



INSTM Research Activities in Nanofun-Poly

Research Planning

WP4 Polymer Chemistry:

particular involvement in Controlled Polycondensation/Polyaddition Techniques (incl. Sol-gel), Selective Reactions in Multifunctional Systems and the Functional Hybrid Structures/Nanocomposites Area

WP5 Polymer Processing:

particular involvement in New developments in mixing studies at different scales, Development of in-situ integrated and combined experimental techniques, Volatile Organic Compounds (VOC) removal for environmental aspects, Methods to produce organically modified layered silicates, Polymer surface patterning for functional patterning.

WP6 Nanostructures-Property Relationships:

particular involvement in Bioactive and responsive polymer-based systems, Structure of and interactions at interfaces, Phase-separated polymer-based systems of controlled nanostructure, Electroactive systems.

WP7 Applications:

particular involvement in Structural Systems, Functional Coatings, Membranes and barrier materials, Optical, electrical and magnetic devices, Development and applications of responsive bioactives gels.

Research Execution

WP8 Polymer Chemistry:

WP 8.1 Hyperbranched aramides modified; hyperbranched polymers for UV curing

WP 8.2 (Coordination) Carbon Nanotubes production, functionalization and dispersion

WP9 Polymer Processing:

WP 9.1 Reactive extrusion, in-situ modification, rheological studies, characterization of blend and copolymers

WP 9.2 Reactive dispersive compounding of carbon nanotubes, clays and POSS; interface characterisation; chemical modification of nanotubes and clays; synthesis of carbon nanotubes

WP10 Nanostructures- Property Relationships:

WP10.1 Network formation by free-radical polymerization

WP10.2 Synthesis of interpreting networks; effect of nanofiller; rheological behaviour

WP11 Applications:

WP11.1 Preparation and characterization of biologically or magnetically targeted nanoparticles and of nanostructured biocompatible polymers

WP11.2 Preparation and characterization of polymer nanocomposites and multilayer films endowed with improve barrier and mechanical properties. Preparation and characterization of carbon nanotubes

WP12 Life Cycle Engineering:

Application of LCA to nanocomposites