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Thiophene-based materials. Teaching an Old Dog the New Tricks

Rich chemistry, acceptable stability and effective conjugation of oligo- and polythiophenes have made them some of the most studied materials for organic electronics.[1] After 20 years of progress and tens of thousands of publications, can anything new be expected from this field? To give my perspective on the question, I will show examples of how poorly-emissive polythiophenes can become efficient light-emitters;[2,3] how precise 2D organization of oligothiophene/fullerene blends can be achieved through a combination of hydrogen bonding and electrostatic forces;[4] and how an unusual *cis*-PEDOT isomer can be epitaxially grown on crystalline metal surfaces.[5]

[1] *Hand-Book of Thiophene-Based Materials* (Eds. I.F. Perepichka, D.F.Perepichka) Wiley **2009**
[2] S. Jeeva et al, *Adv. Funct. Mater*. **2010**, *20*, 1661
[3] M. Lepeltier et al. *Chem. Commun.* **2010** *asap* (DOI: 10.1039/c0cc01963a)
[4] J. M. MacLeod et al. *JACS* **2009**, *131*, 16844
[5] J. Lipton-Duffin et al. *PNAS* **2010**, *107*, 11200.