



SPEAKER: **Professor Saverio Russo**
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THEME: **Polyamide 6-based nanocomposite systems**

PLACE: FORTH/ICE-HT auditorium

DATE: Wednesday, 14th of February, 2007

TIME: 17:00

ABSTRACT: Nanocomposites based on polyamide 6 (PA6) and montmorillonite-type (MMT) commercial clays, either unmodified or organically modified, have been prepared by in-situ polymerization of ϵ -caprolactam (CL). The above materials have been characterized in detail by a number of experimental techniques, including transmission electron microscopy (TEM), wide angle X-ray diffraction (WAXD), infrared spectroscopy (FTIR), differential scanning calorimetry (DSC).

The formation of nanostructured systems has been checked not only for a conventional ω aminoacid-modified clay, but also for other types of organoclays. In general, a correlation has been found between nanoscopic swelling of the clay in molten CL, measured by X-ray diffraction, and level of clay dispersion in PA6. Namely, with the most swellable clays, completely exfoliated nanocomposites have been obtained.

In the present work also problems related to commercial compatibilizer degradation have been taken in account. Finally, limitations in TEM analysis of polymer-based nanocomposites have been studied.