

Course Title	THERMODYNAMIC TECHNIQUES FOR THE CHARACTERIZATION OF NANOSTRUCTURED MATERIALS
Instructor	Giuseppe Cavallaro
N of hours	10
description	Presentation of the thermodynamic techniques employed for the characterization of nanomaterials.
contents	<ul style="list-style-type: none"> • Differential scanning calorimetry (DSC): basic concepts, experiments and data analysis. First and second order transitions. Crystallinity degree. • Isothermal titration calorimetry (ITC): basic concepts, experiments and data analysis. Thermodynamics of interactions: entropy, enthalpy, Gibbs free energy and stoichiometry. Van't Hoff equation vs ITC experimental data. • Dynamic mechanical analysis (DMA): basic concepts, experiments and data analysis. Mechanical and viscoelastic properties. • Thermogravimetry (TGA): basic concepts, experiments and data analysis. Thermogravimetric and differential thermogravimetric curves. • Kinetic studies by non-isothermal TGA experiments: isoconversional procedures