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## 6<sup>th</sup> INTERNATIONAL CONFERENCE ON "TIMES OF POLYMER (TOP) AND COMPOSITES"

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6<sup>th</sup> International Conference on "Times of Polymer (TOP) and Composites" was held on June 10–14, 2012 on Ischia Island in Hotel "Continental Terme" (Naples Bay), Italy.

The conference was organized by the University of Naples Federico II, Department of Materials and Production Engineering, Italy and by The Second University of Naples - S.U.N. Department of Aerospace and Mechanical Engineering

Prof. Domenico Acierno (Department of Materials and Production Engineering University of Naples Federico II) and Prof. Alberto D'Amore (Engineering Schools of II University of Naples – SUN Department of Aerospace and Mechanical Engineering) were the Co-Chairmen of the conference.

About 250 scientists (85 research centers) from 17 countries (Italy, Israel, USA, Russia, France, China, Iran, Algeria, Uzbekistan, Germany, the Netherlands, Czech Republic, Egypt, Venezuela, Saudi Arabia, Georgia, Bulgaria) took part in this conference.

The conference provided a forum for scientists and engineers throughout the world interested in the timescales of polymers and composites processing, structure and properties.

As time is the driving concept in the polymer science community, TOP-Conferences included sessions on various topics and provided opportunities for exchanging ideas and opinions on both fundamental science and industry-relevant subjects.

TOP was an evolving, dynamic conference that embraces cutting edge research topics and emerging scientists. It was thought having as a primary objective the meeting of a number of scientists working within the area of timescales of polymers, conceived as the background driving force for the progress of knowledge in many field of Polymer Science.

The conference program focused on the more recent advances in the following topics:

- Viscoelasticity/Rheology
- Glass Transition
- Adhesion
- Processing
- Durability/Degradation
- Biomaterials
- Fracture/Yielding
- Sensors
- Thin Films
- Composites/Nanocomposites
- New Techniques
- Transport phenomena

The program of the conference included 1 plenary lecture, 13 invited lectures, 52 oral presentations and poster sessions.

Plenary lecture was represented by Prof. E. Baer (Case Western Reserve University, USA) and was devoted to nanolayered systems by forced assembly.

13 invited lectures were included in the program. M. Elbahri (Christian-Albrechts-Universität zu Kiel, Germany) gave presentation about plasmonic nanomaterials and S.L. Simon (Texas Tech University, USA) spoke about polymerization kinetics under nanoscale constraint.

Multifunctional polymer based templates for tissue regeneration was discussed in invited lecture of L. Ambrosio (CNR, Italy) and percolation effects on entangled polymer rheology and the glass transition were presented by R. Wool (University of Delaware, USA).

G. Marletta (University of Catania, Italy) gave information about electroactive functional hybrid layered nanocomposites and S. Caponi (CNR, Italy) spoke about study of the dynamical properties during the chemical vetrification process.

The next two invited lectures were devoted to the influence of liquid crystalline structure and ceramic nanoparticles inclusion on thermal conductivity of epoxy based thermosets (E. Amendola, CNR, Italy) and rheology

of ultrathin polymer films: nanobubble inflation and liquid dewetting compared (G.B. McKenna, Texas Tech University, USA). The title of the lecture of R. Casalini (Naval Research Laboratory, USA) was "Elastomeric polyurea nanocomposites".

The report of A. Maffezzoli (University of Salento, Italy) had a title "Fiber impregnation during manufacturing of thermoplastic matrix composites" and L. Govaert (Eindhoven University of Technology, Netherlands) related about current options for the fast evaluation of the long-term performance of solid polymers.

The titles of the two last invited lectures were "The current trend of research on dynamics of polymer blends: barking up the wrong tree" (K. Ngai, University of Pisa, Italy) and "Effective multifunctionality of poly(p-phenylene sulfide) nanocomposites filled with different amounts of carbon nanotubes, graphite and short carbon fibers" (K. Friedrich, University of Kaiserslautern, Germany).

The oral presentations of the conference were devoted to the next problems: microscopic models of mode-coupling theory; electroactive functional hybrid layered nanocomposites; biodegradable composites filled with halloysite nanotubes; analysis of ageing of amorphous thermoplastic polymers by PVT analysis; design of new polymeric formulations for drug nanocarriers; preparation, properties and self-assembly behavior of PTFE based core-shell nanospheres; permeation properties of polymer/clay nanocomposites; aggregation induced emission as a new tool for polymer

traceability; fiber impregnation during manufacturing of thermoplastic matrix composites; ageing of hybrid composites specific issues; anomalous polymer diffusion in entangled systems; current options for the fast evaluation of the long-term performance of solid polymers.

Poster session included 61 presentations. The following presentations should be noted: novel class of eco-flame retardants based on the renewable raw materials; prediction of reinforcement degree for nanocomposites polymer/carbon nanotubes; inorganic-organic hybrid antibiocoorsive covers based on polyurethanes and coordination compounds of some transition metals; preparation of biomaterials on the basis of a water-soluble cellulose acetate; wear-resistant polymer composite filled with finely dispersed wood and carbon/graphite powders; a new approach to raising heat resistance of epoxy nanocomposites; a comparative kinetics study of thermal degradation of some novel ABA block copolymers; investigation of a carbon fiber/epoxy prepreg curing behavior for thick composite materials production; preparation of synthetic copolymers potentially capable to interact with biomacromolecules; antimicrobial polymer films for food packaging.

The conference was shown that synthesis, properties and application of polymers and polymer composites are very important matters for pure and applied chemistry and for the material science, first of all.

The next 7<sup>th</sup> conference will be held in the same place in two years (June, 2014).