

The current research interests of Prof. A. Kanapitsas are focused on the investigation of the structure – property relationships of polymer nanocomposites and nanostructured materials using a variety of experimental techniques in collaboration with several research groups. His research work has contributed a number of results in various fields of material science, including:

- the investigation and modeling of the molecular mobility and conductivity mechanisms of technological materials
- development of methodologies for using dielectric techniques for structural and morphological characterisation of nanostructured materials
- measurements and modelling of the electrical conductivity in nanocomposites consisting of conductive and insulating regions
- investigation of the hydration properties of polymers, composites and nanostructured polymer-based materials including both the various forms of organisation of water in these materials and the effects of water on the structure and local dynamics of the matrix material

With his colleagues established at 2005 the Dielectric, Electrical and Electronic Measurements of Materials and Sensors Laboratory of Electronics Department of TEI Lamias.(www.teilam.gr/labs/physics/research).

A variety of experimental techniques applied in order to investigate the structure-property relationships of new technological materials:

A. Experimental methods

- i) Dielectric relaxation spectroscopy in broad temperature and frequency range
- ii) Simultaneous thermogravimetry and differential thermal analysis (DTA/TGA)
- iii) Conductivity measurements

B. Investigated materials

- i) Polymer nanocomposites
- ii) ZnO ceramic varistors
- iii) Cement mortar
- iv) Thin films on Si substrates