

- UV-vis and photoluminescence spectroscopy of inorganic and organic compounds.
- Functional group and structure determination through IR, NMR and MASS spectroscopy.
- Band gap measurement of a solid semiconductor by diffuse reflectance spectroscopy.
- Raman spectroscopy of graphene and carbon nanotubes.
- Powder X-ray diffraction (XRD) study of NaCl, KCl and Cu.
- Small-angle X-ray scattering (SAXS) of silver behenate.
- TGA and DTA of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .
- Magnetism of ferromagnetic and antiferromagnetic compounds.
- Determination of oxygen stoichiometry in superconducting  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ .
- Photocatalysis of organic dyes by  $\text{TiO}_2$  nanoparticles.
- Study of gas adsorption behaviour of microporous and mesoporous materials.
- Thermoelectric properties in p-type PbTe/SnTe.
- Charge-transfer spectra of benzene-iodine system.