Nanomaterials for different applications: sensing, energy storage and memories

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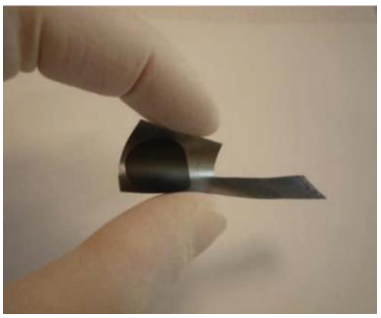
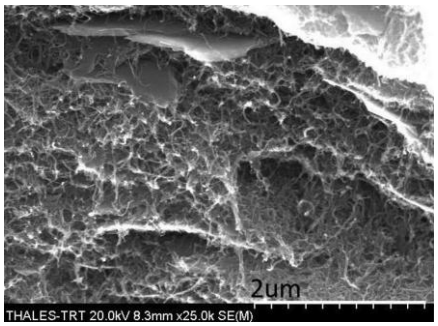
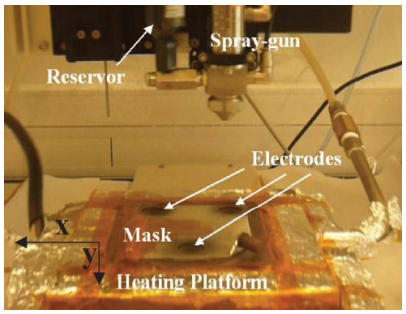
The contribution deals with the research work developed at the central research lab of Thales on applications for carbonaceous nanomaterials. Firstly we will talk about the research on the theory and fabrication and test of gas sensing devices based on carbon nanotubes. Secondly we will talk about the activity on supercapacitors in the frame of the Graphene Flagship and FIBRALSPEC project FP7, the main challenges and the bottlenecks to overcome to achieve an effective component. Finally we will present the new activity on memory based on Graphene oxide and Carbon nanofibers (H2020 project MODCOMP) that can open a new field of "objects" such as the flexible or printed memories. The common characteristics of these activities is that all exploit the deposition technique by spraying that has been developed at Thales Research and Technology that allow to take advantage of the nanomaterial properties and to fabricate devices in a suitable industrial way.







Biography

Dr. Paolo Bondavalli, Msc, PhD, Hdr is the Head of Nanomaterial team at Thales Research and Technology (CNRS/Thales, UMR137) and he is a member of the Nanocarb Lab. (joint team Ecole Polytechnique/Thales). His research has principally dealt with carbon nanotubes gas sensors and silicon nanowires for biological detection. In the last two years, he is the first author of several scientific papers (see refs in project) dealing with CNTFET based sensors, supercapacitors and of 6 patents dealing with gas sensors, thermal management through CNTs, nanomaterials deposition, supercapacitors and memristor-like structures. Presently his work is focused on the development of new materials (e.g. graphene, cnts, nanowires) for the new generation of electronics devices and for energy storage applications and memristor. Dr Bondavalli has received his Hdr in 2011, at Paris-Sud on a work on "devices based on random network of carbon nanotubes". He is EU expert, and Vice-Chairman, for Marie Curie Fellowships (EIF, IIF, OIF, CIG, IRSES), NMP and ICT panel, for the French National Research Agency (ANR), EDA, Eureka and reviewer for IOP, ACS, IEEE, ECS, Elsevier, EPJ B, Bentham, Taylor & Francis... During the last five years, he has participated, also as coordinator, in several EU projects (concerning MEMS, MOEMS, CNTs, graphene, spintronics) and ANR projects. He is involved in the Graphene Flagship initiative.