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Physicochemical & Morphological Study of Graphene Based $MoSe_2$ Composites for the Photovoltaic Applications

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Countable no of efforts has been made in research to study the composites of Molybdenum diselenide ($MoSe_2$) and reduced graphene Oxide (Gr) in the Photovoltaics. Here, $MoSe_2$/Gr hybrid has been synthesized by facile hydrothermal route where two different synthesis approaches have been involved to account for the variation in the interaction of two materials. For the first method opted, precursors have been used with the reduced graphene oxide whereas in the other method already synthesized molybdenum diselenide has been used directly with reduce graphene oxide. The aim of study is to look into the morphological distribution and interaction between the TMDC and the reduced graphene oxide and the possible effects of synthesis methods on the device efficiency. The morphological study has been obtained by optical microscopy and scanning electron microscopy (SEM). Diffraction light scattering technique (DLS) performed the average mean Size of the particles and the physico-chemical characterization included Raman for the structural fingerprint and different modes of vibration, XRD for the estimation of diffraction peaks and crystallite size.

Keywords: $MoSe_2$, Graphene, Hydrothermal route, Composite,

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Biography

Miss. Ankita Singh is a Teaching cum research fellow in the Department of Chemistry, Netaji Subhas University of Technology (N.S.U.T) (erstwhile Netaji Subhas Institute of Technology, University of Delhi), Delhi, India. Before joining N.S.U.T, she has worked for a while at IIT Delhi as a research intern in the Department of Chemistry. Miss. Singh completed her Masters' and Bachelors' in Chemistry from Central university of Gujarat and University of Delhi respectively. She is currently working on the nano material synthesis for photovoltaic with the core attention in developing and utilising TMDC materials for the photovoltaics application and also exploring the possibility of the use of polymers in energy conservation applications.