

#### Conferencia: Triindole-based selfassembling organic semiconductors: from the molecule to the device

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# Triindole-based self-assembling organic semiconductors: From the molecule to the device

The opportunities for the use of organic semiconductors in the construction of soft, flexible and low-cost electronic devices are immense and some of their functionalities that nowadays are only being envisioned may eventually revolutionize the current technological world. Charge carrier mobility in organic semiconductors has reached values already acceptable for many of the intended applications but the implementation of high mobility organic semiconductors in the fabrication of devices shows still serious processability limitations. While the efficiency of charge transport increase with the extent of molecular ordering, in the bulk material, supramolecular order often limits its processability.

In the search of the necessary trade-off between processing and mobility values selfassembling materials have been envisaged as promising candidates. In this context we have recently introduced heptacyclic 10,15-dihydro-5H-diindolo[3,2-a:3',2'-c]carbazole (triindole) as a new organic semiconductor. Triindole-based columnar mesophases with high stacking order and short stacking distance present mobility values that may compete with those of the best polycrystalline organic semiconductors. These materials may offer a promising answer to the easy-to-process requirements for the manufacturing of organic electronic devices, as they do not require costly vacuum evaporation processes. Progress towards this goal will be presented.

#### **Biographical sketch**

Berta Gómez-Lor is senior scientist in the Materials Sicence Institute of Madrid (CSIC). She obtained her Ph. D. degree from the University of Santiago de Compostela. She worked as a postdoctoral at Sandoz Pharma (Basel), at the University of Illinois and at the UAM. In 2003, she obtained a position as tenured scientist at the ICMM. Her research interest is the synthesis of new materials for application in organic electronics. For further details see: http://www.icmm.csic.es/oeg/