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I. Preparation of organic electroactive/photoactive materials

Materials studied

- Conducting polymers (low band gap polymers, polymers with acceptor properties, soluble polymers)
- Fullerenes, fullerene clusters in room temperature ionic liquids
- Carbon nanotubes, functionalization of multi-wall, MWNT, and single wall, SWNT, ordered SWNT

Different ways of preparing materials

Ia. Ordered material by surface modification by silication and self assembly followed by electropolymerization. [1]

Ib. Electrochemical modification of single wall nanotubes SWNT, by room temperature ionic liquids

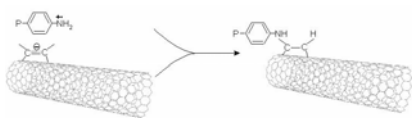


Fig.. 1. SWNTs individualized with the room temperature ionic liquid 1-butyl-3-methyl-imidazolium hexafluorophosphate (BMIMPF₆) containing trifluoroacetic acid. [2]

Ic. Composite formation of TiO₂ and conducting polymers by electropolymerization in organic media. [3]

II Materials characterization, instrumentation available in Process Chemistry Centre

Electrochemical potentiostats	Atomic Force Microscopy
Electrochemical Quartz Crystal Microbalance	Scanning Electron Microscopy and EDAX
Impedance Spectroscopy	X-ray diffraction
Dispersive and in situ Raman spectroscopy	NMR, MS
In situ variable angle external reflection FTIR	Inductively Coupled Plasma-Mass
In situ attenuated total reflectance FTIR	Spectrometry with Laser Ablation (detection
Variable angle FTIR (monolayer detection)	of inorganic species)
In situ UV-vis spectroscopy	

References

1. D. Wei et al. Journal of Materials Chemistry 16 (2006) 3014-3020
2. D. Wei et al. Electrochemistry Communication 9 (2007) 206-210
3. R.-M. Latonen et al. Journal of Applied Electrochemistry, submitted.