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

By: Al-Senany, N (Al-Senany, Nourah)[1,4]; Al-Ghamdi, AA (Al-Ghamdi, Ahmed A.)[1,4]; Al-Hazmi, E (Al-Hazmi, Eaten)[1,4]; Alnowaiser, F (Alnowaiser, Fowzia)[2,4]; Ilhan, M (Ilhan, M.)[3]; El-Tantawy, F (El-Tantawy, Farid)[5]; Yakuphanoglu, F (Yakuphanoglu, Fahrettin)[1,3]

View ResearcherID and ORCID

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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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Author Information

Reprint Address: Al-Ghamdi, AA (reprint author)

+ King Abdulaziz Univ, Dept Phys, Fac Sci, Jeddah 21589, Saudi Arabia.

Addresses:

+ [1] King Abdulaziz Univ, Dept Phys, Fac Sci, Jeddah 21589, Saudi Arabia
+ [2] King Abdulaziz Univ, Dept Chem, Fac Sci, Jeddah 21589, Saudi Arabia
+ [3] Firat Univ, Dept Phys, TR-23169 Elazig, Turkey
+ [4] King Abdulaziz Univ, Advances Composites Synth & Applicat Grp, Jeddah 21589, Saudi Arabia
+ [5] Suez Canal Univ, Dept Phys, Fac Sci, Ismailia 41522, Egypt

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