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A PROJECT REPORT ON

Synthesis, Characterization and Application of Nano-Metal-Oxide Polymer Composites

(Sponsored by KSCST)

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ABSTRACT

Polymer nanocomposites represent a new class of materials which are alternative to the conventional filled polymers. Due to their synergistic and hybrid properties, these materials offer unique thermal, optical and mechanical properties. A boost in these properties is due to the presence of the nano-particles in the polymer and the interactions between the particle and the polymer.

Zinc oxide can be used for removal of arsenic from waste water. Chitosan is used to decolorize industrial waste water and for the reduction of COD. Modified iron nano-particles, such as catalyzed and supported nano-particles have been synthesized to further enhance the speed and efficiency of removal of common environmental contaminants like chlorinated organic solvents, chlorinated compounds, heavy metals and organochlorine pesticides.

This project aims at improving the mechanical properties and the water treatment capability of these polymers by infusing them with nanoparticles which are also used for treatment of waste water.