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Helical chirality in TTF's and derived materials

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Introduction of chirality into conducting systems is a topic of much current interest as it allows the preparation of multifunctional materials in which the chirality might modulate the structural disorder or expresses its influence through the electrical magneto-chiral anisotropy effect. The access to various chiral electroactive precursors for molecular conductors is therefore of paramount importance [1]. We have recently developed two new families of TTFs in which the chiral information is expressed in different ways. A first series is based on a C3 symmetric core decorated with three TTF-amido-bipyridine fragments, which show self-assembling properties. One of the compounds provided for example an electroactive organogel and conducting nanowires [2]. Moreover, when substituted with chiral alkyl chains, these compounds show hierarchical chiral expression at nano- and meso-scale in solution and solid state [3],[4]. Indeed, supramolecular chirality expressed through the formation of helical fibres of nano- or meso-scopic size following hierarchical self-assembly processes is a topic of great current interest in diverse scientific fields. A second family of chiral TTFs we will discuss present helical chirality provided by helicene units fused with the TTF moiety [5].

[1] N. Avarvari, J. D. Wallis, J. Mater. Chem. 2009, **19**, 4061.
[2] I. Danila, F. Riob, J. Puigmart-Luis, . Prez del Pino, J. D. Wallis, D. B. Amabilino, N. Avarvari, J. Mater. Chem. 2009, **19**, 4495.
[3] I. Danila, F. Riob, F. Piron, J. Puigmart-Luis, J. D. Wallis, M. Linares, H. gren, D. Beljonne, D. B. Amabilino, N. Avarvari, J. Am. Chem. Soc., 2011, **133**, 8344.
[4] I. Danila, F. Piron, C. Escudero, L. N. Feldborg, J. Puigmart-Luis, F. Riob, N. Avarvari, D. B. Amabilino, Chem. Commun., 2012, **48**, 4552.
[5] T. Biet, A. Fihey, T. Cauchy, N. Vanthuyne, C. Roussel, J. Crassous, N. Avarvari, submitted.