

J. Pielichowski¹, R. Kozłowski², G. Zaikov³ and L.Madyuskina³

IXTH INTERNATIONAL CONFERENCE ON FRONTIERS OF POLYMERS AND ADVANCED MATERIALS

¹ *T. Kosciusko Cracow University of Technology, 24 Warszawska str., 31-155, Cracow, Poland*

² *Institute of Natural Fibers, 71B Wojska Polskiego str., 60-630 Poznan, Poland*

³ *N.M. Emanuel Institute of Biochemical Physics, Russian Academy of Sciences*

4 Kosygin str., Moscow 119334, Russia, chembio@sky.chph.ras.ru

The IXth International Conference on Frontiers of Polymers and Advanced Materials was held in Cracow (Poland) in the period of July 8-12, 2007. The first conference was held in Delhi, India, January 20-25, 1991 and was inaugurated by the Prime Minister of India. The second conference was held in Jakarta, Indonesia, January 10-15, 1993, was inaugurated by President Soeharto in the Presidential Palace, and numbered 244 participants from 24 countries. The third conference was held in Kuala Lumpur, Malaysia, January 16-20, 1995 and was scheduled to be inaugurated by the Prime Minister. The fourth conference was held in Cairo, Egypt, January 4-9, 1997 with the Minister of Scientific Research of the Government of Egypt as the Honorary Chair. Three hundred and fifty participants from 30 countries covering all continents participated in the conference. The fifth conference was held in Poznan, Poland, June 21-25, 1999, with the Minister-Chairman of State Committee for Scientific Research, the Minister of Education, and the Minister of Economy as Honorary Chairpersons. The sixth conference was held in Recife (Pernambuco, Brazil), May 4-9, 2001 with Minister of Science and Technology of Brazil and Rector of the Federal University of Pernambuco as Honorary Chairpersons. The conference was attended by about 250 participants from 25 countries. The seventh ICFPAM was organized by University POLITEHNICA of Bucharest, in Bucharest, Romania, June 10-15, 2003. President of Romania, Minister of Education and Research, Minister of Industry and Resources were Honorary Chairpersons of the conference. The conference numbered about 300 participants from more than 30 countries. The last conference (VIIIth) was organized by University of Mexico in Cancun (Mexico, Quintana Roo), April 22-29, 2005.

The conference provides a unique blend of science, technology and business. It brings together leading international scientists, engineers, top-level industrial management, and business executives for discussions on the status of advanced materials, new technologies and industrial and business opportunities.

The main objectives of the conference are:

- To highlight advances and new findings in polymers and advanced materials and their impact on new technologies

- To facilitate technology transfer and new business opportunities by bringing together representatives from academia, research centers, industries, and business

- To foster international collaborations and joint ventures

- To facilitate the growth of private sector business in Eastern Europe and Poland in particular

- To promote the growth of scientific and technical infrastructure in the field of polymers and advanced materials technologies.

Prof. M. Sewerynski (Minister of Science and Higher Education, Poland), Mr. P. G. Wozniak (Minister of Economy), Prof. J. Majchrowski (Mayor of the City of Cracow), Prof. J. Gawlik (Rector of the Cracow University of Technology, Poland), Prof. M. Kleiberg (President of Polish Academy of Science, Poland) and Dr. Eng. W. Ratynski (President of Polish Federation of Engineering Associations (FSNT-NOT), Poland) have been honorary chairpersons of the IXth Conference in Cracow.

Prof. P. N. Prasad (Executive Director, The Institute for Lasers, Photonics and Biophotonics Buffalo, NY, USA) has been an Honorary International Chairperson. Dr. Francois Kajzar (Research Director, CEA-DRT/LITEN DSEN/L2C, CE Saclay, France) has been an International Chairperson. Prof. Ryszard Kozłowski (Director of Institute of Natural Fibers, Poznan, Poland) and Prof. Jan Pielichowski (Director of Polymer Science Department, Cracow University of Technology, Poland) have been National Chairpersons. Prof. A. Ikushima (Toyota Technological Institute, Nagoya, Japan), Prof. K. S. Lee (Hannam University, Taejon, South Korea) and Prof. J. E. Mark (Distinguished Res. Prof. Department of Chemistry, University of Cincinnati, OH, USA) have been Co-Chairpersons. Dr. J. Grote (Senior Electronics Engineer Air Force Research Laboratory Materials and Manufacturing Technology Directorate, Dayton, USA) has been an International Coordinator and Dr. F. Charra (CEA-DSM, CEA Saclay, France) has been International Secretary.

International Advisory Committee has included world-known scientists from several countries: Prof. A. Meghea (University POLITEHNICA of Bucharest, Romania), Dr. Ch. Andraud (ENS, Lyon, France),

Dr. D. Chrisey (Center for Nanoscale Science and Engineering, NDSU, Fargo, USA), Prof. R. Delobel (CREPIM, France), Prof. J. C. Dubois (Nemoptic, Guyancourt, France), Prof. Z.J. Florianczyk (Warsaw University of Technology, Poland), Prof. A. Graja (Institute of Macromolecular Physics Poznan, Poland), Prof. J. Jamrozik (Jagiellonian University, Cracow, Poland), Prof. F. E. Karasz (University of Massachusetts, Amherst, MA, USA), Prof. A. Leao (UNESP-Universidade Estadual Paulista, Botucatu, Brazil), Dr. C. Y. C. Lee (US Air Force Office for Scientific Research, USA), Prof. S. Lefrant (Nantes University, France), Prof. H. Sasabe (Chitose Institute of Science and Technology, Japan), Prof. L. Slusarski (Technical University of Lodz, Poland), Prof. J. Sworakowski (Wroclaw University of Technology, Poland), Prof. J. Ulanski (Lodz University of Technology, Poland), Dr. D. J. Williams (KODAK, USA) and Prof. G. E. Zaikov (Russian Academy of Sciences, Russia).

The conference has included general plenary talks, tutorials, invited lectures, contributed talks as well as poster sessions. An exhibition on polymers, advanced materials, equipment, and recent applications has also been organised within the conference.

The program of the Conference included 8 sessions:

1. General and tutorial lectures on New Materials and Advanced Technologies.

Lectures covering the main conference topics and emphasizing their impact on educational, scientific, technological and business trends.

Symposium Chairs: Prof. K. S. Lee (Hannam University, Korea) and Prof. M. S. Kolwas (Institute of Physics, PAN, Warsaw, Poland).

2. New Generation Nanostructured Materials, Hybrid Materials, Glass and Ceramic, Dental Materials, Exotic Materials.

Lectures presenting new areas of application and latest results in research and development.

Symposium Chairs: Prof. J. Mark (University of Cincinnati, OH, USA) and Prof. K. Haberko (AGH University of Science and Technology, Cracow, Poland).

3. Natural Fibres, Composites and Environmentally Friendly Materials.

Natural fibres and composites based on cellulosic fibres, natural textiles, agro-fine chemicals; applications in pulp and paper industry, biodegradable materials.

Symposium Chairs: Prof. R. Kozlowski (Institute of Natural Fibres, Poznan, Poland) and Prof. R. M. Rowell (USDA Forest Service, Madison, WI, USA)

4. Polymeric Materials and Composites for Plastic Electronics and Solar Energy Conversion. Conducting polymers, field effect transistors, light emitting devices; organic light detectors, polymer lasers; organic solar cells.

Symposium Chairs: Prof. A. Pron (CEA Grenoble, France) and Prof. M. Zagorska (Warsaw University of Technology, Warsaw, Poland).

5. Advanced Materials and Composites for Photonics, Nano- and Biophotonics.

Photorefractive polymers, nonlinear optical materials; materials for image and information processing, optical storage; polymer light amplifiers; liquid crystals and liquid crystalline polymers; materials for integrated optics.

Symposium Chairs: Prof. I. C. Khoo (The Pennsylvania State University, University Park, USA) and Prof. A. Miniewicz (Wroclaw University of Technology, Wroclaw, Poland)

6. Biomaterials and Biotechnology.

Polymers and composites as implant in body for structural members and as replacements of flexible tissue in reconstructive surgery, bioimaging, nanomedicine drug delivery, bioMEMS, biofilms, tissue engineering.

Symposium Chairs: Dr. G. Bidan (CEA Grenoble, France) and Dr. D. Crisey (North Dakota State University Fargo, ND, USA).

7&8. New Polymers in Ecology & Thermal Degradation, Stabilization and Flame Retardancy of Polymeric Materials.

Synthesis and application of polymers for environmental protection. Environmentally – Safe technologies for sustainable developments in polymer technology.

Thermal- and photo-degradation, stabilization and flame retardancy of polymeric materials - (co)polymers, blends, natural polymers, (nano)composites. Fundamentals and applications.

Symposium Chairs: Prof. K. Pielichowski (Cracow University of Technology, Krakow, Poland) and Prof. S. Bourbigot (Ecole Nationale Supérieure de Chimie de Lille, France).

Keynote speakers of the Conference:

- Prof. J. I. Jin (Korea University, Seoul, Korea) “Polymers with unique properties”.

- Dr. K. Blakely (NanoDynamics, Inc, Buffalo, USA) “Disruptive Approaches to the Global Energy Situation: The Power of Nanotechnology”.

- Prof. Y. Koike (Keio University, Japan) “Status of Photonics Polymers for “Fiber to the Display””.

- Prof. R. Kozlowski (Institute of Natural Fibres, Poznan, Poland) “Latest achievements in the area of composites reinforced with natural fibers”.

- Prof. K. Matyjaszewski (Carnegie Mellon University, USA) “Nanostructured functional materials via ATRP with ppm amounts copper”

- Prof. P. N. Prasad (Executive Director, Institute for Lasers, Photonics and Biophotonics Buffalo University, USA) “Opportunities for Multifunctional Nanomaterials in Biotechnology and Nanomedicine”.

- Prof. N. S. Sariciftci (Johannes Kepler University of Linz, Austria) “Organic Optoelectronic Devices”.

- Prof. J. Zyss (ENS Cachan, France) “Revivals of molecular nonlinear optics from the micro to the Nanoscale”.

IXth International Conference on Frontiers of Polymers and Advanced Materials

The main organizers of the conference have been Tadeusz Kosciuszko Cracow University of Technology (Cracow, Poland) and Institute of Natural Fibers (Poznan, Poland).

Conference sponsors:

Cracow University of Technology

Institute of Natural Fibers

International Union for Pure and Applied Chemistry

European Office of Aerospace Research and Development (London)

Office of Naval Research Global (London)

Toyota Motor Company (Japan)

Samsung Corp. (Korea)

Taylor & Francis Group (USA)

Two workshops have been organized within the Conference: "Contribution of FP 6 ToK-Nanotec-est project to enhance European mobility and researcher career opportunities offered by new FP 7 programme" (Chair A. Meghea) and "Molecular nano- and biophotonics for telecommunication and biotechnology" (Chair A. Miniewicz).

About 400 scientists, students and engineers from 85 Universities research centers from 44 countries (Poland, France, USA, Romania, Japan, Italy, Ireland, South Korea, Ukraine, Russia, Germany, China, Singapore, Mexico, Australia, Israel, Brazil, Chile, Iran, Turkey, Malaysia, Belgium, Switzerland, Portugal, Sweden, Indonesia, New

Zealand, Argentina, India, Canada, Norway, UK, Lithuania, Latvia, Hungary, Finland, Spain, Check Republic, The Netherlands, Morocco, Slovenia, Bulgaria, Slovakia and Algeria) have taken part in this conference.

About 200 oral reports have been presented in 8 sessions and two poster sessions have included 160 presentations. The conference has been actively attended by young scientists (PhDs. students, assistants, and post-docs), who have presented a number of interesting oral talks and posters.

The conference has showed that investigation of properties and applications of new polymeric and composite materials with new unique properties is very important from the point of view of pure and applied chemistry. A special attention should be paid to degradation and recycling of plastics after their life-time expiration.

The proceedings of the conference can be found in the libraries of Cracow University of Technology (Cracow), Institute of Natural Fibers (Poznan) and N.N. Semenov Institute of Chemical Physics, Russian Academy of Sciences (Moscow). They have also been handed over to the participants of the conference.

Two countries are bidding to host the next Xth International Conference in 2009. These are Morocco and Chile. The final decision regarding the place and the exact date of the next conference will be taken by the Scientific Committee by the end of the year 2007.