# Editorial

# "Strategies for the Improvement of the Metal/Organic Semiconductor Electrical Contact" (Ref: HT-OA-TOAPJ-0001)

During the last five years, the scientific literature offered a number of papers focused on the appealing potentialities of organic materials in electronic devices of the order of 3500 per year. This is partly motivated by the electronic industry, which is more and more experiencing the difficulty related to the miniaturization and is leaving unsolved the problem of a competitive performance / cost ratio of future devices. Organic materials represent on the one hand a possible answer to these questions and, on the other hand, a fascinating platform for envisaging new perspectives and functionalities of optoelectronic devices.

Besides a substantial confidence placed in the diffusion of an organic-based technology, organic devices possess some weak points which required and are requiring much efforts to be fixed. First of all, the quality of the heterojunction between the organic active layer and a metal acting as electrode.

Being sure this represents a central point related to the development of organic electronics, with the special issue of The Open Applied Physics Journal "Strategies for the Improvement of the Metal/Organic Semiconductor Electrical Contact", we organized three contributions offered by groups among the most authoritative in the field, giving a comprehensive landscape of the problematic and approaches adopted for solving this major issue.

The first contribution of the special issue has been worked out by the group of Prof. Gilles Horowitz in Paris. It deals with the specific objective of the tuning of the contact resistance of metal/organic junctions. The second contribution comes from the group of Prof. Martin Knupfer in Dresden and focuses on the investigation of the electronic structure of metal/organic interfaces, with a particular emphasis placed on the description of realistic (i.e. contaminated) systems with application in electronics and spintronics. The last contribution presented has been worked out by the group of Prof. Shlomo Magdassi in Jerusalem, giving a comprehensive review of innovative metallization methods having more and more relevance in the context of the fabrication of devices based on soft, flexible organic materials.

The ensemble of the contributions allows the reader, even though non-specialized, to approach straight away the state-of-the-art in the field of organic electronics, to identify the most fruitful investigation techniques adopted up to now for the study of the electrical and electronic properties of organic functional materials, and to know interdisciplinary approaches for the development of a competitive technology.

Noteworthy, many aspects and conclusions raising from these contributions are surprising and counterintuitive. On the other hand, many properties of organic semiconductors have been demonstrated to express in an unusual way, if compared with traditional inorganic semiconductors. This certainly represents a positive boost towards a realistic development of organic electronics.

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