

Functionalized Nanocarbons: Versatile Building Blocks for Materials Science and Nanomedicine

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Among the wide range of novel nanometer scale structures available, single-wall carbon nanotubes (SWNT), multi-wall carbon nanotubes (MWNT) and, more recently, graphene, stand as unique materials for fundamental research and potential applications. However, manipulation and processing of NTs and graphene has been difficult because of their intractability and insolubility in most common solvents. Considerable effort has therefore been devoted to the chemical modification of NTs and graphene, which might pave the way to many useful applications.

Our group has been involved with the organic functionalization of various types of nanocarbons, including carbon nanotubes, nanohorns, fullerenes and nanooxions.

Recently, we have succeeded in functionalizing graphene.

During this talk, we will report on the most recent advances in our group, which have led to several interesting applications in many fields. For instance, functionalized carbon nanotubes stimulate neuronal communication or can serve as wires for the splitting of water molecules to give oxygen, but, especially, molecular hydrogen, ideal clean energy generator.