

Synthesis of GO and N doped GO by nanosecond pulsed Laser ablation of Graphene in Liquid for fibre optic gas sensing

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Graphene Oxide (GO) and Nitrogen doped GO (NGO) were synthesized by laser ablation of Graphene in ethanol. DETA is used as the dopant for Nitrogen. The spherical shaped Nanoparticles were formed by exfoliation of graphene sheets under fundamental wavelength (1064 nm) of Nd: YAG Laser. The XRD analysis exhibited peak at 14° which corresponds to Dry GO whereas NGO is Amorphous in nature. The spherical morphology of GO NPs confirmed using SEM analysis. Agglomerated spherical structure with porous morphology for NGO is confirmed with FESEM. Raman, IR and EDAX confirms the formation of GO and NGO. Photoluminescence studies reveals that the emission is excitation dependent. Both the NPs shows bright Blue Green emission under different excitation wavelength of 320-420 nm. Sensitivity of NGO towards different gases like Ammonia and Acetone were investigated.

Key words: Graphene Oxide, NGO, Laser ablation, Nd: YAG Laser, Gas sensing.

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