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Magnetic Oxides: Materials for Potential Applications

Plenary Talk

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Abstract

In recent years, magnetic oxide materials have attracted considerable attention due to their significant potential for a wide range of applications in innovation and technology. Ferrites are an important class of magnetic materials that have been extensively utilized for several applications like memory devices, energy production, shielding technology, biomedical applications etc. The use of ferrites is shifting to the upper end of the recurrent range due to mechanical advancements made in the last several years. To mitigate the growing diverse effects of electromagnetic pollution in everyday life, the shielding abilities of ferrite nanoparticles, multiwalled carbon nanotubes, and graphene oxide based hybrid composites are actively explored. Recent developments in generation of green electrical energy using porous oxide materials offer promising pathways towards economic and sustainable energy source. Ferrites based hydroelectric cells with mesoporous structure are capable of producing green electrical energy with zero carbon emission through dissociation of water molecules. Additionally, some ferrites exhibit encouraging application in the field of thermoelectric applications. Overall, magnetic oxide materials are promising materials for current and future technological applications.

Keywords: Magnetic Oxide, Energy Production, Electromagnetic Pollution, Ferrites