

## Reduced Graphene Oxide Decoration with Functional Nano-crystals

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Reduced Graphene Oxide (rGO) is a potentially cheap graphene derivative with several attractive properties such as high specific surface area, good electric conductivity and low reactivity. These properties make rGO an attractive support for catalysts, solar cells materials and other functional materials in nano-size. Not only is the combination of a second phase on graphene potentially interesting, but nucleation and subsequent growth of the second phase on the surface of graphene can induce novel properties that cannot normally be obtained, in particular in terms of size and shape as well as transport of electrons to and from the second phase, exemplified for perovskites<sup>1</sup>. The practical potential has already been reported for photocatalysts<sup>2</sup> and solar cells<sup>3</sup>

We present here the wet chemical, hydrothermal deposition of CaCO<sub>3</sub>, CuO, perovskite, zeolite and ZnO on rGO demonstrating the wide range of possibilities with this approach. In the two examples shown below, nano-CaCO<sub>3</sub> coats the rGO-surface in Fig.1 whereas nano-CuO appears as discrete particles in Fig.2.

Abalonyx is presently scaling up its GO production process<sup>4</sup> to a target capacity of 8 t/y by year-end. The availability of abundant GO at a low price is mandatory for commercialization of products based on GO and rGO.

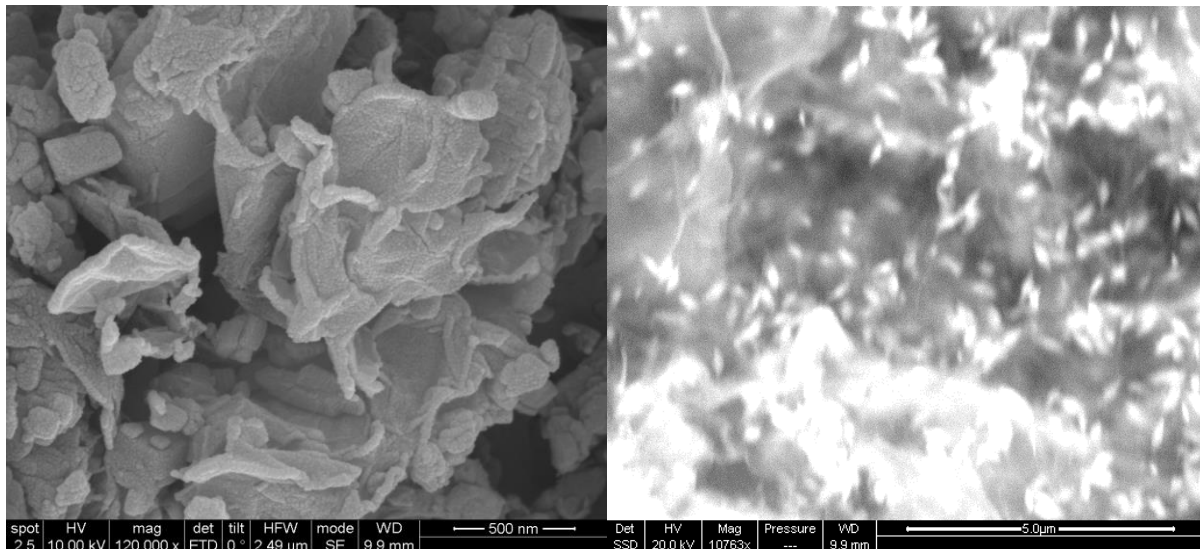


Fig.1. Nano-crystals of CaCO<sub>3</sub> on rGO.

Fig.2. CuO nano-crystals on RGO.

### References

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