

TITLE OF THE OPEN TALK
Associate under VASP, EVLP

"Evaluation of SiO₂@CoFe₂O₄ nano-hollow spheres through THz pulses"

ABSTRACT:

We have synthesized cobalt ferrite (CFO) nanoparticles (NPs) of diameter 100 nm and nano-hollow spheres (NHSs) of diameter 100, 160, 250, and 350 nm by a facile one step template free solvothermal technique and carried out SiO₂ coating on their surface following Stöber method. The phase and morphology of the nanostructures were confirmed by X-ray diffraction and transmission electron microscope. The magnetic measurements were carried out by vibrating sample magnetometer in order to study the influence of SiO₂ coating on the magnetic properties of bare CFO nanostructures. Furthermore, we have applied THz time domain spectroscopy to investigate the THz absorption property of these nanostructures in the frequency range 1.0-2.5 THz. Detailed morphology and size dependent THz absorption study unfolds that the absorption property of these nanostructures sensitively carries the unique signature of its dielectric property.