Fe-Doped Graphene Nanoparticles for Gas Sensing Applications

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Abstract : In the present inspection, we indicate the falsification of Fe-doped graphene nanoparticles by modified Hummers method. Structural and physiochemical properties of the resulting pallets were explored with the help of ultraviolet-visible spectroscopy (UV-Vis), Fourier transform infrared spectroscopy (FTIR), X-ray powder diffraction (XRD) and scanning electron microscopy (SEM), Photoluminescence spectroscopy (PL) for graphene sample exhibits absorption peaks ~248nm. Pure graphene shows PL peak at 348 nm. After doping of Fe with graphene the PL peak shifted from 348 nm to 332 nm. The oxidation degree, i.e. the relative amount of oxygen functional groups was estimated from the relative intensities of the oxygen related bands (ORB) in the FTIR measurements. These analyses show that this modified material can be useful for gas sensing applications and to be used in diverse areas.

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