Graphene-ZnO_2 Composites Prepared in [Bmim][BF4]

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A simple and efficient one-step method of preparing composites of graphene and zirconia (Graphene-ZrO2) via a microwave-assisted synthesis in an ionic liquid, [bmim][BF4] is reported. Graphene-ZrO2 nanocomposites were formed by thermal decomposition of zirconium (IV) isopropoxide (Zr(OPri)4) in the presence of graphene oxide under microwave irradiation. The as-prepared product was characterized by BET adsorption equipment, X-ray diffraction, scanning electron microscopy (SEM), transmission electron microscopy (TEM), and cyclic voltammetry (CV). The composites have a high surface area. ZrO2 particles with average size of 10 nm were distributed well onto the surface of graphene. This method to prepare a nanocomposite is simple, economic and easy to scale up.
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