



## **EFFECT OF CeO<sub>2</sub> DOPING ON THE STRUCTURE, ELECTRICAL CONDUCTIVITY AND ETHANOL GAS SENSING PROPERTIES OF NANOCRYSTALLINE ZnO SENSORS**

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*Abstract- Nanocrystalline sensors having the general formula ZnO + x wt% CeO<sub>2</sub>, where x = 0, 2, 4 and 6 were prepared by chemical precipitation method and sintered at 400, 600 and 800 °C for 2h in static air atmosphere. The crystal structure and the morphology of the prepared samples were investigated and characterized by using XRD, IR, SEM and TEM techniques. The investigation revealed that the average crystallites size increases with increasing the sintering temperature. The electrical conductivity is found to increase with CeO<sub>2</sub> additions and sintering temperature. Gas sensing properties of the prepared samples were also investigated. The effect of CeO<sub>2</sub> content and sintering temperature on the structure, electrical conductivity and ethanol gas sensing properties of the prepared samples are discussed.*

**Index terms:** ZnO nanoparticles, Ce-doping, ethanol gas sensor.