Abstract

Nano-particles of polycrystalline Zn Fe2 O4 doped with, Ni and Ce (Zn Niy Cex Fe2-x-y O4, where x =0.01, 0.012, 0.014, 0.016, y=0.003) was prepared by sol-gel auto combustion route. The microwave sintered ferrite was characterized and the nano size was confirmed by XRD and the SEM monographs. The EDAX studies confirm the composition of Ni, Ce doped Zn-ferrites and VSM studies show the behaviour of coercivity and Saturation magnetization. The permittivity increased with the increase in Ni-Ce doping concentration.

References
- R.V Mangalaraja, Magnetic, Electrical and Dielectric behaviour of Ni0.8Zn0.2Fe2O4 prepared through flash combustion technique, J. Magnetism and Magnetic Material, vol 253, 1-2, 2002, pp 56-64.
- J.Bera, P.K. Roy, Effect of grain size on electromagnetic properties of Ni 0.7 Zn 0.3Fe2O4 ferrite with the substitution of a small fraction of lanthanum for iron, Physica B: Phys. Condens. Matter, vol 363/1-4, 2005, pp. 128-132.
- Chandra Prakash et.al, Dielectric Properties of 0.95 (Pb13x/2Lax Zr0.65 Ti 0.35O3) – 0.05 (Ni0.8Zn0.2Fe2O4) Composites Advances in Condens. Matter Phys, 2011, pp1-5.
- H Sato, T Umeda, et.al, Synthesis of Mag. Glass Ceramics Based on
Magnetic Property Study of Nickel Cerium Doped Zinc Ferrite Nano Particles

Strontium, vol. 34, no. 1, 1993, pp. 76–81.

Index Terms

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Keywords

Ce-Ni doped Zn ferrite; Low permittivity Nanomaterials; Sol-gel route