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BOOK OF ABSTRACTS

INHERENTLY CHIRAL ELECTRODES, TOOL FOR CHIRAL VOLTAMMETRY

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Recently we have devised an innovative approach to chiral conducting thiophene oligomers, based on the concept of "inherent chirality": the stereogenic element is a tailored torsion intrinsic to the whole electroactive backbone, arising from insertion of atropisomeric biheteroaromatic scaffolds, rather than stereocentres localized in attached pendants. [1] Thus the stereogenic element responsible for chirality is also responsible for electroactivity, since it constitutes the conjugated backbone. An example are the films obtained by electrooligomerization of the 2,2-bis[2-(5,2-bithienyl)]3,3-bithianaphthene (BT_2-T_4) parent monomer, mostly yielding cyclic oligomers $(BT_2\text{-}T_4)_n$, predominantly dimers and trimers. They constitute rings of fully conjugated thiophene units, idealizing conducting polymers without ends. [2]
This outstanding feature combination endows the electroactive films with exceptional chirality manifestations, like *e.g.* circularly polarized luminescence, and, above all, the capability, as electrode materials, to pronouncedly separate (in many cases by 100-200 mV and even more) voltammetry peaks of enantiomers of chiral probes of quite different chemical and electrochemical properties, and of quite different structural features, including pharmaceutically and/or biological relevant ones, like DOPA, ofloxacin and many others. Concurrently, peak currents display a linear dynamic range, to be exploited *e.g.* to quantify enantiomeric excesses on disposable SPEs. [3]
Similar enantioselectivity is also shown by oligomer films obtained by electrooligomerization of other inherently chiral monomers, having different chemical and structural features. This proves the general validity of this approach to obtain highly enantioselective enantiopure surfaces, attractive tools for chiral voltammetry.

[1] *Angew.Chem.* **2014**, *53*, 2623
[2] *Chem.Eur. J.* **2014**, *20*, 5298
[3] *Chem.Sci.* **2015**, *6*,1706

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