MULTIFUNCTIONAL ORGANIC SEMICONDUCTORS

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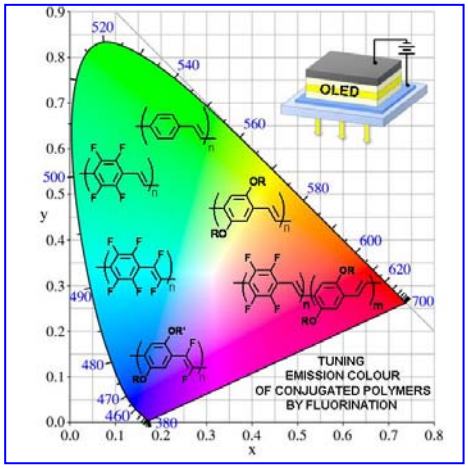
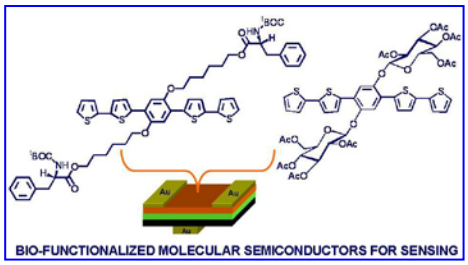
Molecular diversity is the most distinctive feature of organic semiconductors compared with the corresponding inorganic materials. Creative combination of structural motifs leads not only to optimize performances for specific applications, but also to develop multifunctional materials which simultaneously exhibit several properties. The synthetic logic guides the choice of conjugated backbone, functionalization and stereochemistry to gain control of the properties from single molecules to bulk materials.

The interplay between creative molecular design and synthetic logic in the development of molecular and polymeric organic semiconductors will be illustrated with some examples from our recent work. In particular, fluorinated conjugated polymers[1] with tuneable light emission and absorption[2] for electroluminescence[3] or photovoltaics and chiral bio-functionalized organic semi-conductors[4] for advanced sensing[5] will be presented. Synthetic aspects, structure-properties relationships and applications will be discussed.





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