



Contribution ID: 487

Type: not specified

Characterization of magnetic nanoparticles

Monday, 7 July 2014 12:00 (1 hour)

Abstract content (Max 300 words) **Formatting & Special chars**

Magnetic nanoparticles (MNPs) have a wide range of applications due to the unique electrical, chemical, structural and magnetic properties they possess. MNPs commonly consist of magnetic elements such as Co, Fe, Ni and their compounds, of particle sizes typically in the range 1 - 100 nm. They exist in a variety of forms depending on the applications, e.g. in solution as ferrofluids for audio speakers; as surface functionalised particles for biosensing; as particles arrays in magnetic storage media; as powder compacts for catalysis or for power generation, conditioning and conversion; as coated with activated carbon for targeted drug delivery to specific sites; as contrasting agents in magnetic resonance imaging; and as thin films for spintronic devices [1]. These applications require precise phase identification, particle size determination and topographic information as well as knowledge of the structural and magnetic properties of the bulks, surfaces and their interfaces. The characterisation techniques used to obtain insights on the properties of MNPs are reviewed with particular emphasis on the magnetic properties of these materials.

References

[1] Millard MA, Kurihara LK, Carpenter, EE, Calvin S and Harris VG 2004 Inter. Mater. Rev 49 125

Primary author: Dr LODYA, Lonzeche (Sasol Technology, R&D)

Presenter: Dr LODYA, Lonzeche (Sasol Technology, R&D)

Session Classification: Winter School: Magnetism