

Graphene Oxide

A versatile nanobuilding block for tailored materials and applications

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Graphene oxide is a chemically derived form of graphene. With its ease of synthesis, functionalization, reduction and processing possibilities it emerges as a highly versatile platform for the development of novel nanomaterials with tailored properties. The importance of effective synthesis strategies and processing routes to profit at maximum from graphene oxide's surprising properties up to the proof of concept in different types of applications will be described by some examples of our on-going research in the Group of Carbon Nanostructures and Nanotechnology. These refer to:

- (i) The assembly of graphene oxide into electrode materials and their use for improved sensing of ions, living microorganisms and organic analytes [1-5].
- (ii) The preparation of graphene oxide hybrid materials with metal nanoparticles and their use as efficient catalysts in hydrogenation reactions [6].
- (iii) The effective synthesis and integration of bone-like hydroxyapatite onto graphene oxide. Promise for applications in orthopedic surgery [7].
- (iv) The unique combination of graphene oxide with intrinsically conducting polymers and its favourable processing possibilities into macroscopic electrode materials [8].

References

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