



Contribution ID: 326

Type: **Poster Presentation**

Synthesis and magnetic characterizations of $Mn_xFe_{3-x}O_4$ nanoferrites

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**Abstract content
 (Max 300 words)**

Manganese ferrite nanoparticles with in steps of 0.1 have been produced using the glycol-thermal method at 200 oC. Single-phase formation was confirmed by X-ray powder diffraction (XRD) which revealed a well-defined cubic spinel structure with space group $Fd\bar{3}m$. structure parameters were also estimated from XRD data. Average crystallite sizes ranged from 8.91 to 9.77 nm. The Vibrating sample magnetometer measurements show that the produced nanoparticles exhibit superparamagnetics behavior at room temperature. Magnetic properties as a function of the manganese content measured at 300 K were also investigated. The Fe^{3+} ions distributions among tetrahedral and octahedral sites, hyperfine parameters and magnetic state of the as-prepared samples were studied using ^{57}Fe Mössbauer spectroscopy technique.

**Apply to be
 considered for a student
 award (Yes / No)?**

No

**Level for award
 (Hons, MSc,
 PhD)?**

PhD

**Main supervisor (name and email)
and his / her institution**

Dr. Thomas Moyo

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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