"SYNTHESIS OF COPPER DOPED ZINC OXIDE NANO STRUCTURES FROM SPENT ZN-MNO_2 BATTERIES FOR TRIBOLOGICAL APPLICATIONS"

A project report submitted in partial fulfillment
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ABSTRACT:

Nanotechnology is not just a new field of science and engineering, but a new way of looking at and studying the existing materials. Here, there is a possibility of achieving combinations of properties, need less material, use less energy and above all has extended range of accessibility. Zinc oxide nanoparticles being relatively soft, having high heat capacity, conductivity, easy availability, low thermal expansion and high melting temperature finds wide application. The current work involves the extraction of ZnOnano structures from spent Zn-MnO_2 batteries. The resulting ZnO nanostructures were characterized by X-ray diffraction (XRD) and scanning electron microscope (SEM). The tribological properties of the prepared nanostructures were studied by evaluating the friction and wear behaviors in a base oil using four-ball wear tester.