ORGANOGELS FROM SIMPLE SELF-ASSEMBLING AMIDE DERIVED TETRATHIAFULVALENES: *EN ROUTE* TO CONDUCTING NANOWIRES

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The aim of this work is to organize organic molecules *via* non-covalent interactions, attempting formation of a supramolecular structure with properties suitable for organic molecular electronic devices. To realise this target, we work with simple amide substituted tetrathiafulvalene (TTF) molecules.

Actually our studies demonstrate that some different amide TTF derivatives studied are able to gel organic solvents, (Fig. 1) and doping of the xerogels leads molecular materials containing a mesh of conducting nanowires.

Conducting nanoscopic fibres are an interesting goal, since they may form part of molecular electronic devices.[1] This bottom-up approach[2] to supramolecular wires offers many advantages over strictly covalent approaches, but one limiting stage is control in the self-assembly process. In particular deposition on surfaces is a process that can be difficult to control. The gel state offers an interesting way to form fibres[3] (Fig. 2), which can then be physically deposited and then left clean by evaporation of the solvent. For this reason, we started investigating gels.

References:

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Figures:

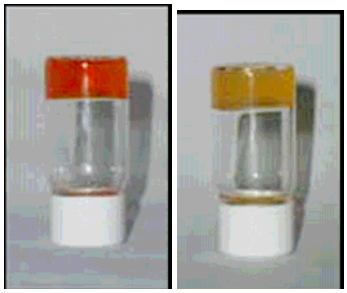

Fig. 1 Two different organogels formed in hexane.

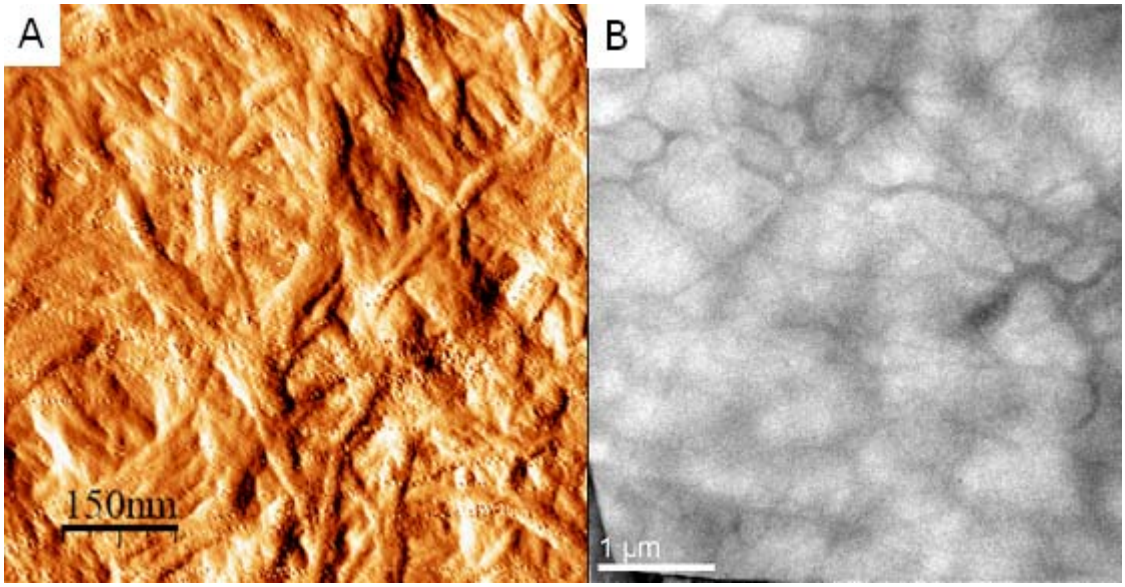

Fig. 3 (A) Acoustic mode AFM phase images of one xerogel after evaporation of hexane on HOPG, (B) TEM image of fibres after evaporation of the solvent from a hexane gel and doping with iodine vapours.

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