Synthesis of Graphene Quantum Dots by the Electrochemical Exfoliation of Graphite rod

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Abstract

In this work Graphene quantum dots with small size and large size have been synthesised by a one-step electrochemical exfoliation of commercially available graphite rod by the inorganic salts ammonium sulphate ($(NH_4)_2SO_4$) as the electrolyte solution with a fixed concentration of 0.1 M [1,2]. GQDs colloidal dispersion in water has been obtained and was stable for more than a month. The morphology of the GQDs was observed by Transmission electron microscopy the defects probed by Raman spectroscopy. X-ray photoelectron spectroscopy was also used to scrutinize the oxidation state of the GQDs. Thin film of GQDs was fabricated by the filtration method with good electrical conductivity [3].

References

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[2] Peihui Luo, Xiangfeng Guan Yunlong Yu, XiaoyanLi, Chem. Phys. Lett., 690 (2017) 129-132.
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Figures

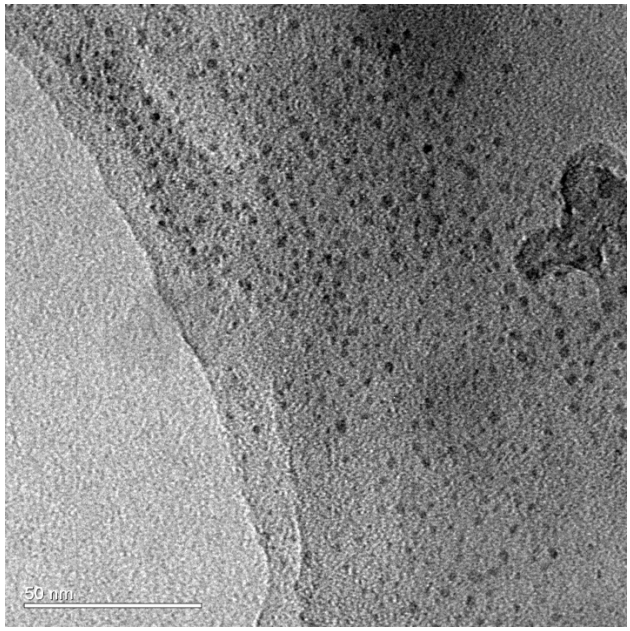

Figure 1: TEM image of small size GQDs synthesized by the electrochemical exfoliation.

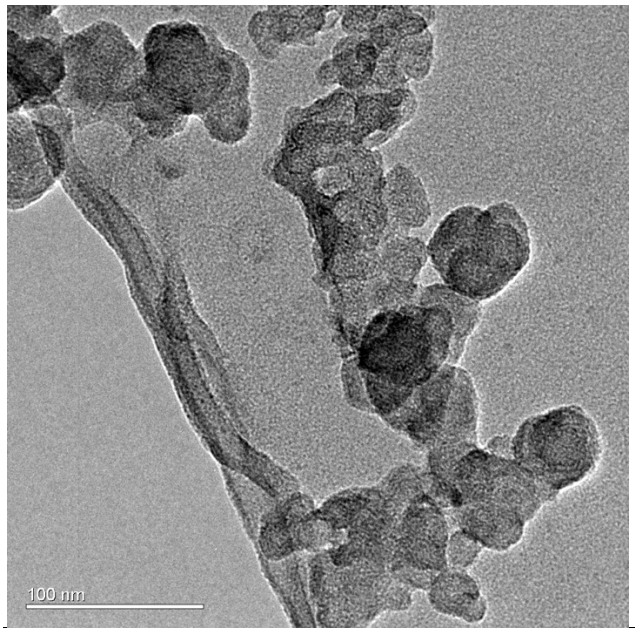

Figure 2: TEM image of large size GQDs.