

REPORT FROM POLYCHAR 18 WORLD FORUM ON ADVANCED MATERIALS AND 18TH SHORT COURSE ON POLYMER CHARACTERIZATION

The 18th Forum took place on April 7–9, 2010, at the University of Siegen. The tutorial Course on Polymer Characterization was held at the same location on April 6. The events were organized by Werner Mormann of the University of Siegen and his team.

The Forum stresses the following areas: Predictive Methods; Nanomaterials and Smart Materials; Electrical & Dielectric Properties; Surfaces, Interfaces & Tribology; Mechanical Properties and Performance; Rheology and Processing; Structure-Property Relationships; Materials Synthesis; Biomaterials, Materials for Energy & Recycling.

As in the past years, POLYCHAR had under one roof theorists, those doing computer simulations or modeling, processing & characterization people & more. Discussions during the presentations, during the breaks, in the evenings & even during the post-conference excursion were fruitful – for newcomers and distinguished materials scientists and engineers alike.

There were 250 participants from five continents and over 40 countries who have presented some 250 contributions. There were some 120 oral presentations and a comparable number of posters. Oral contributions were presented in three parallel sessions; posters were presented in a dedicated session. There were only five last minute cancellations. Participants from industry provided an excellent basis to exchange views between academia and industry.

One of POLYCHAR's objective is to attract students and other young scientists – to give them an opportunity to meet with their peers and with well-known scientists to exchange experiences, make contacts and present their results to the scientific community. Financial support (fee waivers plus contributions to travel and local costs) was provided to more than 20 students in combination with grants from Deutsche Akademische Austausch Dienst (DAAD) and IUPAC Polymer Division.

The POLYCHAR Prize Committee chaired by Goerg Michler, Martin Luther University Halle-Wittenberg, has awarded a number of prizes listed below:

CARL KLASON PRIZE for the Best Student Paper was in view of a strong competition awarded to three ex aequo winners:

* VICTOR BAUKH, Eindhoven University of Technology (advisor Henk Huinink) for his paper on NMR-imaging of water absorption by multilayer coatings.

* GARETH BAYLEY, University of Stellenbosch (advisor Peter Mallon) for his presentation on carbon

nanotube filled electrospun polyacrylonitrile-graft-poly(dimethylsiloxane) fibers for silicone elastomer composites.

* ANAIS VUILLEQUEZ, University of Rouen (advisor Jean-Marc Saiter) for her paper on glass transition and enthalpy relaxation in glassy materials: from polymers to food industry.

IUPAC POSTER PRIZE:

* NATTAYA MUKSING, Chulangkorn University, Bangkok, (advisor Rathanawan Magaraphan) for her poster on peroxide cured natural rubber/fluorelastomer/high-density polyethylene via dynamic vulcanization.

* LEI NIE, University of Sheffield (advisor Anthony J. Ryan) for his poster on water vapor transport in liquid crystalline thermosets.

* NATALIJA PUZKO, Lvivska Polytechnika National University (advisor Stanislav Voronov) for her poster on control of carbon-chain polymer surface properties.

WILEY POSTER PRIZE:

* ANTON GINZBURG, Deutsches Kunststoffinstitut, Darmstadt (advisor Tibor Macko) for his poster on characterization of polyolefines with high-temperature two-dimensional liquid chromatography.

* FRITJOF NILSSON, Royal Institute of Technology, Stockholm (advisor Ulf W. Gedde) for his poster on modelling the permittivity of anisotropic composites.

POSTER PRIZE OF POLYCHAR 18

* ANNA TRINKER, University of Cologne (advisor Bernd Tieke) for her poster on functionalization of hydrogels based on N-isopropylacrylamide and cationic surfactant monomers via counterion exchange.

The BRUCE HARTMANN AWARD for a Young Scientist:

* NAZYM ZHUNUSBEKOVA, Bekturov Institute of Chemical Sciences, Almaty, for her presentation on biopolymeric complexes of Fe(III)-porphyrin: synthesis and characterization.

The JÜRGEN SPRINGER AWARD for a Young Scientist:

* DAVIDE TRANCHIDA, University of Siegen, for his presentation on mechanical properties of morphologies studied by atomic force microscopy nanoindentation: polymer brushes and polymeric nanophases.

The INTERNATIONAL MATERIALS SCIENCE PRIZE, introduced in 2007, was awarded to PETER

15th International Conference for Renewable Resources and Plant Biotechnology (NAROSSA® 2009)

MALLON, University of Stellenbosch, South Africa for his contributions in the field of positron annihilation spectroscopy and in electro-spinning.

The prestigious PAUL J. FLORY POLYMER RESEARCH PRIZE 2010 was awarded ex aequo to:

* ANDRZEJ GALESKI, Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Lodz, for his pioneering work on strength and toughness of semicrystalline polymers, blends and filled polymer systems.

* HANS-WOLFGANG SPIESS, Max-Planck-Institute for Polymer Research, Mainz, for his pioneering work in the field of Solid-State-NMR for the analysis of structure and dynamics of polymer systems.

Both received the newly coined Flory Prize Medal.

The Course on Polymer Characterization is integral part of the conference from the very beginning and takes place before the Forum. The idea of the course is to provide information for students and newcomers on modern characterization techniques by well-known specialists in the field. A peculiarity of the course is that the lecturers are available for the participants during the whole conference. Hand-outs were provided, and given IUPAC sponsorship the course was free for all students. There were a total of 83 registered Course participants – among them more than one third of scientists from academia and industry. The subjects addressed were

Participants presenting a contribution, whether oral or poster, have the opportunity to submit a manuscript based on the presentation to the POLYCHAR Scientific Committee. Manuscripts will be published in Macromolecular Symposia as well as in Polymer Engineering & Science after the usual process of peer review.

On Saturday after the conference there was a visit to the “upper castle” in Siegen with a guided tour and explanation of the history of the “Nassau-Orange” dynasty as well as the famous flamish painter Peter Paul Rubens, who was born in Siegen. This was followed by a visit to Eisenbau Krämer in Kreuztal, not far from Siegen. One saw there very thick wall steel pipes – but also polyethylene and polypropylene, uncrosslinked and crosslinked by irradiation, used for coatings.

Future POLYCHAR conferences are scheduled as follows:

* POLYCHAR-19, Katmandu, March 20–24, 2011.

Please note that March 26–28 there will be a Symposium on Materials Education at the Indian Institute of Science, Education and Research, Pune; it is hoped that some participants will attend both.

* POLYCHAR-20, Zagreb, 2012.

* POLYCHAR-21, Gwangju, 2013.

The POLYCHAR Scientific Committee