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SYNTHESIS & CHARACTERIZATION OF NICKEL NANOCRYSTAL –GRAPHENE COMPOSITE BY MECHANICAL MILLING AND SONICATED EXFOLIATION

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A Nickel nanocrystal – Graphene composite was synthesized by using mechanical milling and sonication assisted exfoliation. Graphite powder and Nickel metal powder in the ratio of 4:1 by weight was first mechanically milled for 60 hrs in Toluene medium. The milled powder was then exfoliated by using sodium lauryl sulfate surfactant to produce Nickel – Graphene nano composite. The composite have shown good magnetic property due to the presence of Nickel nanocrystals and this was confirmed by Vibrating Sample magnetometer (VSM). Due to the sonication-assisted exfoliation, few layers of Graphene formed which were confirmed by Raman Spectroscopy, X-ray Photo Electron Spectroscope (XPS) and Atomic Force Microscopy. The size, Phase identity and composition of the Nickel nanocrystal in the composite was calculated with the help of X-Ray Diffraction pattern and Transmission Electron Microscopy.

Biography

He is expertise in Nanomaterials, Engineering Materials, Corrosion and Surface Coatings. As a professions in MITI jaipur they has published many papers in national and international journals and conferences.

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