

Integrated Organic Electronics

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The class of organic materials, conjugated polymers, and organic molecules has reached a quite mature and highly accepted status after more than 20 years of intense research and development. The quality and the purity of these new semiconducting materials have been improved by new approaches of chemical synthesis and chemical purification processes and are now demonstrating purity levels which are comparable with state of the art values of inorganic semiconductors. The question of the intrinsic electronic properties of these organic semiconductors is still not answered but the high quality of the available materials made it possible to fabricate electronic devices like field-effect transistors (FET) and optoelectronic devices like organic light-emitting diodes and solar cells. We will report on our research activities targeting the manufacturing of organic field-effect transistors (OFET) with thin films of acenes and other organic semiconductor candidates including results on the growth and characterization of single crystals of acenes. We will outline the current status and the perspectives of these organic electronic devices concerning their performance and integrability into electronic circuits of other platforms, which provides a wide spectrum of applications for new integrated functions.

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