, pesticides etc. and also are useful for imaging and security applications. For example, recently we have shown that OPV gelators encapsulated within a polymer matrix undergo reversible fluorescence color change upon heating and subsequent exposure to an appropriate solvent vapor.[6] In another example, we have demonstrated that self-assembled gelators can be used for the detection of nitro aromatics, particularly TNT at attogram level on a contact mode.[7] Results of these studies will be discussed.[8]



Reference

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