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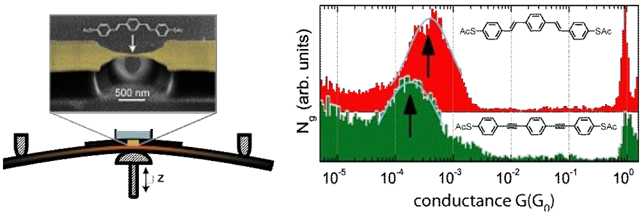
Electrical Conductance of Conjugated Oligomers at the Single Molecule Level

R. Huber, M. T. González, S. Wu, M. Langer, S. Grunder, V. Horhoiu, M. Mayor, M. R. Bryce, C. Wang, R. Jitchati, C. Schönenberger*, and M. Calame*, *J. Am. Chem. Soc*. **2008**, *130,* 1080.
University of Basel, Forschungszentrum Karlsruhe GmbH; University of Durham

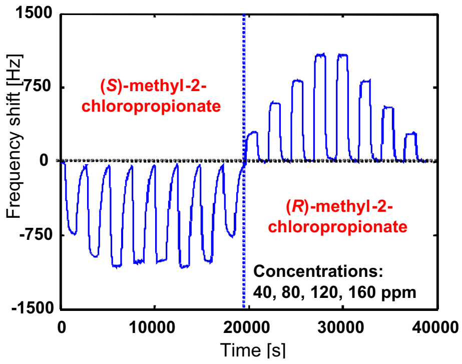
The quantitative measurement of the electrical conductance of oligo(phenylene vinylene) (OPV) and oligo(phenylene ethynyene) (OPE) oligomers, comprising terminal sulfur anchor groups, was performed at the single molecule level using the technique of mechanically controllable break junctions (MCBJ). The results show that the conductance of OPV is slightly higher than that of OPE – solubilizing side groups neither prevent the molecules from being anchored within a break junction nor noticeably influence the conductance value.



Opposite Signs of Capacitive Microsensor Signals upon Exposure to the Enantiomers of Methyl Propionate Compounds

P. Kurzawski, A. Bogdanski, V. Schurig, R. Wimmer, and A. Hierlemann*, *Angew. Chem., Int. Ed.* **2008**, *47*, 913
ETHZ; University of Tübingen; Aalborg University

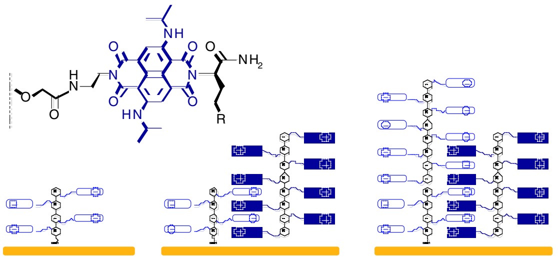
Novel capacitive-type chemical sensors have been reported for the fast and reliable discrimination of the enantiomers of chiral substances. These sensors, based on interdigitated microelectrodes that are coated with modified cyclodextrins, provide antipode signals upon exposure to the two enantiomers of methyl propionate compounds, thus allowing an unambiguous determination of the enantiomer identity. The dielectric coefficients of the respective enantiomer–receptor complexes significantly differ, most probably as a consequence of different relative molecular orientations.



Zipper Assembly of Photoactive Rigid-Rod Naphthalenediimide π-Stack Architectures on Gold Nanoparticles and Gold Electrodes

N. Sakai, A. L. Sisson, T. Bürgi, and S. Matile*, *J. Am. Chem. Soc*. **2007**, *129*, 15758
University of Geneva; University of Neuchâtel

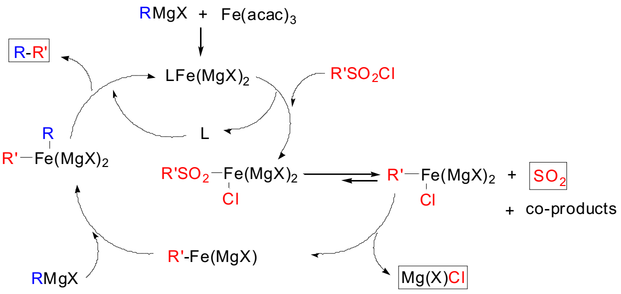
In this article it is shown that a zipper strategy can be considered for a simple and general approach to complex functional architectures on conducting surfaces. Polyanionic and polycationic rigid-rod π-stack architectures composed of *p*-oligophenyl rods and blue naphthalenediimide (NDI) stacks zip together through their positive and negative sticky-ends. Zipper assembly on gold nanoparticles is demonstrated by the appearance of the absorption of face-to-face NDI π-stacks and the shift of the surface plasmon resonance band with increasing layer thickness. On gold electrodes, it produces increasing photocurrents with increasing number of zipped layers that are much higher than those obtained by conventional LBL controls.



Iron-Catalyzed Desulfinylation C–C Cross-Coupling Reactions of Sulfonyl Chlorides with Grignard Reagents

C. M. Rao Volla and P. Vogel* *Angew. Chem., Int. Ed.* **2008**, *47*, 1305.
EPFL

Carbon–carbon cross-coupling reactions are key to many synthetic endeavors and, in this article, the authors report on a novel desulfinylative C–C cross-coupling reaction using inexpensive sulfonyl chlorides and Grignard reagents. The reaction proceeds under mild conditions in the presence of catalytic amounts of iron(III) salts. No ligands are necessary. The best solvent combination is a mixture of THF and NMP and, at 80 °C, yields range from moderate to good on a wide pallet of easily accessible starting materials.



Prepared by Martina Austeri, Renaud Bach, Nathalie Mehanna, Roman Novikov, Ankit Sharma, Franck Torricelli, Jérôme Lacour
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