

# Local Structure Investigation in Some Magnetic Materials Studied by Synchrotron X-Ray Absorption Spectroscopy

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Magnetic materials have been widely studied for their novel magnetic and electronic properties. The global and local structure information could be investigated by a combination of X-ray Diffraction (XRD) and Synchrotron X-ray Absorption Spectroscopy (SXAS) techniques. In this work, magnetic spinel ferrite  $\text{MnFe}_2\text{O}_4$  and cobalt-oxide based  $\text{Co}_x\text{Fe}_{1-x}\text{S}_2$  nanocrystals were investigated for their global and local structure information. The phase formation behavior was also investigated in detail via several conventional techniques, including thermal analysis, Scanning Electron Microscopy (SEM) and X-ray Photoelectron Spectroscopy (XPS). A change in local structure was investigated using both X-ray Absorption Near-Edge Structure (XANES) and Extended X-ray Absorption Fine Structure (EXAFS) measurements. The results will be presented and discussed in details.