

# Synthesis and Properties of Reduced Graphene Oxide/ZnO nanocomposites by Hydrothermal Method

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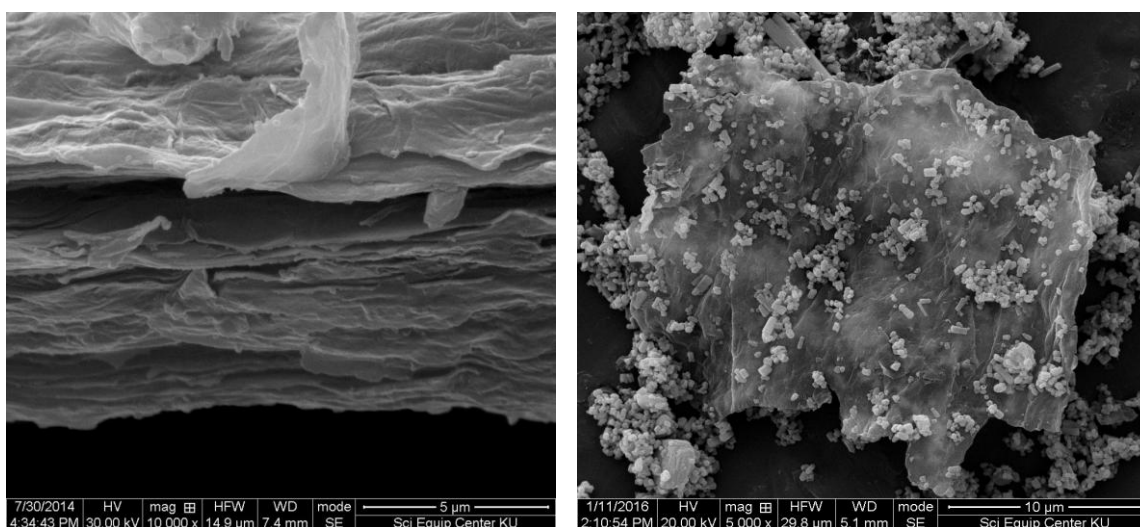
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## Abstract

The modified Hummer's method [1] demonstrated the oxidation of graphite to graphene oxide. SEM results showed that the hexagonal shape of zinc oxide nanorods were obtained by using pH = 10. When doping reduced graphene oxide into zinc oxide nanorods, they will form into reduced graphene oxide/zinc oxide nanocomposites that zinc oxide nanorods had inserted into reduced graphene oxide sheets and distributed on the reduced graphene oxide surface. At low percentage of graphene oxide doping, all of graphene oxide were reduced to reduced graphene oxide which was confirmed by XRD patterns. The absence of oxygen-containing functional groups showed in FT-IR results. When increasing amount of graphene oxide, the graphene oxide was still remaining in nanocomposites. This is because of the imperfection of reduction process. In addition, the reduced graphene oxide/zinc oxide nanocomposites showed hexagonal wurtzite structure. While UV-vis results indicated that the peaks at 263 and 368 nanometers correspond to the absorbance of reduced graphene oxide and zinc oxide respectively.

## References

[1] Leila Shahriary, Anjali A. Athawalee, International Journal of Renewable Energy and Environmental Engineering, **Graphene Oxide Synthesized by using Modified Hummers Approach** (2014) 58-63.



**Figure 1:** SEM images of: (a) cross section image of graphene oxide and (b) RGO/ZnO nanocomposites