

IUPAC POLYMER DIVISION MEETING

Sheraton Hotel

San Juan, Puerto Rico

09.30–12.30 & 14.00–17.30, 29th of July

09.00-12:30, 30th of July 2011

Those attending: Giuseppe **Allegra** (Italy), Erkhan **Baykut** (Turkey), Dušan **Berek** (Slovakia), Michael **Buback** – Vice President (Germany), James **Bull** (South Africa), Umut **Bulut** (Cyprus), Jiazhong **Chen** (USA), Kan-Nan **Chen** (China), Mey Hong **Chiu** (China), Claudio **dos Santos** (Brazil), Michael **Dröschner** (Germany), Alain **Fradet** (France), Vladimir **Gubala** (Ireland), Francisco **Gomez** (USA), Jiasong **He** (China), Michael **Hess** – Secretary (Germany), Roger **Hiorns** (France), Phil **Hodge** (UK), Keh-Ming **Hong** (China), Voravee **Hoven** (Thailand), Jung-Il **Jin** (Korea), Richard G. **Jones** (UK), Tatsuki **Kitayama** (Japan), Pavel **Kratochvíl** (Czech Republic), Przemyslaw **Kubisa** (Poland), LaShanda **Korley** (USA), Tim **Long** (USA), Peter **Mahaffy** (Canada), Mahesh **Mahanthappa** (USA), Stefano Valdo **Meille** (Italy), Bradley **Miller** (USA), Graeme **Moad** (Australia), Werner **Mormann** (Germany), Christopher **Ober** – Division President (USA), Stanislaw **Penczek** (Poland), Elsa **Reichmanis** (USA), Greg **Russell** (New Zealand), Mitsuo **Sawamoto** (Japan), Dennis **Smith** (USA), Jaroslav **Stejskal** (Czech Republic), Bob **Stepito** (UK), Tantayanan **Supavan** (Thailand), Kazuyuki **Tatsumi** – IUPAC Vice President (Japan), Miroslava **Trchová** (Czech Republic), Jean-Pierre **Vairon** (France), Jiri **Vohlídal** (Czech Republic), Yusuf **Yagci** (Turkey), Majda **Žigon** (Slovenia)

1. President's Introductory Remarks and Finalization of the Agenda

Chris Ober welcomed the Division members and observers. The previously distributed meeting agenda was briefly discussed and accepted, in-process changes applied (see Appendix 1). Finally, Chris Ober asked for a moment of silence in remembrance of Prof. Kazuyuki Horie (Japan), an active member of the Division for many years, who passed away unexpectedly last May.

2. Apologies for Absence

Absent members sent their apologies together with greetings to the Division.

3. Approval of the Minutes of the Division Committee Meeting, Strathclyde University, Glasgow (Scotland), July 2010

The minutes recorded from the 2010 meeting in Glasgow were accepted with no dissenting vote.

4. Matters Arising

No specific item not on the meeting agenda had to be addressed at this point.

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5. Structure of the Division after Election

According to the new rules, the elections of the Division Officers and the Titular Members (TM) were conducted by the Secretariat, the Associate Members (AM) elections thereafter by the Division Vice-President, see also TOP 18. The Nomination Committee consisted of Pavel Kratochvil, Michael Buback, Kris Matyjaszewski, and E. Rizzardo.

Greg Russell (New Zealand) was elected as incoming Division Vice-President and Michael Hess (Germany) was re-elected as Division Secretary.

Dick Dijkstra (Germany) **Structure & Properties**, Roger Hiorns (France) **Terminology/Strategy**, Przemyslav Kubisa (Poland) **Conferences**, Graeme Moad (Australia) **Polymerization Kinetics/Terminology**, Werner Mormann (Germany) **Education**, and Dennis Smith (USA) **Industrial Relations/Conferences** were elected as Titular Members; Jiasong He (China) **Structure & Properties**, Dick Jones (UK) **Terminology/Organization of Division Meetings**, Igor Lacik (Slovakia) **Molecular Characterization/Polymerization Kinetics**, Mitsuo Sawamoto (Japan) **Strategy**, Yusuf Yagci (Turkey) **Trends in Polymer Science**, and Majda Žigon (Slovenia) **Education/Molecular Characterization** were elected as Associate Members.

National Representatives (NR) for the biennium 2012-213 are Mubark Ahmed Khan (Bangladesh), Nevenka Manolova (Bulgaria), Jiri Vohlidal (Czech Republic), Shlomo Margel (Israel), Mario Malinconico (Italy), Joon-Soep Kim (Republic of Korea), M. Ilyas Sarwar (Pakistan), Aziz M. Muzafarov (Russia), Gaspar Mhinzi (Tanzania), and Voravee P. Hoven (Thailand) were appointed, see also TOP 18. NRs are proposed by National Adhering Organizations (NAO) and by the Division. The limitation of the number of NRs to 10 was again criticized.

For future elections, candidate names should be submitted to the Division Vice-President as early as possible. The eligibility of a person is limited by the former service time (information available from the Vice-President) and has to be considered before proposing a name. The Nominating Committee (see above) gives advice for the selection of the candidates for Division Officers and may produce names. The service time of Division Officers is four years, for TMs and AMs two years with the option of reelection. It is always desired to have more candidates than open positions. Therefore recruitment of new members is crucial. The Division plans to revise election rules as long as they remain under Division control, see TOP 18.

Jung-II Jin observed that the President of IUPAC, Nicole Moreau, has proposed to reduce the service time of a Division President from four years to only two years. Division IV does not support this idea.

6. Report on Terminology and Nomenclature Projects (Dick Jones)

The subcommittee consists of 31 members from 13 countries

The following projects were finalized and published as IUPAC recommendations:

Terminology for reversible-deactivation radical polymerization previously called "controlled" radical or "living" radical polymerization, *Pure Appl. Chem.*, **2010**, 82(2), pp. 483-491 - Jenkins, Jones & Moad

Dispersity in polymer science, *Pure Appl. Chem.*, **2009**, 81(2), 351-353 – Stepto, reprinted in *Polym. Int.*, **2010**, 59, 23-24 with a preface – Jones

This recommendation was deemed to be of such importance in polymer science that its wider dissemination is desirable.

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Glossary of polymer class names based on their chemical structure and molecular architecture - Vohlidal. Translated by a member of staff of Angewandte Chemie, corrected by Drs. Karl-Heinz Hellwich and Michael Hess, published in Angewandte Chemie, **2010**,122(128) 4943-4951.

Definitions of terms relating to the structure and processing of sols, gels, networks and inorganic-organic hybrid materials: Pure Appl. Chem., 2007, 79(10), 1801 – translated by Prof. Kazuyuki Horie and published in *Kobunshi*, 58(11) 838-843 (2009).

The following projects have been completely finished and are 'in print' at PAC:

2003-019-2-400: *Definitions of terms relating to crystalline polymers - revision of IUPAC Recommendations 1988* – Allegra and Meille

2002-017-1-400 *Polymerization Processes and Polymers in Dispersed Systems* – Slomkowski

The following project is in public review and under consideration by ICTNS for publication in PAC:

2004-043-1-400: *Terminology relevant to bio-related polymer science and applications* - Vert

The following projects are approaching completion with submission predicted within the period 2011-12 as indicated:

1999-051-1-800: Nomenclature for chemically modified polymers (2012);*

2000-037-1-800: Nomenclature for macromolecular rotaxanes (revised title) (2011);*

2005-005-2-400: Definitions of terms relating to individual macromolecules, their assemblies, and dilute polymer solutions (2011);

2008-032-1-400: Basic guidelines to polymer nomenclature (2011)

2005-043-2-400: Terminology for self-assembly and aggregation of polymers (2012).

2006-004-1-400: Recommendations for the abbreviation of polymer names (revised title) (2012);

2006-041-1-400: Glossary of thermal and thermomechanical properties of polymers (2012)

The following projects are still in preparation with end-dates expected beyond mid-2012:

2001-081-1-800: Terminology and structure-based nomenclature of dendritic and hyperbranched polymers;*,‡

2003-060-2-400: Terminology on separation of macromolecules;

2003-042-1-800: Source-based nomenclature of single-strand linear and graft polymers;*

2006-028-1-400: Terminology for stimulus-responsive polymers (revised title);

2007-008-1-400: Development of a multilingual glossary of polymer terminology;

2008-015-1-400: Preferred names for polymers;

2008-020-1-400: Revision of "IUPAC Recommendations on Macromolecular Nomenclature – Guide for Authors of Papers and Reports in Polymer Science and Technology";

2009-047-1-400: Definitions & notations relating to stereochemical aspects in polymer science.

2010-007-1-400: Terminology for chain polymerization.

2010-036-1-400: List of key words' for polymer science journals

Application for the following project has been submitted:

* Division VIII projects pursued under the auspices of SPT.

‡ Unique problems have beset this project. They are now being resolved but delay in completion has been inevitable.

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Terminology of nanomaterials and nanotechnology in polymer science (deferred from 2009).

The following feasibility studies are underway:

Nomenclature in inorganic and coordination polymers.

Elastic properties of polymers.

Of particular importance is the 'Brief Guide to Polymer Nomenclature' driven by Roger Hiorns in close cooperation with Division VIII. The document is to be a readily available guide for authors and journal editors since it covers the corresponding recommendations in an easily accessible form with hyperlinks.

Dick Jones gave a report of the allocation of financial support for travel and accommodation from the Division budget that is distributed according to a key that takes into account the position of a person and the travel distance and that has been proven an objective procedure for the latest 6 years. It was emphasized that the financial resources are shrinking due to competition for limited resources from the many sub-committees.

7. Report on Structure-Properties Projects (Jiasong He)

There are 62 members from academia and industry, mostly from Asia and Europe in this Subcommittee. It has presently 8 very active projects, 1 feasibility study and 2 project proposals. The total of all publications up to now sums up to 88, six of them published within the last biennium.

Rheological Hybrid Effect In Dually-filled Polycarbonate Melt Containing Liquid Crystalline Polymer, Q. Mi, X. Zhang, J. He, Polym. Eng. Sci., in press.

Melt processing, mechanical and fatigue crack propagation properties of reactively compatibilized blends of polyamide 6 and an acrylonitrile-butadiene-styrene copolymer, U. A. Handge, A. Galeski, S. C. Kim, D. J. Dijkstra, C. Goetz, F. Fischer, G. T. Lim, V. Altstaedt, C. Gabriel, M. Weber, H. Steininger, *J. Appl. Polym. Sci.*, submitted **2011**.

There were two meetings, by the Asian Group in November 2010 in Kyoto (18 participants, 14 from academia, 4 from industry), and the European Group in March 2011 in Terneuzen, The Netherlands (23 participants, 10 from academia, 13 from industry). A Subcommittee meeting is planned in August 2011 in Kunming, China.

Most of the projects have been initiated by industry, another source of projects is the identification of new products. Jung-II Jin emphasized the cooperation and significant role obtained by industry in the projects of this Subcommittee.

8. Report on Molecular Characterization Projects (Dušan Berek)

The Subcommittee consists presently of 32 members. There are currently 3 projects active, namely:

2005-011-3-400 (Nyambeni Luruli) '*Repeatability and Reproducibility of Sample Preparation and Analysis in High-Temperature Size-Exclusion Chromatography*' Ongoing project, the first report was submitted.

2009-015-1-400 (G. Meira) '*Data Treatment in Size Exclusion Chromatography and other Techniques of Polymer Characterization*' Ongoing project, publication in press.

2007-058-1-400 (Bob Gilbert) '*Critically Evaluated Techniques for Size Exclusion Chromatography of Starch*'

Ongoing project, two publications

R.G. Gilbert, M. J. Gidley, S. Hill, P. Kilz, A. Rolland-Sabaté, D.G. Stevenson, R.A.Cave, *Cereal Foods World* 55 (2010) 139

M.J.Gidley, I.Hanashiro, N.M.Hani, S.E.Hill, A. Huber, J.-L.Lane, Q.Liu, G.A.Morris, A.Rolland-Sabaté, A.Striegel, B. Gilbert, *Carbohydrate Polymers* 79 (2010) 255

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The following projects were abandoned because of inactivity and no response on multiple requests by the Subcommittee Chair:

2005-009-3-400 (Robert Bruell) *Efficiency and Reproducibility of Temperature Rising Elution*

01.07.2008; spent 0%

2005-021-3-400 (Bastiaan Staal) Accuracy and Reproducibility of Functionality Type Analysis of poly(ethylene oxide) homo-and copolymers by LCCC

31.12.2007; spent 0%

2004-022-3-400 (Melissa Fitzgerald) 3 Terminology and Measurement Techniques of Starch Components

0.04.2007; spent 6%

The Subcommittee still suffers from low input from outside and the limited scope (only separation techniques). Jean-Pierre Vairon raised the question to become active in widening the view to techniques other than those only focusing on the determination of molecular mass. In particular hyphenated techniques should be considered. Roger Hiorns suggested the preparation of Guidelines for Polymer Characterization. Cooperation with other Subcommittees were encouraged. Greg Russell assumed that in the world of synthetic polymer science not enough is known about physical techniques of polymer characterization and standards might be required as for NMR and X-ray techniques. Further discussion of the fate of this Subcommittee was postponed, see TOP 18.

9. Reports on Developing Polymer Materials Systems (Jaroslav Stejskal)

Jaroslav Stejskal reported on the activities of the Subcommittee on Developing Polymer Materials and stated that the fundamental problems of this Subcommittee, already identified in the past (see minutes 2008 ff) have not changed and: new project areas have to be identified and the future strategy of the Subcommittee has to be defined.

This subcommittee currently consists of 24 members from 16 countries. The focus of the subcommittee lies presently on electrical properties of nano-structured polymer systems. The results of one completed project have recently been published:

Polyaniline: Infrared spectroscopy of conducting polymer nanotubes, Pure Appl. Chem. web 20.06.2011, M. Trchova, J. Stejskal

A project entitled '*Terminology for conducting electro-active and field-responsive polymers*' 2006-028-1-400 is in an advanced stage.

The subcommittee has organized the 75th Prague Meeting on Polymers: Conducting Polymers, 10.-14.07.2011, an International Conference with 124 participants from 37 countries.

Future projects are:

Raman Spectroscopy of Conducting Polymers (various morphologies, interpretation of the spectra, structure-properties relations)

Carbonization of Conducting Polymers (N-containing nanotubes)

Conducting Polymers and Noble Metals (highly conducting materials, conducting inks, catalysts)

Conducting Polymers and Ionic Liquids (mixed ionic/electronic conductors)

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However, nothing has yet materialized. Consequently, the question was on the table whether or not to continue this Subcommittee. It was clear from several contributions that the scope of the Subcommittee has to be well-defined and pointedly aimed on recent developments in Polymer Science with economical relevance and, hence, participation from industry. However, it is not IUPAC's business to support research. It was suggested to focus on materials and put Materials Science forward on a broader, interdivisional basis, although, as Pavel Kratochvil stated, a general interdivisional cooperation does not exist.

Since a visible, active Subcommittee is an opportunity for emerging creative fields of science, it can be particularly attractive for young scientists and open new areas on a global scale. Thus the title of the Subcommittee might have to be changed reflecting that, what will be done there (in the future), is not traditional but challenging and stimulating. The idea came up to bring together established people from science and application together with young scientists and even graduate students to give résumés of the state of the art and present developments and demands and future perspectives in small-scale, focused workshops.

Jean-Pierre Vairon suggested that the Division maintain the Subcommittee of Developing Polymers and define specific aims. Chris Ober agreed that the Division has to identify new strategic decisions. International workshops could become a vehicle to identify and monitor emerging scientific areas, and this could even start corresponding processes in other Divisions. It was suggested that a group of interested people should define promising topics and start systematic planning. The President proposed that a future head of such a group organizes workshops, gets funding agencies, contacts other Divisions and industry interested in cooperating and funding activities. The former 'Strategic Conferences' in Kyoto and New York could serve as an example. Further discussion of the fate of this Subcommittee see TOP 18.

10. Report of the Subcommittee on Modeling, Polymerization Kinetics and Processes (Greg Russell)

The Subcommittee is composed of 40 members from 13 countries, two from industry, four from research institutes and 34 from universities. Modeling and mechanistic studies of free-radical polymerization processes is the major objective of the Subcommittee. While those projects dealing with *Rate coefficients of termination reactions*, *Propagation in the aqueous phase*, and *RAFT-mechanism* are almost completed, new fields of activity are going to be in the terminology of chain reactions, determination of initiation parameters, NMP-related rate parameters, and further propagation and termination rate coefficients.

Currently three project lines are close to completion within the next 18 months with at least 3 publications currently in preparation. Three projects are carried forward with a good rate of progress and one new project has been started. There is still one new project waiting for approval. One follow-up project has already been identified and is going to be formulated while there are ideas for about eight project areas to be considered in the near future.

Completed or Nearly Completed Projects:

2000-028-1-400 (Greg Russell) *Critically evaluated termination rate coefficients for free-radical polymerization*
Completion expected in 2011, publication in preparation

2004-034-1-400 (Igor Lacík) *Critically evaluated propagation rate coefficients for free-radical polymerization of water-soluble monomers polymerized in the aqueous phase*
Completion expected in 2011, publication in preparation.

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2004-040-1-400 (Philipp Vana) *Towards a holistic mechanistic model for reversible addition-fragmentation chain transfer polymerization: dithiobenzenzoates as mediating agents* Completion expected in 2011.

Recent or New Projects:

2009-050-1-400 (Graeme Moad) *Critically evaluated rate coefficients associated with initiation of radical polymerization*

2010-027-2-400 (Denis Bertin) *Critically evaluated rate coefficients for alkoxyamines*

2011-xxx-1-400 (Thomas Junkers, Christopher Barner-Kowollik) *Critically evaluated rate coefficients for methyl acrylate propagation*

20yy-xxx-x-400 (Michael Buback, Greg Russell) *Critically evaluated rate coefficients for chain-length dependent termination*

Future Perspectives:

Critically evaluated termination rate coefficients as a function of conversion

Critically evaluated chain-transfer rate coefficients and constants

Critically evaluated depropagation rate coefficients

Critically evaluated copolymerization reactivity ratios

Critically evaluated combination/disproportionation ratios

Critically evaluated rate coefficients for ionic polymerizations

ATRP: current situation on mechanisms; benchmark rate coefficients

Set of benchmark rate coefficients for a particular monomer

The work of the Subcommittee was acknowledged. Younger scientists should be encouraged to chair projects, thus feeling responsible rather than 'only' participating. Transient states during polymerization processes could also become subject of a project. Since Greg Russell is Vice-President elect, it was proposed that Sabine Beuermann (Germany) - perhaps together with Robin Hutchinson - might be the next chair of the Subcommittee.

11. Reports on Education Projects and Activities (Werner Mormann)

The subcommittee consists of 18 members from 17 countries. In January 2011 the Chairmanship has shifted from Jean-Pierre Vairon, France, to Werner Mormann, Germany.

The subcommittee supports educational courses, workshops, and conferences, operates the Division's educational website <http://old.iupac.org/polyedu/>, and conducts a pilot program for a research cooperation between international funding organizations and IUPAC (represented by the Polymer Division). Finally, the feasibility of a revision of textbooks in polymer science concerning compatibility with IUPAC nomenclature and terminology is being conducted.

Educational Courses, Workshops and Conferences

15th UNESCO/IUPAC Postgraduate Course in Polymer Science 2010/2011 (Prague)

2010-015-1-400 (Pavel Kratochvil)

Objective: To enable young university graduates and PhDs from countries with limited research facilities to acquire knowledge on recent advances in polymer science and professional skills needed for promotion of polymer science in their home countries.

All details at <www.imc.cas.cz/en/umch/kursy_unesco_iupac.htm>

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Five students from Kazakhstan, Poland, Serbia, Vietnam.

March 2011: mid-term seminar; students reported on the progress of their research projects.

16th UNESCO/IUPAC Course 2011-12 starting October 1, 2011:

12 students from 8 countries have been invited.

Cumulative results of the 15 times the course has been held:

graduates: 120 from 20 countries, publications in international journals: 173, communications at international meetings: 306, citations: 2614.

Conclusions after 15 courses

- Students from all continents except Australia and North America have graduated.
- More than one paper in an impacted journal, almost two conference communications and about 14 citations per graduate (average).
- In several cases a productive long-term co-operation between the Institute (Akademie ved České Republiky, Ústav Makromolekulární Chemie, Praha) and the graduate's home institution was established.
- Seven graduates became doctoral students at Czech universities (last 5 years).
- Course graduates often have enhanced career chances in their home countries.
- The Course contributes to a positive image of IUPAC both inside and outside the professional community at virtually no cost for IUPAC.

11th Annual UNESCO / IUPAC Workshop and Conference on Functional Polymeric Materials & Composites (26 – 29 April 2011) Stellenbosch, South Africa

(Harald Pasch, Bert Klumperman)

<http://academic.sun.ac.za/unesco/Conferences/Homepage.htm>

Preference for contributed presentations to young researchers that recently started their academic career and to students and researchers from previously underrepresented universities.

Delegates: 143 from 28 non African countries; Africa: South Africa, Zimbabwe.

Students: 46 (12 historically black University students).

Other countries:

Austria, Australia, Brazil, Belgium, Canada, Czech Republic, Denmark, Germany, Iraq, Italy, India, Iran, Japan, France, Mauritius, Malaysia, New Zealand, Nigeria, Poland, Philippines, The Netherlands, Ukraine, Russia, Saudi Arabia, South Korea, Sweden, United Kingdom and USA. An IUPAC project "11th Annual UNESCO/IUPAC Workshop and Conference on Functional Polymeric Materials" has been approved.

POLYCHAR 19 (19th World Forum on Advanced Materials-IUPAC Conference and Short Course on Polymer Characterization) March 20-24th, 2011, Kathmandu, Nepal

(Rameshwar Adhikari, Michael Hess) <http://www.polychar19.com>

participants: about 120, mostly students and researchers from academia.

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POLYCHAR 19 was sponsored with general IUPAC funds (Program for Conferences in Scientifically Emerging Regions, order of magnitude USD 4,000). Program provides modest financial support on a competitive basis, to Divisions and Standing Committees that wish to support or organize conferences in *scientifically emerging regions*.

POLYCHAR 20 will be held from March 26-30, 2012 in Dubrovnik, Croatia, <http://polychar20-croatia.com/>

The IUPAC MACRO 2010 (Glasgow, Scotland) provided a Satellite Symposium on 'Polymer Education'

(Jean-Pierre Vairon)

Two oral sessions, one poster session and a round table discussion. The contributions of the Polymer Division were:

Christopher Ober, *International Polymer Education in the Internet Age*, Werner Mormann, *Implementing an IUPAC Pilot Research Program*, Bernadette Charleux, *French education committee for Polymer teaching*, Dennis Smith, *Growth and Impact of Polymer Education Programs Driven by ACS Polymer Divisions*, Graham Coverdale, *Teaching Polymer Science in Schools*, Mitsuo Sawamoto, *Polymer Education in Japan*, Alex Van Herk, *Teaching Polymers in Europe*, Henri Cramail, *How should we introduce polymerization reactions to undergraduate students?*

Round Table: *Expectations from IUPAC in terms of Polymer Education*.

Polymer education symposia in the framework of the IUPAC World Polymer Congress 2012

Format, program and topics of a possible round table discussion of the Polymer Education Symposium during the 44th IUPAC WORLD POLYMER CONGRESS at Virginia Tech, (24.-29.96.2012, Blacksburg, Virginia) are under debate.

Design of Polymer Education Material for French Speaking Countries

All material is available on the French Polymer Group (GFP) website and from the IUPAC Poly Edu site:

http://www.gfp.asso.fr/enseignement/supports_cours.php <http://www.iupac.org/polyedu/page36/page38/page38.html>

via a link to GFP. More than 650 slides, bearing the IUPAC stamp, covering chemistry and physics of polymers are now available.

IUPAC Polymer Education Website (Chris Ober)

Screenshots of the Polymer Education website of the Polymer Division <http://www.iupac.org/polyedu/index.html> were presented to show its actual content in the International Year of Chemistry and on behalf of the IUPAC World Chemistry Congress in Puerto Rico.

Reviewing of Polymer Science Textbooks (Stan Penczek)

The intention of this project is the revision of (only) polymer textbook manuscripts (prior to publication) by IUPAC SPT-experts in order to implement IUPAC terminology and nomenclature at the earliest possible state. Textbooks with this revision should obtain an IUPAC label like: "Terminology and Nomenclature IUPAC approved" or "Textbook following IUPAC recommendations for polymer terminology and nomenclature". Benefits for Publisher: Correct IUPAC terminology; promotion of textbook through IUPAC label, benefits for IUPAC (Polymer Division). Increased awareness of IUPAC activities; promulgation of polymer terminology and nomenclature. Financial contributions of the publisher covering the associated costs should be considered. Chris Ober has sent a corresponding letter to several publishers.

The idea is to check a number of about 50 pages by 2 IUPAC experts within 3 months and discuss possible ambiguities with the author (1 month). A task group of about 10 experts from SPT is assumed to be required. After positive response from publisher(s) a corresponding PolyEdu project will be launched with the support of the Polymer Division.

IUPAC Polymer Chemistry Funding Opportunities (Werner Mormann)

36 letters of intent (joining about 100 teams all over the partner countries), 28 eligible full proposals. Final ranking decided by partner organizations and IUPAC Poly Div members on Friday July 16th 2010. 7 Proposals were funded (~ 7 Mio USD) with a total of 25 research teams.

<http://www.iupac.org/polyedu/DivIVCall/page6/page7/page7.html>

Mid-term reports will be given at the next IUPAC Macro meeting (US), final reports at a special workshop.

A project: 'Guidelines for multinational calls for research cooperation and funding through national funding agencies' has been elaborated and approved. A follow-up call in a new area is being considered.

12. Monitoring of Projects (Buback)

Michael Buback criticized project durations as long as 12 years. Project performance will therefore be monitored more closely in the future. Correspondingly, a round-up of all projects will be performed by the end of this year and it will have to be decided in a fair way whether an aged project should be terminated, renewed or temporarily extended. No 'standard lifetime' of a project can be defined since the actions from the broad range covered by Polymer Division are too different. In the future, applications for new projects have to be commented by each Subcommittee of the Division and the monitoring forms will continue to be used over the lifetime of a project since this practice has proven to be a very effective tool. Pavel Kratochvíl's question about the evaluation of the Division on IUPAC level was answered by Chris Ober in that there is a special Committee responsible for that, however, the detailed criteria are still unknown and remain to be made public. The rating of a (finished) project was discussed. It was stated that the duration cannot be the single criterion. Also the number of citations is not suited to rank the success of recommendations or technical reports because they cannot easily be compared. Jung-Il Jin encouraged further consequent use of the internal reporting system that has been established by Bob Stepto. Budget pressure fails in cases where no money has been spent or can be spent on a project. Special mechanisms of monitoring have to be developed for intrinsically long-term projects such as the Multilingual Glossary. Pavel Kratochvíl quoted from his long experience with IUPAC projects and made the warning that an average time of 2 years for a project, in particular in the field of terminology or nomenclature, clearly is an illusion- He referred to the discussions on this subject in previous years.

13. Reports on Strategy and Communication (Mitsuo Sawamoto)

Mitsuo Sawamoto reviewed the activities of the Strategic projects over the recent years addressing strategies in Polymer Science, in the IUPAC/Polymer Community and in the World Society in view of the challenges in Chemistry as the only fundamental science that creates something new, thus changing towards a new kind of Chemistry in designing dynamic molecules, permutation of all elements, creation of new materials, moving into the chemistry of cell functions, memory and thought and evolution of life. A revision of the membership of the task group in view of the new challenges appears to be advised.

Since 2002 two strategic conferences have been held (Kyoto 2002 and New York 2007) and Polymer Summits on the biennial MACRO Conferences (Taipei 2008 and Glasgow 2010). The next edition of the World Polymer Societies Directory will be distributed on 44th MACRO, Blacksburg, 2012, and it will contain new entries such as exchange programs, post-doctoral fellowships, trends in Polymer Science. An online version is available at www.spsj.org.jp. The Strategy in World Society deserves specific attention and is most important to initiate curiosity towards chemistry among

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young people and make the field attractive for them. As the most prominent trends in Polymer Science the following areas were identified: Precision Control (reactions, catalysis, architecture), Fusion and Emergence of Multidisciplinary Areas (supramolecular science, biology, electronics), Nanotechnology and Materials (electronics, photonics, magnetism...), Environmental and Sustainable Issues (biodegradable polymers, recycling, renewable resources...). The Strategy in Polymer Science should now focus on the question 'What are polymers and where are they important?' and fusion into Biology, Medical Science and Electronics. Strategy in the Polymer Community should focus on Chemistry/Physics vs. materials and functions as well as intra- and interdivisional activities. Finally, the Strategy concerning World Society should focus on the contributions of Polymer Chemistry (environment, sustainability...) and education and campaigns to improve public recognition.

Mitsuo Sawamoto observed that the response from National Organizations on his statistical request was not enthusiastic. He emphasized the necessity of changing strategy according to changing demands in the future as outlined in his report and to determine which direction to take, for Polymer Division and IUPAC. Jean-Pierre Vairon suggested the formation of a 'think tank' to continuously monitor trends and developments and to be able to respond quickly with an every year ranking and an idea in which direction to go.

Majda Žigon emphasized the importance of the positive image of (polymeric) materials in public recognition and education to counteract the frequently encountered 'bad news is good news' attitude in many media when it comes to chemistry. The promising activities, which have started on the occasion of the International Year of Chemistry should be continued through activities within and among Subcommittees addressing graduate, undergraduate and high school students getting them to hear, to read, to write and to do. The contest has proven to be very successfully with 50 entries from around the world. The scope was hit and tools for communication are available now. In view of the last strategic focus mentioned by Mitsuo Sawamoto in his report, Jung-Il Jin strongly supported the development of special programs for young university - and high-school students to whom more attention should be paid for example on the occasion of the IUPAC World Polymer Congresses. Jiasong He agreed with the positive picture of materials in general public compared with the rather negative view at chemistry and encouraged publications emphasizing the use of plastics and not the disadvantages. Bob Stepto addressed corresponding videos for education – the award-winner of this year's video competition 'A World Without Polymers' being a good example for that – and suggested initiation of a long-term project in that area.

VISIT OF JAMES BULL Editor-in-Chief P&AC

James Bull explained the publication policy of P&AC and in particular the option that a limited number of special contributions to IUPAC-sponsored conferences can also be published in P&AC. However, the conference organizers should negotiate with P&AC at least 6 months before the conference and give a list of the possible contributions.

Concerning general publication, it appears that Wiley-VCH's Macromolecular Symposia – the preferred journal for manuscripts related to Polymer Division supported conferences - has become more attractive after being upgraded. The Polymer Division receives significant royalties from Wiley, after all.

14. Reports on Division-sponsored Conferences (Przemyslaw Kubisa)

Each year IUPAC sponsors a large number of independently organized symposia that cover a wide range of specialized topics in chemistry. In general there is no financial support from IUPAC to conferences. Exceptions are the conferences

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New Directions in Chemistry - Scientifically Emerging Regions. The financial support granted from IUPAC is of the order of USD 4000 per conference. Detailed information is provided by the IUPAC website. Sponsorship by IUPAC attests to the quality of the scientific program and indicates the host country's assurance that scientists from all countries may participate.

In general, IUPAC-sponsored conferences should be international in the sense that they are intended to attract participants from anywhere in the world. Conferences that are mainly regional in nature may be eligible if IUPAC sponsorship would help attract a more international audience.

The members of the Division are asked to encourage conference organizers to apply for IUPAC sponsorship. For further information see TOP 16 and also Appendix 3, where a complete list of the conferences is given.

IUPAC Sponsored Conferences – Polymer Division

year	2004	2005	2006	2007	2008	2009	2010	2011	2012
conferences	10	11	9	9	7	11	8	13	(4+)
MacroSymp*	4	4	6	4	3	3	6	(2+)	
Pages**	1648	1170	1821	1233	459	566	1580	(265+)	

*refers to the number of volumes of Wiley-VCH Macromol. Symposia and** to the corresponding number of pages.

This is correlated with the royalties that the Division receives, see TOP 16. The publications might be printed in the year following the conference.

Geographical distribution of IUPAC-Sponsored Conferences of Polymer Division

year	2008	2009	2010	2011
Africa	South Africa			South Africa
America (North)		USA Canada		USA
America (South)		Chile (2)	Jamaica	
Asia	India China (Taipei) China	China	China	Nepal India China (2)
Pacific/Oceania		Australia		Australia
Europe	Russia Czech Rep. Germany	France Germany Czech Rep. Poland Austria	Germany France UK Czech Rep. Poland Greece	Russia Spain Czech Rep. Finland Turkey

15. The Presidents Statement (Chris Ober)

Chris Ober gave a short review of structure and mission of IUPAC in general under the Presidency of Nicole Moreau (France), Vice President Kazuyuki Tatsumi (Japan), Secretary General David Black (Australia), Treasurer John Corish (Ireland), and Secretariat Terry Renner (USA). He acknowledged the achievements of the Division carried forward by the structure and membership as it has been during his Presidency. In the biennium 2010-2011 there were eight new projects (Terminology 2, Structure-Properties 2, Education 2, Kinetics of Polymerization 1, New Project Areas 1). The budget situation is balanced and summarized in Attachment 2. He emphasized the importance of a continuous flow of new projects (steady-state conditions) in order to be able to keep the financial support for meetings at the present level taking into account that only in GA years the secretariat covers TM support. Therefore, he recalled the general process of project application. A summary of the New Projects, recent publications, and educational activities is given in Appendix

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3, a summary of Division-supported Conferences and statistics (not complete for the year 2012!) can be found in Appendix 4 (together with general information for sponsorship application).

Chris Ober also recalled the International Year of Chemistry (IYC) in honour of Marie Slodowska Curie and the IUPAC Prize for Young Chemists, established to encourage young scientists at the beginning of their careers by awarding the most outstanding PhD thesis (worldwide) in the general area of chemical sciences. Polymer Division contributed significantly to activities in the IYC, namely with the International Funding Call, the Multilingual Glossary of Polymer Terms, a number of Polymer Conferences highlighting the IYC, the video/essay contest, and videos of award-winning polymer chemists.

General support through the activities of the Polymer Division are the Samsung – IUPAC Young Polymer Scientists Award, that was given in the year 2010 to Christopher Bielawski, University of Texas Austin, Travel Grants for students from economically disadvantaged countries (USD 3000 from the World Polymer Congress Organizing Committee), and Travel Support (USD 2000) for plenary speakers. The 2010 International Young Polymer Scientists Symposium at the World Polymer Congress 2010 (Glasgow) was supported with USD 5000. The DSM–IUPAC Performance Materials Award 2010 was given to Han E.H.Meijer (Eindhoven), and the Polymer International – IUPAC Award 2010 to Molly Stevens, UK.

16. Report on Division Web Page and Electronic Publications (Dick Jones)

It is still difficult to find the publications of the Division. This is only possible through the project identification. Until now, any topic to be placed on the Division website should go via Dick Jones who checks for the format and forwards it, Claudio dos Santos will take over and take care for electronic publications and the Division website in the future. In particular the announcement of Conferences and new projects and publications are items to be placed on the front page. There are still problems with the website since the new design was created. There are still the new and the old version and there is some hope that they will eventually merge to the satisfaction of the users. Chris Ober is involved in the improvement and Fabienne Meyers is in contact with the Czech group that designs the website. The problems are identified but solutions are still coming up very reluctantly. Chris Ober is ready to convey any proposals for improvement and the Division members are urgently asked to submit their thoughts. Until now any material to be placed on the website was sent to Fabienne Meyers to be placed there (although she was never responsible for the appearance of the website), however this might change in the near future. Dick Jones stressed that the Division website advertises the Division's and the Subcommittee's achievements and it is therefore important to check the corresponding representation there. Updating might be required and gaps need to be filled.

GUESTS

Michael Dröscher (Chair of COCI)

Chris Ober welcomed the chair of the Committee on Chemistry and Industry (COCI), Michael Dröscher, who outlined the activities of COCI. The general idea of COCI is to create and strengthen the connections between IUPAC and industry, with companies of all sizes, and increase the number of Company Associates. In the past, World Leadership Meetings have been organized, frequently in the context of a World Chemistry Congress, regional workshops, and

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Company Associate recruitment was actively pushed forward. In terms of projects, COCI is active in Life Cycle Analysis, supports the CHEMRAWN¹ Biofuels Conference, Chemicals Management, Responsible Care, the Industrial Prize for Sustainability, and fosters international communication in particular where there is a need of chemical development, safety issues and certain training programs. At present, there are 83 Associate Companies (30 from Japan). Chris Ober asked in which way Polymer Division may actively support COCI. Cooperative projects would be helpful, contacting partners from industry in order to increase the number of Associate Companies. The Wikipedia-related Division activities may become such a cooperative project if it will be established.

Peter Mahaffy and Mei-Hung Chiu (Committee of Chemical Education)

The guests were welcomed by the Division President. Peter Mahaffy acknowledged the high activity of the Division concerning chemical education. There are currently six priorities in education, namely i) sustaining the momentum from the International Year of Chemistry; ii) strengthen and increase partnerships – e.g. with UNESCO – disseminating chemistry around the world, incorporate industry; iii) strengthen the concept of sustainability and chemistry in particular in the fast developing world and focus on chemistry & health, chemistry & nutrition; iv) networks of chemical education have to be enforced and particular efforts are required in South America and Africa; v) organization of the next International Conference on Chemical Education, Rome 2012; vi) awareness and understanding ethics.

In the IYC the Global Water Experiment was started with great success (school experiments with and about water), visualizing science of climate change with interactive electronic teaching material (www.climatechange.com), the ‘flying chemists’ program – a program to improve chemical education supported by ministries in Croatia and Ethiopia, tool kits for Chemistry Weeks, the ‘Young Ambassadors of Chemistry’ program. Division II has produced a periodic table of isotopes with electronic links to experiments. Distribution of the activities should be supported by the media in the individual countries, but support from national representatives is required. Pavel Kratochvíl mentioned that the presence of educational activities on the websites of the IUPAC Divisions should be updated and presented in a better way.

17. Future IUPAC WORLD POLYMER CONGRESSES (Tim Long-2012 USA, Voravee Hoven-2014 Thailand, Erkhan Baykut / Yusuf Yagci -2016 Turkey...)

Tim Long (Virginia Tech) presented the Program of 44th MACRO 2012, Blacksburg Virginia, 24th-29th of June 2012. The full service will be handled by professionals from Virginia Tech. The organizers are prepared to host at least 1,500 participants. The break-even point was determined to be at about 1,400 participants. From the airports Dulles, Charlotte, and Roanoke (local airport), bus transportation to the campus is available. Accommodation in hotels close to the conference venue is possible from about USD 80, on-campus accommodation for about 800 participants will be available for about USD 30-40/night. Updated information is available at www.macro2010.org.

10 Sessions are planned and 3 Poster Sessions. The Plenary Sessions will be available as live streams. The speakers within the individual Sessions will be chosen by the Session organizers, this is in progress.

Since the biennial MACRO Conferences always happened to be a ‘family meeting’ of the Polymer Division, there should be close contact with Dick Jones concerning the organization of the Subcommittee and the Division meetings.

¹ CHEMical Research Applied to World Needs

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There should also be a mutual link between the Conference website and the Division website. The SPT (18.-21.06.) as well as the Division (22./23.06.) will meet BEFORE the Conference (24.-29.06.) in a Virginia Tech-owned hotel located in Roanoke, Virginia.

Voravee Hoven Chulalongkorn University, Bangkok, presented the planning for **45th MACRO 2014**. Two locations are still optional Pattaya and Chiang Mai, both are convention centres on the coast, south of Bangkok and not on a university campus. The preparations are still in progress and the organizing Committee asks for input concerning names of speakers to be invited. The program is set up and is scheduled for 5 days, the date, however, has not yet been fixed. Chris Ober observed that there is still much work to be done and the conference venue should be selected as soon as possible. Michael Buback added that for plenary speakers it is frequently important to know about the dates well in advance and he suggested to select late June, July, but no later than early August, and to consider the weather conditions common in the envisaged time frame. Chris Ober recommended establishing a Scientific Advisory Committee to select plenary speakers. Tim Long offered cooperation to share all available information. Jung-Il Jin suggested to communicate with the Polymer Division concerning an Educational Session involving students from high school level to PhD. He expressed his confidence in the organization of MACRO 2014 because they have already successfully organized an Asian Chemical Congress.

Erkhan Baykut and Yusuf Yagci presented the application for hosting **46th MACRO 2016** in Istanbul, Turkey. There are 2 Conference Centres available with all required capacities (conference rooms, hotels, budget accommodation, public transportation...). The organizers are experienced in organizing major conferences. A particular benefit of Istanbul is the fact that it literally acts as a bridge connecting Orient and Occident. Chris Ober thanked them for the nice and informative presentation and Dennis Smith added that an ACS meeting organized in Istanbul was 'fantastic'. There is only this one application for 2016 that was already forwarded from 2014 because Thailand had been accepted for 2014 before. The vote on Istanbul as the location for the 46th MACRO 2014 was positive and provisional approval was granted.

Greg Russell suggested Cairns, Australia as possible location for **48th MACRO 2020**. Additional information when writing these minutes: On the next Division Meeting the application of hosting **47th MACRO 2018** in Mexico was announced.

18. Vice-President's Remarks (Michael Buback)

The new structure of the Division after the 2010/2011 elections was already given in TOP 5 of these minutes, and is summarized in Appendix 5. The Division's representatives on Standing IUPAC Commissions presently are:

- ICTNS: Dick Jones (will be replaced by Graeme Moad in 2012)
- COCI: Dennis Smith (replacing Dick Dijkstra)
- DIV. VIII: Phil Hodge, Jaroslav Kahovec
- CHEMRAWN: Chris Ober
- Editorial Board P&AC: Mitsuo Sawamoto
- DIV. III (Green Chemistry): **vacant**
- **There are presently NO Division IV representatives in further Divisions**

The elections of 2010/2011 revealed some inconsistencies in the current Polymer Division Rules and the *IUPAC*

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Regulations, i.e., recent *amendments*. Consequently, synchronization is urgently required. The present situation is as follows (changes, amendments *italicized*):

Division Officers (President, Vice-President, Secretary):

IUPAC Secretariat runs the election (before: Division). Service term 4 so far 4 years (may be subject to change). Secretary still eligible for another 4 years.

TMs:

There are 10 TMs (maximum), candidates nominated by a Nominating Committee (the last NC consisted of Pavel Kratochvíl, Michael Buback, Greg Russell, Michael Dröscher, Kris Matyjaszewski, and E. Rizzardo). *The election is now run by the IUPAC Secretariat. The service term is 2 years, eligible for another 2 years.* In the past, the service term was 4 years and the election was conducted by the Division.

AMs:

There are 6 AMs (maximum), *appointed by the Division*. Until now, the Polymer Division preferred (and still did it for the last election) to have the AMs elected by the Division. The service term is 2 years, eligible for another 2 years.

NRs:

There are 10 NRs (maximum, the limitation of the number of NRs is still criticized) *to be appointed for 2 years, 2 more years possible*. Before, the NRs were elected by the Division Committee on nomination by the NAOs.

Electorate:

The file used by the IUPAC Secretariat for the election of the Officers and the TMs is not fully clear, eligibility criteria need to be revised and considered including the geographical distribution. Until now, the Polymer Division has defined the Electorate from the Officers, the TMs, AMs, chairpersons of active task groups/Subcommittees, and actual members of the Nomination Committee.

The Division states that its way of electing its members was anything but undemocratic. Geographic spread was always considered but could not always be adjusted to perfect equilibrium. The Polymer Division strongly disagrees with David Black's statement that the election procedure in the Polymer Division were 'not very democratic'.

The Division rules will be revised and changed according to the IUPAC regulations. The Electorate has to be synchronized with the IUPAC Secretariat. It is the clear opinion of Polymer Division that the composition of the Electorate should be as used by the Polymer Division before and outlined above.

Selection of NRs appears to be a significant problem: some people would like to be candidates but cannot (as they are not nominated by their NAO), others never show up at meetings and do not respond to any mail. Jean-Pierre Vairon would like to see a construct that gives 50% of the proposing power to a country and 50% to the Division Committee. This would increase the influence of a country but also of the Division Committee in cases where an NAO is not particularly interested. The general impression was that the process of identifying NRs has to be 'as democratic as possible'. The missing interest of some NRs was criticized and the fact that there are NRs from a country which is already represented by a TM or AM. Dusan Berek suggested proposing to the Council that the number of NRs should be increased up to about 20 with at least 50% (of all) young scientists and 50% (of all) from developing/less favoured countries. The NRs should strongly be encouraged to participate in the work of the Subcommittees.

Jean-Pierre Vairon questioned the role of the Nominating Committee (NC) and asked in which way it works, which are

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the requirements to become a TM or AM candidate and how the geographical distribution and gender is taken into account. Bob Stepto observed that 'we have to live with the Nomination Committee' as such and asked that any changes made by the NC to be discussed by the Division, and he asked that nominations of candidates should be made well in advance and public together with the corresponding responsibilities so that there is enough time for discussion before the process of election/appointment.

The Division's structure concerning its Subcommittees, in particular the fate of the Subcommittee Molecular Characterization and the Subcommittee Developing Polymeric Materials, were discussed. It was proposed to merge the Subcommittees of Molecular Characterization with the Subcommittee Structure & Properties of Commercial Polymers. Voting for termination of the Subcommittee on Molecular Characterization resulted in 14 pro/0 no/6 abstentions, a vote to recommend corresponding projects in the future to the Subcommittee Structure & Properties of Commercial Polymers resulted in 15 pro/0 no/5 abstentions. Chris Ober advertised continuation of the Subcommittee on Developing Polymeric Materials, a proposal that found general support. Yusuf Yagci will be in charge of the Subcommittee with support from Jaroslav Stejskal (who could not be re-elected as AM). The title of the Subcommittee was changed to 'Trends in Polymer Science'.

The Vice-President's (President elect) topics for the year 2011 and his coming presidency starting January 1st, 2012 are as follows:

- 1. Involve younger scientists
- 2. Involve colleagues from industry
- 3. Strengthen polymer activities in developing countries
- 4. Improve Polymer Division role in education – Wiki project
- 5. Strengthen IUPAC label and make organizations ask for IUPAC advice/opinion
- 6. Stimulate short-term and long-term projects with early discussion at PD meetings
- 7. Monitoring of projects is crucial (preferably internal monitoring)
- 8. Provide expert fora for identifying/solving problems (dilemma papers + initiatives)
- 9. Broaden and publish IUPAC offer in the areas of nomenclature, agreed data, recommended techniques
- 10. Strengthen the role of NRs by reports to NAOs and to PD; ambassadors
- 11. One action (idea, suggestion, initiative) by each PDC member per year
- 12. Active participation of PD in recruitment of excellent candidates for IUPAC work.
There should be an extra agenda point of each Polymer Division Meeting
- 13. Attempts should be made to improve the funding situation of PD

Finally, Michael Buback, the Division President from January 1st 2012 on, expressed his thanks to all participants of the meeting for their contributions and successful work since the Glasgow meeting. On behalf of all members of Polymer Division, Michael Buback expressed particular and special thanks to Chris Ober for his enormous dedication, service and leadership to IUPAC Polymer Division. Michael Buback also thanked Jung-II Jin, the former President of IUPAC whose term as Past President ends by December 31st 2011, for his continued support and stimulation.

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19. Any Other Business

Since there was no further business, the Division President thanked all members, observers, and guests for their vivid and active participation in the 2011 Division meeting and led over to the final topic.

20. Date of Next Meeting

The President thanked all participants for their contributions and expressed his best wishes for a safe travel home and his hope to see everybody next year again in good health.

The Division meeting in 2012 will be held June 22/23 2012 prior to the 44th IUPAC MACRO, Virginia Tech, Blacksburg, USA, June 24-29 2012.

Michael Hess, December 2011, Secretary

IUPAC POLYMER DIVISION MEETING

46th IUPAC GENERAL ASSEMBLY

Sheraton, San Juan, Puerto Rico

Venue: Room 'San Felipe'

09.30–12.30 & 14.00–17.30, July 29, 2011; 09.00–12.30, July 30, 2011

Agenda

1. President's Introductory Remarks and Finalizing of the Agenda (Ober)
2. Apologies for Absences
3. Approval of the Minutes of the Division Committee Meeting, Glasgow, July 2010 (Hess)
4. Matters arising (Ober)
5. Structure of the Division after the 2010/2011 elections (Buback)
6. Report on Terminology and Nomenclature Projects (Jones, Hiorns)
7. Report on Structure–Property Projects (He,)
8. Report on Molecular Characterization Projects (Berek)
9. Report on Developing Polymer Materials Systems (Stejskal)

Photosession during break

10. Report on Polymerization Projects (Russell)
11. Report on Education Projects and Activities (Mormann)
12. Monitoring of Projects (Buback)
13. Strategy, Communication (Sawamoto)

2nd DAY

Visit of James Bull, Editor-in-Chief PA&C

14. Reports on Division–sponsored Conferences (Kubisa)
15. President's Statements (Chris Ober)
16. Report on Division Web Page and Electronic Publications (Jones)

Visit of COCI (Michael Dröscher) and Commission of Chemical Education (Peter Mahaffy, Mey Hong Chiu)

17. Future IUPAC World Polymer Congresses USA; Thailand (Tim Long, Voraveen Hoven, Erkhan Baykut)
18. Vice–President's Topics (Buback)
19. Any Other Business (Ober and participants)
20. Date of Next Meeting (Hess)

APPENDIX 2

Project Expenses vs Budget

Through 6 July 2011	Actual	Budget	Budget Over/ (Under)	% of Budget	Planned End Date
400-Macro					
IMACRO Contract	50,146	60,000	(9,854)	84%	
Samsung Fund Income	32,500	44,490	(11,990)	73%	
2003-038-4-400 Alstaedt	4,427	8,000	(3,573)	55%	1-Jul-2010
2006-018-2-400C Trchova	2,000	2,000	-	100%	Completed
2007-004-1-400 Rullmann	1,787	4,000	(2,213)	45%	31-Dec-2010
Wiley VCH Royalties	8,512	18,980	(10,468)	45%	
1999-020-1-400 Bailey	6,000	6,000	-	100%	31-Dec-2003
2000-028-1-400 Russell	3,000	3,000	-	100%	30-Jun-2003
2002-017-1-400 Slomkowski	2,000	2,000	-	100%	31-Dec-2004
2002-057-1-400 Sawamoto	2,950	3,000	(50)	98%	1-Dec-2007
2003-009-1-400 Wassner	-	-	-	0%	30-Jun-2008
2003-019-2-400 Allegra	5,000	5,000	-	100%	30-Sep-2011
2003-023-2-400C Meira	3,500	3,500	-	100%	Completed
2003-060-2-400 Chang	6,500	6,500	-	100%	31-Dec-2012
2004-022-3-400 Fitzgerald	420	7,000	(6,580)	6%	30-Apr-2007
2004-034-1-400 Lacik	3,000	3,000	-	100%	1-Dec-2007
2004-037-1-400C Froyer	4,937	5,000	(63)	99%	Completed
2004-040-1-400 Vana	3,498	3,500	(2)	100%	1-Sep-2007
2004-043-1-400 Vert	8,356	10,000	(1,644)	84%	31-Dec-2011
2004-044-2-400 He	6,000	6,000	-	100%	31-Dec-2011
2005-005-2-400 Chang	6,000	6,000	-	100%	31-Dec-2012
2005-007-1-400 Wilks	-	-	-	0%	31-Dec-2005
2005-009-3-400 Brüll	-	4,000	(4,000)	0%	1-Jul-2008
2005-011-3-400 Luruli	2,344	5,000	(2,656)	47%	31-Dec-2012
2005-021-3-400 Staal	-	5,000	(5,000)	0%	31-Dec-2007
2005-023-2-400 Steininger	1,700	3,000	(1,300)	57%	31-Dec-2010
2005-043-2-400 Ober	6,000	6,000	-	100%	1-Apr-2009
2006-004-1-400 He	6,000	6,000	-	100%	1-Sep-2011
2006-028-1-400 Vohidal	6,000	6,000	-	100%	1-Sep-2009
2006-041-1-400 Hess	5,732	6,000	(268)	96%	31-Dec-2010
2007-008-1-400 dos Santos	9,610	11,000	(1,390)	87%	1-Sep-2010
2007-027-1-400C Singh	3,500	3,500	-	100%	Completed
2007-058-1-400 Gilbert	2,664	6,000	(3,336)	44%	31-Mar-2012
2008-015-1-400 Mormann	5,578	6,000	(422)	93%	30-Jun-2011
2008-020-1-400 Hodge	3,468	5,000	(1,532)	69%	31-Dec-2011
2008-028-1-400 Auhl	-	5,000	(5,000)	0%	31-Dec-2011
2008-032-1-400 Hiorns	4,930	5,000	(70)	99%	31-Dec-2011

Project Expenses vs Budget

Through 6 July 2011	Actual	Budget	Budget Over/ (Under)	% of Budget	Planned End Date
2009-015-1-400C Mormann	3,000	3,000	-	100%	Completed
2009-019-2-400 Meira	2,129	5,000	(2,871)	43%	31-Dec-2012
2009-047-1-400 Hellwich	2,624	6,000	(3,376)	44%	1-Apr-2013
2009-050-1-400 Moad	1,400	5,300	(3,900)	26%	31-Dec-2012
2010-007-1-400 Moad	1,330	6,000	(4,670)	22%	1-Apr-2013
2010-015-1-400C Kratochvil	5,000	5,000	-	100%	Completed
2010-019-1-400 Bucknall	2,344	5,000	(2,656)	47%	1-Apr-2014
2010-027-2-400 Bertin	-	1,000	(1,000)	0%	31-Dec-2013
2010-029-3-400 Yamaguchi	2,898	3,000	(102)	97%	31-Dec-2013
2010-032-3-400 Mormann	-	9,000	(9,000)	0%	31-Dec-2013
2010-036-1-400 Kubisa	450	2,000	(1,550)	23%	31-Dec-2012

BUDGET FOR 2010 – 2011 (3 July, 2011)

	Budget	Balance
IUPAC	56,500	1,486
Samsung Fund	44,490	9,990
Wiley - VCH	13,980	5,468
Division Gift	5,000 (+ ?)	
NSF IFC	35,000	0
	114,970 + 5,000 (+ ?)	16,944
Expenditures & Commitments	98,026	Reserve for new president 21,944

APPENDIX 3

DIVISION PROJECTS 2010-2011

Title	Project Number	Task Gp. Chair
Terminology for Chain Polymerization	2010-007-1-400	Moad
UNESCO/IUPAC Postgraduate Course in Polymer Science	2010-015-1-400	Kratochvil
Structure, Processing and Performance of Ultra-High Molecular Weight Polyethylene	2010-019-1-400	Bucknall
Relation between rheological properties and foam processability for polypropylene	2010-029-3-400	Yamaguchi
Guidelines of Multinational Calls for research cooperation and funding through national funding agencies	2010-032-3-400	Mormann
Critically evaluated dissociation rate coefficient for alkoxyamines -- Benchmark rate coefficients for nitroxide mediated polymerization	2010-027-2-400	Bertin
List of key-words for polymer science journal	2010-036-1-400	Kubisa
POLYCHAR Short Course on Polymer Characterization	2010-062-1-400	Hess

PUBLICATIONS 2010-2011

Terminology for reversible-deactivation radical polymerization previously called "controlled" radical or "living" radical polymerization (IUPAC Recommendations 2010)

Pure Appl. Chem., 2010, Vol. 82, No. 2, pp. 483-491

Glossary of class names of polymers based on chemical structure and molecular architecture (IUPAC Recommendations 2009)

Pure Appl. Chem., 2009, Vol. 81, No. 6, pp. 1131-1186

Dispersity in polymer science (IUPAC Recommendations 2009)

Pure Appl. Chem., 2009, Vol. 81, No. 2, pp. 351-353

Guidelines for rheological characterization of polyamide melts (IUPAC Technical Report)

Pure Appl. Chem., 2009, Vol. 81, No. 2, pp. 339-349

Compendium of Polymer Terminology and Nomenclature, IUPAC Recommendations 2008

Richard G. Jones, Edward S. Wilks, W. Val Metanovski, Jaroslav Kahovec, Michael Hess, Robert Stepto, Tatsuki Kitayama (editors)
ISBN: 978-0-85404-491-7, RSC 2009

Glossary of class names of polymers based on chemical structure and molecular architecture (IUPAC Recommendations 2009)

Pure Appl. Chem., 2009, Vol. 81, No. 6, pp. 1131-1186

Glossary of terms related to kinetics, thermodynamics, and mechanisms of polymerization (IUPAC Recommendations 2008)

Pure Appl. Chem., 2008, Vol. 80, No. 10, pp. 2163-2193

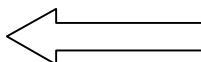
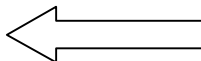
EDUCATIONAL PROJECTS

- **Postgraduate Course** – Prague
(joint with UNESCO)
- **Characterisation Course** –
Polychar (‘11, Nepal)
- **Establishment of Distance
Learning Material in Polymers** –
Moscow
- **Polymer Courses** for African
Countries – Stellenbosch (joint
with UNESCO)
- **Polymer Education Web Site** -
<http://www.iupac.org/polvedu/>

APPENDIX 4

IUPAC-SPONSORED CONFERENCES AND GENERAL CONFERENCE INFORMATION

- **Sponsorship** of International Conferences
in member countries
- **Significant Funding** for Conferences
in economically disadvantaged countries
that are full IUPAC members
- **Free Publicity** in Chemistry International
and on the IUPAC and Division websites
- **Publication of Proceedings encouraged;**
slots available in *Macromolecular Symposia*



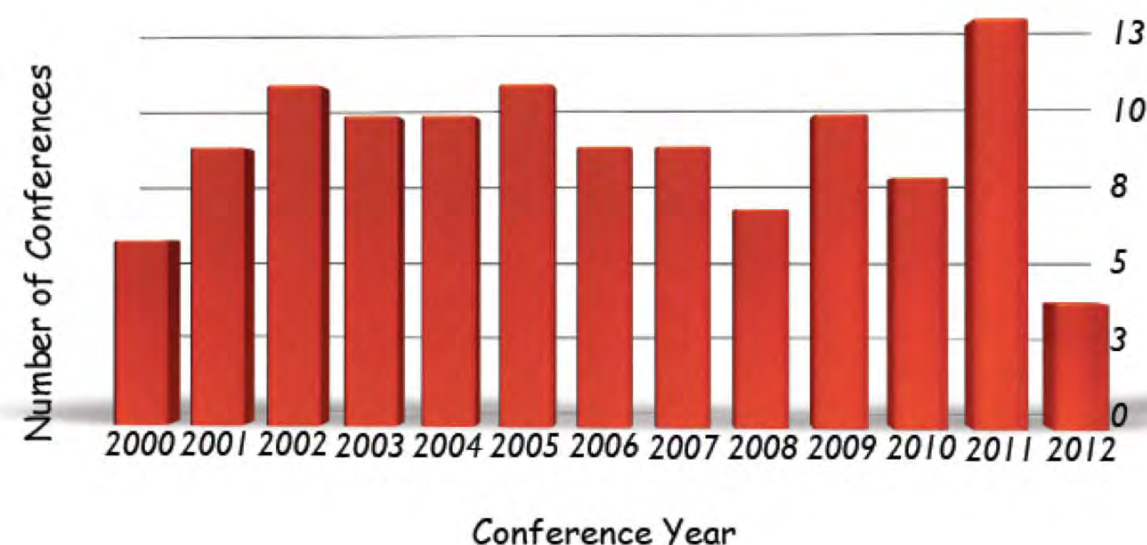


IUPAC Sponsored Conferences

2010			
April 7 - 9, 2010	Siegen, Germany	18th International Conference on Polymer Characterization; World Forum on Advanced Materials	W. Mormann
July 5 to 8, 2010	Strasbourg, FR	8 th International Conference on Polymer-Solvent Complexes and Intercalates	J.-M. Guenet
July 11 - 16, 2010	Glasgow, Scotland	43rd International Symposium on Macromolecules - IUPAC World Polymer Congress 2010	P. Lovell
July 18-22, 2010	Prague, Czech Rep.	74 th Prague Meeting on Macromolecules: Contemporary Ways to Tailor-Made Polymers	P. Vlček
August 15 - 20, 2010	Montego Bay, Jamaica	5 th International Symposium on Macro- and Supra-molecular Architectures and Materials	I. A. Kahwa
Sept 20-23, 2010	Lodz, Poland	4 th International Conference on Polymer Behavior	A. Galeski

2010 (Cont'd) & 2011			
Oct 24 to 29, 2010	Hersonissos, Greece	8 th Hellenic Society Symposium on Polymer Science and Technology	M. Pitsikalis
Dec 10 - 16, 2010	Tiruchengode, India	International Conference on Nanomaterials and Nanotechnology 2010	V. Rajendran
Feb. 13 to 16, 2011	Coffs Harbour, Australia	32 nd Australasian Polymer Symposium	M. Stenzel
March 20 to 24, 2011	Katmandu, Nepal	19 th International Conference on Polymer Characterization: World Forum on Advanced Materials	R. Adhikari
March 26 - 28, 2011	Puna, India	International Symposium on Materials Education	R.P. Singh

2011 (cont'd)			
April 26 - 29, 2011	Stellenbosch, SA	11 th UNESCO/IUPAC Workshop and Conference on Functional Polymeric Materials and Composites,	H. Pasch
May 8 - 11, 2011	Beijing, China	2 nd Federation of Asian Polymer Societies Congress	X.-H. Wang
May 23 - 27, 2011	Pretoria, SA	11 th International Conference on Frontiers of Polymers and Advanced Materials	Walter Focke
June 6 - 10, 2011	St. Petersburg, Russia	7 th International Symposium on Molecular Mobility and Order in Polymer Systems	A.A. Darinski
June 26 - July 1, 2011	Grenada, Spain	European Polymer Congress 2011	J. San Roman
July 10 - 14, 2011	Prague, Czech Republic	75 th Prague Meeting on Macromolecules: Conducting Polymers	J. Stejskal



APPLICATION FOR SPONSORSHIP

An application for IUPAC Sponsorship must be made preferably 2 years and at least 12 months before the Conference.

The granting of sponsorship by IUPAC is judged on the following criteria:

- (i) scientific quality
- (ii) significance of conference
- (iii) suitability of conference
- (iv) evidence of sufficient advanced planning

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- (v) suitable time spacing of conferences of a similar type
- (vi) rotation of leadership for conferences in a series or of a similar type
- (vii) geographically diverse International Advisory Board
- (viii) participation of industrial chemists and women as speakers and as members of the International Advisory Board

In general, IUPAC sponsorship of a conference or symposium attests to its quality but does not carry financial support. However, Divisions and Standing Committees of IUPAC may apply for financial support via two programs for Conferences:- *New Directions in Chemistry- Scientifically Emerging Regions*

Publication coverage of events sponsored by the IUPAC Polymer Division is usually offered to Macromolecular Symposia (Wiley-VCh), and the Conference Editor should direct any initial inquiries about this opinion to the IUPAC Secretariate.

