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IV INTERNATIONAL CONFERENCE ON "TIMES OF POLYMER (TOP) AND COMPOSITES

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The IVth International Conference on "Times of Polymer (TOP) and Composites" was held on September, 21–24, 2008 on Ischia Island in the "Continental Terme" Hotel (Naples Bay), Italy.

This conference was organized by the Department of Aerospace and Mechanical Engineering Second University of Naples – SUN and Department Materials and Production Engineering University of Naples Federico II. The conference presented a forum for scientists and engineers throughout the world interested in the timescales of polymer and composite processing, their structure and properties.

TOP is an evolving, dynamic conference that embraces urgent edge research problems and emerging scientists. The main aim of this Conference was to gather all scientists working in the field of polymers to discuss the urgent problems concerning the progress in many fields of Polymer Science. For this reason the TOP Conference had sessions on various topics including viscoelasticity, adhesion, processing, transport phenomena, tissue engineering, fracture and yielding, sensors, thin films, cultural heritage, biopolymers, durability of polymers and composites, nanocomposites.

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 conference.

World well known scientists were included into the Scientific Committee. Domenico Acierno (University of Naples, Italy), N. Billingham (University of Sussex, UK), Alberto D'Amore (II University of Naples SUN, Italy), Mikhail M. Feldstein (Russian Academy of Sciences, Moscow, Russia), D. Kranbuehl (College of William and Mary, USA), Francesco Paolo La Mantia (University of Palermo, Italy), Giuseppe Marrucci (University of Naples, Italy), G.B. McKenna (Texas Tech University, USA), Baltasar Mena (Universidad Nacional Autynoma de Mïxico), Jovan Mijovic (Polytechnic University, Brooklyn, USA), C. Minarini (ENEA, Italy), M. Narkis (Institute of

Technology, Israel), Luigi Nicolais (University of Naples, Italy), George Papanicolaou (University of Patras, Greece), S. Simon (Texas Tech University, Usa), Alain Vautrin (Ecole Nationale Supïrieure des Mines, France), Kari Dalnoki-Veress (McMaster University, Canada), H. D. Wagner (Weizmann Institute of Science, Israel), Graham Williams (Department of Chemistry, University of Wales Swansea, U.K.), Gennady E. Zaikov (Institute of Biochemical Physics, Moscow, Russia) were members of Scientific Committee of conference.

About 145 scientists (67 research centers) from 34 countries (Italy, Israel, Mexico, USA, Greece, Russia, France, China, Portugal, Chile, Brazil, Switzerland, Venezuela, Taiwan, Iran, Slovak Republic, Algeria, Thailand, Uzbekistan, Germany, Holland, UK, Japan, Poland, Hungary, Ukraine, Slovenia, Romania, Spain, India, Czech Republic, Turkey, Cuba, Pakistan) took part in this Conference.

The program included 4 plenary lectures, 9 invited lectures, 53 oral presentations and poster sessions.

The first plenary lecture was presented by Prof. G. Williams and was devoted to chain dynamics in solid polymers and polymerizing systems as detected by broadband dielectric spectroscopy. The second plenary lecture was about modulation of the response of polymer materials through molecular interactions and nanodispersion (Prof. F. Ciardelli). Prof. K. Dalnoki-Veress spoke about scaling of diblock copolymer lamella near the order-disorder transition. Relaxation times featured for polymeric pressure sensitive adhesives were discussed at the plenary lecture by Prof. M. M. Feldstein.

Nine invited lectures were included in the program. Prof. A. D'Amore gave presentation about timescales of amorphous polymers from isotropic to anisotropic structures and Prof. J. Mijovich spoke about dielectric properties of generation 3 pamam dendrimer nanocomposites.

Timescales in the bubble nucleation events for the formation of microcellular biodegradable foams were at the invited lecture by Prof. S. Iannace. Mechanical

characterization and modeling of aluminum-epoxy particulate composites with and without notches were presented by Prof. G. Papanicolau.

Prof. D. Kranbuhel gave information about metal nanoparticle formation in PEI. Prof. I. Emri spoke about time-dependent mechanical behaviour of PA₆ nanocomposites with titanate nanoribbons.

The next two invited lectures were devoted to the problems of molecular motion in nanochannels: single molecule evidence and multiscale simulation (Prof. A. P. Netti) and time-dependent effects at orientation of nanocomposites based on LC polymers in shear flow (Prof. V. Kulichikhin).

The last invited lecture was delivered by Prof. G. E. Zaikov and was devoted to kinetics for chemistry, biology, medicine and agriculture.

Three sessions were included into the scientific program. The session "Polymer Timescales" included 17 oral presentations. Photo-aging of high performance epoxies, inclusion complexes behaviour at the airwater interface, formulation and evaluation of a novel adhesive film for use in composite patch repair, the defect diffusion model and times of polymers, durability of elastomeric products under periodical loading, elasticity and dynamics of particle gels in non-newtonian melts and some other problems were discussed at this session.

The session "Composites/Nanocomposites" included 22 lectures. These lectures were devoted to the

problems of photodegradation of polymer nanocomposites, modeling the elastic modulus of polymer/clay nanocomposites with the effective particle approach using plasma-activated high performance fibers with nanocrystalline structure in producing new reinforced composite materials. The speakers also gave information about the effects of electric and magnetic fields on the processing of polymer nanocomposites with carbon nanotubes, reverse ageing of composite materials for aeronautical applications, electrical and optical characterization of polymer nanocomposites swelling.

The third session was devoted to the problems of polymer chemistry and physics. This session included 14 oral presentations. There were discussed the next problems: impact of light on active layers of organic solar cells, thermooxidation stability of some degraded xyloglucans, lifetime prediction of polyethylene pipes transporting drinking water in the presence of chlorine dioxide, effect on structural relaxation of the poly(methyl-methacrylate) copolymers chain flexibility, the effect of oxygen concentration on oxidistability and chemiluminescence from isotactic polypropylene *etc.*

The Conference showed that synthesis, properties and application of polymers and polymer composites are very important for pure and applied chemistry and for material science first of all.

The next 5th TOP and Composites Conference will be held in 2010 at the same place.