

CoffeeTalk@ISOF

Molecular and Supramolecular Engineering of Thiophene Based Materials for Application in Organic Electronics and Bioimaging

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Thiophene based oligomers and polymers are of great current interest from a scientific and technological point of view[1] for their numerous properties: they are electroactive, fluorescent, chemically stable and allow a great diversity in molecular structures and a fine tuning of functional characteristics. They display 'plasticity' in adapting their geometry to the environment in the solid state and in creating supramolecular architectures by self-organization. Moreover, they have the capability to finely interact with biologically relevant molecules such as intracellular proteins. All these properties allow a large number of different applications in fields such as organic electronics and bioimaging which prompted the development of highly efficient and

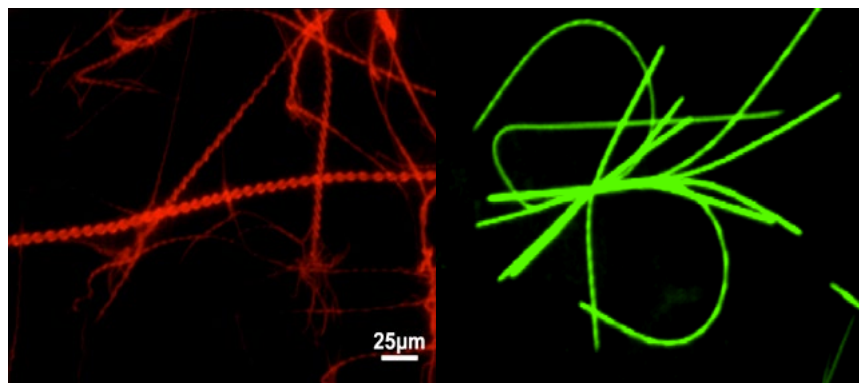


Fig. 1. Supramolecular oligothiophene microfibers spontaneously assembled on surfaces (left) or coassembled with proteins inside live cells (right).

'user friendly' synthetic approaches for their preparation. During this talk it will be shown that through accurate design and synthesis the properties of new classes of thiophene based compounds can be tuned opening the way to new materials with peculiar characteristics that allow them to spontaneously organize into ordered structures by cells assistance or by exploiting intra and intermolecular sulfur-sulfur non bonding interactions (Fig.1).

[1] Perepichka IF, Perepichka DF, editors. *Handbook of Thiophene-Based Materials: Applications in Organic Electronics and Photonics*. Wiley: Chichester (UK); 2009.

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ISOF 12 – Meeting Room (1st floor)
CNR Research Area
Via Gobetti 101, Bologna



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