

Title to be defined

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The growth of graphene on (Ni) metal foam templates allows the growth of 3D-structured graphene in arbitrary monolithic shapes. Several different CVD methods can be applied for the carbon growth, such as Thermal CVD, both based on coaxial furnaces or inductive heating, or Plasma Enhanced CVD. By tuning the growth process parameters, the structural and functional properties of the templated graphene foams can be varied: from low electrical resistance foams with thick and crystalline graphitic structure, to thin mainly graphene structures, to the growth of 3D foams composed of nanostructured 2D carbons. All these structures, after the removal of the metal template show common features, namely a low mass, a large electro-conductivity and excellent chemical inertness, which make them an excellent study material for battery electrodes. We report here on methods for the growth, the separation from the template and for the formation of nanocomposites with polymers and nanoparticles. The structural characterization of the foam and of the deposited materials will be carried out by XRD diffraction and SEM techniques.