Chiral molecular materials for opto-electronic applications

Ludovic Favereau,[1] Monika Srebro-Hooper,[2] Francesco. Zinna,[3] Philippe Blanchard,[4] Clément Cabanetos,[4] Nicolas Vanthuyne,[5] Lorenzo Di Bari,[3] Jochen Autschbach,[6] Jeanne. Crassous[1]

[1] Institut des Sciences Chimiques de Rennes UMR 6226, Rennes (France). [2] Jagiellonian University, Krakow (Poland). [3] University of Pisa, Pisa (Italy). [4] MOLTECH-Anjou UMR 6200, Angers (France). [5] Aix Marseille University, Marseille (France). [6] University at Buffalo, Buffalo (USA).

ludovic.favereau@univ-rennes1.fr

Chirality has recently attracted significant attention in optoelectronic domains due to the particular interaction of chiral material with circularly polarized light (CPL) and the potential of the latter in several (chiro)-optoelectronic applications such as new-generation displays, spintronic and optical information processing.[1] Moreover, chiral π-conjugated molecules offer the possibility to tune the property of solid state chiral material solely by playing with the enantiopurity degree of the starting molecular solution, resulting sometimes in very different films properties between a racemate and the corresponding enantiomer of a chiral molecule (absorption, luminescence, electronic conduction, …).[2] The potential of chirality in molecular electronic will be illustrated with recent examples of our group, notably with naphthalimide end-capped helicenes derivatives **2** (Figure 1).

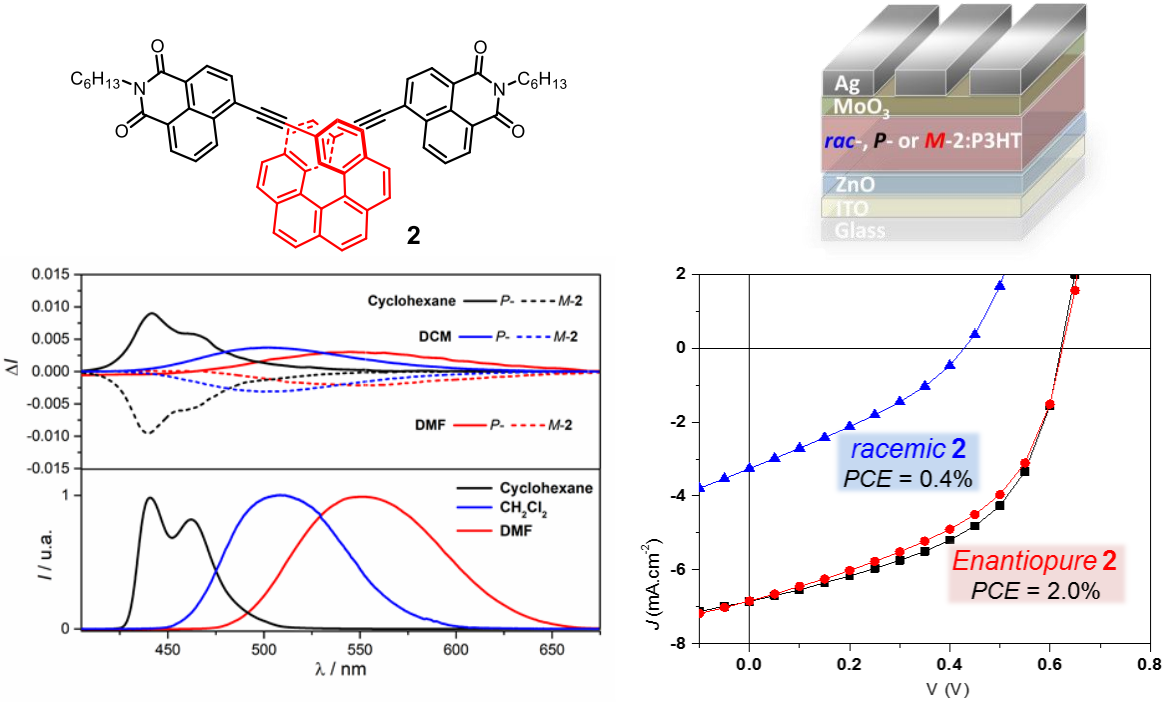

Figure 1. left: Chemical structure of helicene-naphthalimide *P*-**2** with corresponding CPL and UV-vis spectra in cyclohexane, CH_2Cl_2 and DMF at 298 K; right: Schematic architecture of the elaborated photovoltaic cells and associated current density-voltage characteristics.

References

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