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Dielectric Anisotropy and Electrical Properties of Liquid Crystals Doped with Nickel Oxide Nanoparticles

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Abstract

The nickel oxide nanoparticles were synthesized by sol gel method to improve the properties of nematic octylcyanobiphenyl (8CB) liquid crystal. Dielectric and electrical properties of nematic octylcyanobiphenyl (8CB) liquid crystal doped with nickel oxide nanoparticles (DNPs) have been investigated. The dielectric anisotropy parameters have shown an increase for NiO based nano-nematic composite system. This composite system exhibited a voltage-controlled differential negative resistance behaviour (VCNR). It is evaluated that the NiO nanoparticles increase the dielectric anisotropy and electrical properties of the 8CB liquid crystal.

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