

**IUPAC MACROMOLECULAR DIVISION MEETING**  
**Draft Minutes of the Meeting held in Paris, 2-3 July 2004**

The Macromolecular Division Committee met on 2-3 July 2004 at the Université Pierre et Marie Curie, Paris before the World Polymer Congress. Those attending: Prof. G. Allegra (Italy), Prof. S. Beuermann (Germany), Prof. M. Buback (Germany), Prof. T. Chang (Korea), Prof. K.-N. Chen (China - Taipei), Prof. W.-C. Chen (China - Taipei), Prof. G. Costa (Italy), Dr. R. Dijkstra (Germany), Prof. R. Freitas (Brazil), Prof. R. Gilbert (Australia), Prof. J. He (China), Prof. B. Henry (Canada), Prof. M. Hess (Germany), Prof. P. Hodge (UK), Prof. K. Horie (Japan), Prof. S. Hvilsted (Denmark), Prof. J.-I. Jin (Korea, Vice-President), Prof. R. Jones (UK), Dr. J. Jost (USA), Prof. J. Kahovec (Czech Republic), Prof. S. C. Kim (Korea), Prof. T. Kitayama (Japan), Prof. P. Kratochvíl (Czech Republic), Prof. P. Kubisa (Poland), Prof. D.-S. Lee (Korea), Prof. D.-J. Liaw (China - Taipei), Prof. E. Marechal (France), Dr. W. V. Metanomski (USA), Prof. G. Moade (Australia), Prof. W. Mormann (Germany), Prof. N. Nakabayashi (Japan), Prof. J.-R. Nunzi (France), Prof. C. Ober (USA), Prof. J.-P. Pascault (France), Prof. H. Pasch (Germany), Prof. S. Penczek (Poland), Prof. J. Puskas (Canada), Prof. G. Russell (New Zealand), Prof. R. Sanderson (South Africa), Prof. M. Sawamoto (Japan), Prof. F. Schué (France), Prof. I. Schnoll-Bitai (Austria), Prof. R. Stepto (UK, President), Prof. A.-C. Su (China - Taipei), Prof. H. Tenhu (Finland), Prof. J.-P. Vairon (France), Prof. J. Vohlídal (Czech Republic), Dr. W. J. Work (USA, Secretary).

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

1.1. Prof. Stepto called the meeting to order and asked if Prof. Vairon wished to say a few words to begin. Prof. Vairon welcomed the Division to Paris and the University. He introduced the President of the University, who told the Division that he is a biochemist in the school of Medicine. He welcomed the Division and wished us a productive meeting.

2. Apologies for Absence.

2.1. Prof. Stepto conveyed Prof. Tabak's apologies for his inability to attend the Division meeting this year due to continuing health problems. Prof. Stepto expressed the Division's concern for Prof. Tabak and, speaking for the Division, sends the Division's best wishes for his continued recovery.

3. Approval of the Minutes of the Division Committee Meeting, Ottawa, August 2003.

3.1. The Minutes recorded for the meeting in 2003 in Ottawa were approved.

4. Matters arising.

4.1. There were no matters raised that were not already part of the agenda.

5. Greetings from Bryan Henry, IUPAC Vice-President.

5.1. Prof. Bryan Henry, the new Vice-President of IUPAC, attended the meeting this year. His purpose was to determine how the Division does its work. He complimented the Division on its impressive number of projects and publications. He wanted to find out how we start projects, how we set and meet

deadlines, and whether the Division can suggest any changes that could be made in IUPAC. He also noted that the Macromolecular Division seems to have good participation of both industrial and academic scientists. He would like to understand how IUPAC could better serve the needs of industry.

6. Secretariat Highlights and Information (John Jost, IUPAC Executive Director).

6.1. Dr. Jost presented a guide to dealing with the Secretariat. He started by identifying the roles of individuals at the Secretariat. Fabienne Meyers, who is the most familiar to us, is responsible for the project system. Paul LeClair is responsible for keeping track of all of the members of IUPAC and their terms of office. Enid Weatherwax is responsible for claim forms; it is now done nearly entirely by e-mail. Dr. Jost noted that claims may be made simply by identifying the individual making the claim and providing information about the purpose of the claim. Linda Tapp is responsible for making payments on the claims. Erin Slagle is responsible for preparing tailored messages to all of the subgroups within IUPAC.

6.2. A new addition to the capabilities of the Secretariat is on-line manuscript handling and review. The part of the website that is devoted to this capability is called "Manuscript Central". When a new manuscript becomes available for review or publication, it is to be submitted to Dr. Jost through the website; he will then start the process. The manuscript is converted to an Acrobat Reader .pdf file for review. The President of the Division is then contacted for suggestions about who should see the manuscript. After Division review, it becomes available to the ICTNS officers. The ICTNS determines whether the manuscript conforms to IUPAC accepted use of terminology, nomenclature and symbols and whether the manuscript is in the correct format. The ICTNS does not review manuscripts for scientific content. Dr. Jost noted that the ICTNS is working very hard to eliminate the backlog of documents that has developed over the last few years.

7. Report on Terminology and Nomenclature Projects (Hess, Jones).

7.1. Prof. Hess reported that the Subcommittee on Macromolecular Terminology met in Bordeaux immediately before the Division meeting. There were thirty participants. Currently the Subcommittee has eleven projects, the second edition of the Purple book, and the Guide to Macromolecular Nomenclature and Terminology. He noted that the Subcommittee has five interdivisional projects. Five projects are in the final stages of completion. There are two new projects since Ottawa and four ongoing projects. One project, nomenclature for poly(rotaxanes), has become dormant because it was decided in Division VIII that the nomenclature of low molecular weight rotaxanes needs to be finalized before poly(rotaxanes) can be addressed. There has been one publication this year on the terminology of functional polymers and a second document on the terminology of Multiphase Polymer Mixtures is approved for publication and will appear in October.

7.2. The Subcommittee has nine feasibility studies, seven of which are old and two are new. New feasibility studies have been proposed in Biopolymers, Polymers

in Therapeutic Applications, and Biodegradable Polymers. Another new feasibility study has been proposed to revise the Solution Properties document. Other feasibility studies include possible projects in Field Responsive Polymers, Thermal Properties, and Self-Assembly and Aggregation. Prof. Henry asked how feasibility studies are handled: where do they originate and how are they funded. Prof. Hess responded that they could come from any source. It usually takes about a year to develop a list of terms that should be included in a terminology document. It is then sent out to several experts for comments. Feasibility studies are not directly funded. Prof. Jin suggested that “experts” includes both outside experts and inside experts. Prof. Stepto explained that the Subcommittee meets yearly and that feasibility studies are an agenda item at those meetings each year.

- 7.3. In past years there has been a request for the Subcommittee to establish a measure of the impact of its activities. Dr. Hess noted that it is impossible to measure the impact of a terminology or nomenclature document because it is not normal for an author of a journal article to cite nomenclature and terminology references in a publication. Thus the citation rate, as a measure of impact, does not work.
- 7.4. A question was raised as to whether a one page recommendation needs to pass through the document approval process. Dr. Jost responded that he could not think of any reason why it should not be handled the same way as any other publication of IUPAC.
- 7.5. Prof. Costa asked about the multilingual database/dictionary. Prof. Hess responded that the Subcommittee is starting to assemble a database of the existing translations that will be available on the web. Prof. Costa noted that efforts were underway to translate Division nomenclature and terminology documents into Italian.

## 8. Report on Structure-Property Projects (Bailey, Kim).

- 8.1. Prof. Kim reported on the work of the Subcommittee on Structure-Properties. The Subcommittee will meet for three days in Paris prior to the Macro. There have been two other Subcommittee meetings this year, one in Japan and the other in Scotland. Currently the Subcommittee has 69 members from seventeen countries. 31 members are from industry and 38 from academies and research institutes. Two members passed away during the last year.
- 8.2. The 40<sup>th</sup> anniversary of the working party/subcommittee was celebrated in Scotland.
- 8.3. Since the Ottawa meeting, seven papers have been published or are in press and eleven papers have been submitted or are in draft form. Six projects are currently ongoing. One new project, Crosslinked Structural PVC Foams, has been submitted for approval.
- 8.4. The Subcommittee has thirteen feasibility studies of which two have preliminary results that make them promising candidates to become projects.
- 8.5. The Subcommittee will meet at the General Assembly in Beijing next year. Prof. Stepto asked when the meeting is planned to take place because it is necessary to put it on the meeting schedule if space is to be allocated to it. Dr. Jost noted that he will need to have information about the dates and times for the meeting in his

hands by September 1, 2004 to allow it to be in the printed schedule. Prof. Kim asked when the Division meeting is to take place. Prof. Stepto responded that it would be on August 13 and 14. Prof. Kim requested that the Subcommittee be scheduled for August 11 and 12.

9. Report on Molecular Characterisation Projects (Pasch).
  - 9.1. Prof. Pasch presented an overview of the work of this Task Group.
  - 9.2. A fairly typical project for the Task Group that was completed this year was a round-robin examination of epoxy resins by GPC. The project started with 26 participants, seventeen of whom continued into the second round. The results were compared to fundamental absolute measurements. There have been two presentations of the results of this study.
  - 9.3. A newly started project on data treatment for size exclusion chromatography has just been started. The goal has been to get an estimate of the sources of error.
  - 9.4. Another new project has been the terminology of separation of macromolecules. It includes SEC but other types of chromatography are emphasized. Prof. Pasch believes the project will require 3.5 years to complete.
  - 9.5. A project on the molecular characterization of PMMA has been withdrawn due to difficulties with focus and difficulties with finding scientists who are willing to participate.
  - 9.6. A new project on the terminology and measurement of starches has been proposed by Melissa Fitzgerald. It will be discussed at the Task Group meeting in 2005 in Mauritius. There the Task Group will identify the goals for such a project and to decide whether they are consistent with the objectives of Division IV. Prof. Stepto commented that he thought it was a good idea to have a better definition of the project before proceeding.
  - 9.7. Prof. Kim proposed that a project proposed by Prof. Puskas on the property characterization of hyperbranched polymers to his Subcommittee might be a better match for the Molecular Characterization Task Group. Prof. Puskas noted that there are great discrepancies in the characterization results obtained for hyperbranched polymers and thinks that it would be a good topic for the Task Group. Prof. Pasch responded that branching characterization is a very hot topic that is very complicated but a worthwhile project to consider.
  - 9.8. Prof. Buback proposed that molecular weight characterization was very important for his Subcommittee and proposed that a joint project between the Subcommittee for Structure/Properties and the Molecular Characterization Task Group should be considered. One of the areas of interest is in aqueous phase GPC. Prof. Pasch responded that aqueous phase GPC has many problems and that it may not be possible to start work on it immediately.
  - 9.9. A question was raised about whether the Task Group is ready to consider other difficult characterization methods such as tacticity. Prof. Pasch responded that he thought that was definitely worth considering. Prof. Kitayama reminded the Division that tacticity had already be a subject of a project in the Polymer Society in Japan, but that it was not an international effort. Prof. Pasch asked Prof. Kitayama whether there would be a continued interest in such a project. Prof. Kitayama responded affirmatively.

- 9.10. Prof. Henry asked whether the project on the Terminology of Separations for Macromolecules was a joint project with Division V? Prof. Pasch responded that Division V is involved. Prof. Henry wanted to know whether joint projects work well. Prof. Stepto responded that Division V has 2-3 members on Chang's project and that the joint project with Division II is also going well.
  - 9.11. Prof. Stepto asked whether the emphasis of the Task Group is the same as when Prof. Berek was in charge? Prof. Pasch responded that he thought it was similar. The Task Group continues to interact with industry to obtain good samples for use in round-robin testing. Prof. Stepto asked whether the withdrawn project was worth doing? Prof. Pasch responded that he thought it was, but that it needed to be separated into several projects to address each of the techniques that were proposed separately. The results could then be compared once each technique had been addressed independently.
  - 9.12. Prof. Stepto asked whether it was time to reorganize the Task Group as a Subcommittee? Prof. Pasch thinks that he needs more time to consider the question.
10. Report on Polymerisation Projects (Buback).
    - 10.1. Prof. Buback reported that the next meeting of the Subcommittee would be on 4 July. The Subcommittee currently has 23 members from five continents and twelve countries. The goal of the Subcommittee is to identify reliable values and reliable methods for determining rate coefficients for polymerization reactions. The Subcommittee continues to determine values for propagation rate constants, but is also starting to work with termination rate constants. Projects to identify reliable propagation rate constants for copolymers, aqueous systems, and ionic polymerization are contemplated.
    - 10.2. The publications of the subcommittee continue to be highly cited. Two publications are in preparation. Current work includes termination rate constants for methyl methacrylate and styrene radical polymerization, which includes consideration of both the current state and experimental methods. A project to determine the propagation rate constants for acrylates has been restricted to butyl acrylate polymerization. A paper is being prepared on the use of electron spin resonance for measuring the kinetics of polymerization of vinyl pivalate.
    - 10.3. The Subcommittee has feasibility studies planned for polymerization in aqueous media, specifically the study will focus on methacrylic and acrylic acid. Prof. Buback noted that the use of size exclusion chromatography for the determination of the molecular weight of acrylic acid is difficult. Other feasibility studies include rate coefficients for ionic polymerizations and RAFT polymerization.
    - 10.4. Prof. Stepto asked whether the Subcommittee plans to meet in Beijing? Prof. Buback responded that it was hard to do without financing. For them it probably works better to meet in small groups at technical meetings on an *ad hoc* basis. He said that the Subcommittee will definitely meet before the World Polymer Congress, 2006.
  11. Reports on Developing Polymer Materials Systems (Ober, Vohlidal, Work).

- 11.1. Prof. Vohlidahl acknowledged the contribution of Prof. Penczek to the start of the Biomaterials initiative. He noted that Prof. Hess has already talked about three biopolymer-related terminology project proposals. In Bordeaux it was decided that at least one of the Biopolymer projects will move forward to become a funded project. Two others will remain as feasibility studies.
  - 11.2. Prof. Vohlidahl also reported that work continues to develop projects in the area of field responsive polymers. These will be terminology projects.
  - 11.3. It has also been proposed that assembly, aggregation and supramolecular structures be considered as possible areas in which to develop projects.
  - 11.4. Projects are contemplated which would be considered characterization projects. Examples are charge carrier mobility in polymers and photogeneration efficiency. Prof. Stepto asked what the aim of the experimental projects would be? Prof. Ober responded that each laboratory has its own way of doing things; for example charge mobility measurement varies from laboratory to laboratory. The need is to standardize techniques and for that commercially available polymers need to be obtained.
  - 11.5. Prof. Vohlidahl reported that the results of Prof. Stejskal's projects related to polyaniline have been sent for publication. Prof. Stepto asked whether this was the end of Prof. Stejskal's involvement with the Division or whether he plans to continue? Prof. Vohlidahl responded that he believes that Prof. Stejskal will continue to do work with the Division.
  - 11.6. Prof. Stepto suggested that the characterization of dendritic polymers and the characterization of nanocomposites should both be considered as new polymer materials projects. They could both be characterization projects. Prof. Ober suggested that other areas related to nanotechnology such as energy storage, fuel cells, and polyelectrolytes may also provide new opportunities for the Division.
12. Reports on Education Projects and Activities (Jin, Sanderson, Vairon).
    - 12.1. Prof. Jin started the discussion of Education activities by noting that the Samsung fund will permit added education projects. At this time, only Kratochvil's Post-graduate Course has applied for continued support. Prof. Jin asked whether the others that have been supported by the Division will continue?
    - 12.2. The 18<sup>th</sup> Conference on Chemical Education will take place on 3-8 August in Istanbul. There will be no separate session on polymer education, but Prof. Jin will have the opportunity to address the Conference.
    - 12.3. The Samsung money was used to invite twelve students to the World Polymer Congress 2004. Ten of those invited were able to attend from developing countries. Prof. Jin voiced the hope that the Division would be able to do better when world economies improve, providing a greater interest return on the invested Samsung money.
    - 12.4. One aspect of polymer education is to improve the public's understanding of polymer chemistry. Prof. Mormann noted that he has had contact with Atkins and that things are happening independent of IUPAC.
    - 12.5. Prof. Hess reported on the short course on polymer characterization. The course is evolving to include new topics over time. This year thirty-five graduate students attended from Europe, India, Korea, and the United States. \$2000 was

received from the Division which was used for the course book and fee reduction for students. The short course is followed by a conference. Prof. Henry asked how the short course is publicized and whether there were more students who wished to participate but could not because of financial limitations. Prof. Hess responded that publicity is provided by a website. Profs. Hess and Jin noted that more students could be supported if more money were available. The short course and conference are starting to move around the world to encourage the participation of more developing countries.

- 12.6. Prof. Kratochvil reported that the Post-graduate course in polymer science receives support from the Czech Academy of Sciences which allows five participants to be supported. With added UNESCO/IUPAC support, additional students can be admitted to the course. The cost for each student is \$6000-7000. For the 2003-2004 class there were nine participants. For the next course, eight participants are supported. Participants all come from developing countries. The course allows participants to learn modern polymer synthesis, characterization techniques, and the terminology and nomenclature of polymers. Some of the students have continued to visit and work at the institute. The course is publicized through the Division website.
- 12.7. Prof. Sanderson commented on the feasibility of conducting an education project by describing the results of a conference that was held in Stellenbosch, South Africa. 199 delegates from nineteen countries were at the meeting. 75 of the delegates were students of which 41 were funded by supporting organizations. Prof. Pasch has been involved in past conferences. Prof. Gilbert, as a French-speaking member of the Division will be present at the next meeting in Africa, which will take place in Mauritius in 2005. Prof. Sanderson briefly described the New Program for African Development (NEPAD), which has the goal to bring better education to Africa. A number of groups are already involved from several countries. Most universities in Africa do not have research programs. A goal is to provide textbooks on the web; Prof. Sanderson's vision is to have 100 page monographs available on various topics. He would like input from the Division.
  - 12.7.1. Prof. Stepto asked whether the proposal was similar to what Prof. Khohklov has done and whether the students have web access? Prof. Sanderson responded that it is not necessary for students to have web access, the plan is to download the monographs and make copies. Dr. Jost commented that making information freely available depends on what the product will be. Prof. Sanderson responded that three scientists have agreed to provide their lecture notes, but that it would not be interactive. Prof. Stepto commented that Prof. Sanderson should approach the Commission on Chemical Education for help.
  - 12.7.2. The lack of facilities was also questioned with respect to research training. Prof. Sanderson agreed that this was a problem, but noted that quite a lot can be done with minimal equipment.
  - 12.7.3. Prof. Chen asked whether the organizers of educational initiatives in developing countries requests input from people those countries before developing a curriculum? He also wished to know whether there were jobs

available once training has been provided? Prof. Sanderson responded that they work closely with organizations to determine what the needs are. Jobs are not a problem, the students find jobs as soon as they complete their training.

12.7.4. Prof. Stepto noted that the funding for the conference at Stellenbosch came from the Project Committee. According to Prof. Henry, the rules of the IUPAC Project Committee state that they are not interested in providing support for conferences, but that the rule seems to be broken frequently. He encourages Prof. Sanderson to apply.

12.7.5. Prof. Henry asked about UNESCO support. Prof. Sanderson replied that UNESCO had not provided support this year, but that it is necessary to have outside support to encourage government support.

12.8. Prof. Vairon reported that there was a symposium on Polymer Education at Macro 2004. It will have sessions on the general aspects of polymer education including the changes that are taking place, educational materials and methods in polymer science (eg. E-learning and computer animations), and a round-table discussion on the needs and opportunities for cooperative projects. Prof. Stepto noted that a symposium specifically on the needs and methods of polymer education is a departure from past practice at World Polymer Congresses.

### 13. New Project Areas

13.1. Prof. Stepto suggested that the report on Developing Polymer Materials Systems summarized several areas that are expected to generate new projects and he asked if there were other proposals from the Division. Prof. Mormann suggested that the Division consider a project to develop an international master course on polymers to be available on the web in English and other languages. He envisions that it would include experiments and video. He is working with German companies to obtain training videos used by the companies and to put them on the web. Prof. Stepto asked whether the Committee on Chemical Education would be interested in supporting this proposal? Prof. Jin responded that he thought the CCE was very interested.

### 14. Reports on Division-Sponsored Conferences (Kubisa, Penczek) and forthcoming World Polymer Congresses (Vairon, Tabak, .....)

14.1. Prof. Kubisa started the presentation on conferences by noting that "World Polymer Congress" is now an officially approved name. WPC 2004 is the 40<sup>th</sup> World Polymer Congress. These Congresses are geographically distributed around the world. There are also several smaller conferences sponsored by the Division each year that attract around 100 participants each. To obtain IUPAC sponsorship all that is required is that an AIS form be submitted. There is an expectation that both participants and the advisory committee there be distributed geographically around the world. In many cases Division representatives approach conference organizers to suggest that their conference may qualify for sponsorship. There were nine conferences each in 2003 and 2004. For 2005, only four conferences have been approved for support and two for 2006. There

has been a trend towards an increasing number of conferences each year since 1998.

14.2. Proceedings of the conferences have usually been published in Macromolecular Symposia. Prof. Stepto noted that half of the pages published in Macromolecular Symposia come from IUPAC sponsored conferences. In 2002 there were eight conference proceedings published and in 2003 there were nine. There are problems with the publication of conference proceedings. Most important has been the very slow rate of publication. It is often one to two years after the conference before the Proceedings are published. As a journal, Macromolecular Symposia has a rather low impact factor, which has a negative effect on the interest of authors to have their work published in it. Prof. Hess noted that the advantage of IUPAC sponsorship was that it added publicity to a conference. Moreover, Macromolecular Symposia is relatively quick to publish once everything is put together. What slows down publication is the process of compilation and refereeing the Proceedings. Prof. Kubisa agreed and suggested that it is the collection of papers, not the editorial office that is at fault. Frequently the most important contributions are the slowest to have their manuscripts completed. Prof. Ober suggested that the manuscripts should be brought to the symposium and edited there. Prof. Gilbert noted that other journals will only accept an electronic version of a contribution, not a hard copy. It is his opinion that Macromolecular Symposia is on a downward trend.

14.2.1. Prof. Stepto asked Dr. Jost to clarify the status of the contract between IUPAC and Wiley? Currently the contract imposes an obligation that conference proceedings be published in a Wiley journal. Prof. Jost described the contract as an "Evergreen Contract", that is the contract has a one year duration, which either party can end at any time with a one year notice. Otherwise it is automatically renewed. He said that the financial aspect of the contract is small and should not be a significant factor in making a decision about where to publish. Prof. Stepto noted that the money that IUPAC receives from Wiley may be small for IUPAC but that it could be significant for the Division; it could allow the Division to support one or two more projects. Prof. Henry responded that the Division should ask for more support if it is running short and has more worthy projects to pursue. Dr. Jost suggested that the Division could appoint a scientific editor whose job it would be to apply pressure to the editor of the conference proceedings. Prof. Stepto asked whether the contract with Wiley was continuing for the next year. Dr. Jost responded that it was. Prof. Stepto asked whether Wiley is willing to commit to the publication of all macromolecular conference proceeding in advance. Dr. Jost responded that Wiley has asked him how many conferences have been approved by the Division to help them plan for journal space. According to Prof. Stepto, some of the conferences are approved too late to allow Wiley to plan. Dr. Jost noted that Wiley has the right of first refusal for conference proceeding; if the Division wishes to have conference proceeding published elsewhere, then the Division needs to identify the conference and have Jost negotiate it with Wiley. Wiley wants to publish all of the papers from a conference or none of them; they do not

want to split the conference proceedings among several publications. Prof. Stepto asked for a vote of the Division on the question of whether it wishes to cancel the contract with Wiley and ask Dr. Jost to negotiate with a different publisher. By a vote of 14 to 13, the Division decided to continue the current contract with Wiley.

14.2.2. Prof. Mormann suggested that the ACS Symposium Series and Macromolecular Symposia were very much the same. He doubts that any journal can publish the proceedings from nine conferences each year. Prof. Vairon commented that the papers from the World Polymer Congress 2004 will be published in Macromolecular Symposia if they meet the requirements of the journal. However, since there are 300 invited speakers, if each provides a ten page manuscript, that would require 3000 pages of journal space, which exceeds the limit. The solution at WPC 2004 has been to identify other suitable journals for some of the symposia. Prof. Penczek suggested that the problem is that journals that have low circulation have low impact factors, which causes libraries and individuals to abandon subscriptions, which further lowers the impact factor. He suggests that the Wiley contract be abandoned for small meetings, which can usually publish proceedings quickly.

14.3. Prof. Kratochvil pointed out that a conference in Bratislava, organized by Dusan Berek, had been left off of the list of approved conferences. Prof. Kubisa responded that the list he had presented was copied from the Division's website. The website is, therefore, not up to date.

14.4. Prof. Vairon reported that the World Polymer Congress, 2004 had 4300 submitted abstracts, of which 2300 were validated. There will be 310 invited speakers and plenary lecturers. 1900 additional talks and posters will be presented. There were about 2000 advance registrations, 500 had reduced fees for various reasons. There will be two awards: 1) the Samsung award for a young polymer scientist and 2) the World Polymer Congress Sponsors award for experienced polymer scientists. Prof. Deming will receive the Samsung award. The recipient of the WPC award will be determined after the conference starts. In addition there will be three poster awards.

14.5. Prof. Freitas reported that the World Polymer Congress, 2006 is scheduled to be held on 16 – 21 July 2006 at the Intercontinental Hotel in Rio de Janeiro, Brazil. The hotel has a convention center that is capable of accommodating 3000 people. The convention center has been reserved and the dates fixed with the hotels. The first circular for the WPC will be available at WPC 2004. The conference website will be available by December 2004. The organizers plan to have eleven parallel sessions that will be patterned after the sessions of WPC 2004. The first call for papers will be in December 2004 and the second call in September 2005.

14.5.1. Prof. Stepto requested that the international advisory committee be at least 35 scientists from widely distributed parts of the world. He also requested that the names of scientists who will give the plenary lectures should be available by December, 2004. He suggested that the application for IUPAC sponsorship be made early in 2005 and certainly before

September of 2005. The names of the individuals who will give the plenary lectures must be included in the application.

- 14.5.2. One difficulty that needs to be overcome is that Brazil and several other South American countries have not paid their IUPAC dues. Consequently, IUPAC has stated that conferences will not be approved for these countries until the dues are paid. Prof. Freitas responded that they are aware of this problem and that the government of Brazil has agreed to pay. Prof. Stepto suggested that Prof. Freitas keep Dr. Jost advised of progress.
  - 14.5.3. It was suggested that the scientific program be modified to add a session on international collaboration and that newer topics be at the top of the list of sessions.
  - 14.6. Prof. Chen reported on the progress for organization of the World Polymer Congress, 2008 in Taipei. The conference has been scheduled for 29 June – 4 July because those dates reduce the chance that travel will be disrupted by typhoons. The international advisory committee has been identified, many of whom are from the Division. The program will cover all aspects of polymers. A plan has been developed with expected completion dates. The meeting will be held at the Taipei International Convention Center, which has many lecture rooms, the largest of which can accommodate 3000 people.
    - 14.6.1. Prof. Sawamoto asked whether the emphasis would be on high technology rather than fundamentals? Prof. Chen responded that the program would include both. Prof. Buback agreed with Prof. Sawamoto that a session devoted to fundamentals was needed.
    - 14.6.2. Prof. Stepto requested that sessions related to international cooperation and education also be added to the program.
  - 14.7. Prof. Stepto reported that the organization of the World Polymer Congress, 2010 in the United Kingdom was the responsibility of the MacroGroup of the Royal Society of Chemistry. However, the original contact people in that group are no longer active due to reorganization. Prof. Hodge is currently active and interested and he, together with Prof. Stepto, will attempt to get things moving for the conference. The meeting location is to be in Glasgow. It was questioned as to whether the convention center in Glasgow had been booked for the conference? (Note added after the meeting by Prof. Stepto: Prof. P.A. Lovell, UMIST, the present Chairman of MacroGroup UK is actively seeking clarification of the commitments and arrangements that have already been put in place for WPC 2010 and will report back.)
  - 14.8. A location for the World Polymer Congress in 2012 needs to be identified. Prof. Tantayanon has requested that a WPC be held in Thailand as soon as possible. They may be the host country for 2012. Also possible are the United States and Canada.
15. Recruitment to the Division (Stepto, Jones, Kubisa, Penczek)
    - 15.1. Prof. Stepto started the discussion by noting that the Division has a brochure that is provided to the organizers of each Division-approved conference. The intention of the brochure is to provide information about the work of the Division to encourage scientists who are at the conference to become involved with the

- Division. The brochure is included in the registration materials provided to conference attendees. Profs. Penczek and Kubisa are responsible for ensuring that the brochure reaches the conference organizers.
- 15.2. The Division website is also intended to provide information to scientists who may wish to join the Division's projects. Prof. Jones is responsible for the website. National Representatives, personal contacts, and involvement with projects are also sources of new members.
  - 15.3. Prof. Penczek stated that, despite our efforts, there is a continuing need to improve the Division's visibility. He suggested that we ask journal editors to help by describing how to start projects and the sorts of projects in which the Division has an interest. Prof. Schué responded that, as the editor of *Polymer International*, he would be willing to republish the work of the Division. It was suggested that everything that the Division publishes in *Pure and Applied Chemistry* could be republished in *Polymer International*. Dr. Jost noted that this approach has been tried in the past with little success. He says that *Angewandte Chemie* publishes IUPAC document translations. Prof. Penczek was asked to provide the Division Secretary with a list of journal editors to aid this initiative. Prof. Ober suggested that *Polymer Preprints* and *PMSE Preprints* have higher circulation than most journals and that they may be a better place to republish the Division's papers. He will talk to the chairs of these ACS Divisions to determine whether they would be willing to help.
  - 15.4. Prof. Sanderson suggested that abstracts of the work that has been published could be published together with information about the impact of the work, the number of scientists involved, and the geographical distribution of the members.
  - 15.5. Prof. Kim suggested that the IUPAC visibility may be best discussed at the Polymer Summit at WPC 2004.
  - 15.6. There is space for information about the activities of the Division in *Chemistry International*. According to Dr. Jost, the Division would be responsible for providing the content and CI will edit. Submissions to *Chemistry International* are also sent out with e-press that goes to 300 editors of magazines.
  - 15.7. Prof. Henry suggested that there is a Union Advisory Committee, which has as its role to publicize what is happening in IUPAC in their country. The list of members of this committee is available on the web.
16. Report on Division Web Page and Electronic Publications (Jones, Work)
    - 16.1. Prof. Jones reported that he views his role in the website as a mailbox. Prof. Stepto sends items that he wishes to put on the website to Prof. Jones with recommendations about content. Prof. Vairon wanted to know whether there were links on the website with national polymer societies? Prof. Jones responded that there was a link from the Royal Society of Chemistry to our website. Prof. Vairon suggested that it would be more useful if there were also links back to the Royal Society of Chemistry as well as two way links to other societies.
  17. Strategy, Communication, Polymer Summit (Jin, Horie, Sawamoto)
    - 17.1. Prof. Horie reported that the results of the Polymer Strategy meeting in Kyoto in 2002 were published in *Pure and Applied Chemistry*, **75**, 1359-1369 (2003) in

October 2003. The second strategy meeting will be held in 2006 in New York, Prof. Levon is organizing it. The subject for the meeting will be Polymers for a Safe, Healthy World. Prof. Jin noted that the planned meeting in 2006 was close to the same time as the WPC in Brazil. (Note added after the meeting by Prof. Stepto: The New York Polymer Strategy meeting will now take place in 2007.)

17.2. Prof. Sawamoto summarized the results of the Strategic Study of World Polymer Science – World Polymer Science and Technology in the 21<sup>st</sup> Century. He noted the use of statistical analysis to identify important and emerging fields of study. A new booklet that provides information about world polymer organizations has been prepared; it includes 47 societies from around the world. The booklet includes information about exchange programs between countries, fellowships offered, and qualitative and quantitative comments. Prof. Stepto suggested that the booklet needs to include references to the IUPAC Division. Prof. Sawamoto agreed to add this to the booklet and to put information about the Division on the Society of Polymer Science Japan website.

17.3. Prof. Sawamoto noted that the first Polymer Summit was held as part of Macro 1988 in Kyoto. Since then this has become a regular part of the World Polymer Congresses. Polymer Summits are also becoming part of the Southeast Asia Polymer Scientists Meeting.

#### 18. Budget, Projects and Division Structure (Stepto)

18.1. Prof. Stepto presented a list of the Division's projects, which defines the budget of the Division. He noted that we receive some additional funding for the Terminology and Nomenclature project from Division VIII. For the current biennium, the Division has spent \$28000 of its budget of \$47000. The Macromolecular Division has the smallest budget of any of the Divisions. Prof. Henry suggested that reallocation of funds could be considered on the basis of the number of funded and unfunded projects that a Division has. Prof. Henry asked whether the Division has any difficulty with the generation of new projects? Prof. Stepto responded that the only problem was funding, there is not enough available for everything that is proposed.

18.2. Prof. Stepto discussed the use of the Samsung Award. This year the interest from the award has been used to support attendance at WPC 2004 and for a prize for young polymer scientists. He proposed that next year it be used for an education award. Dr. Jost responded that this can be done within the Division: no higher level of IUPAC needs to become involved. Prof. Jin stated that this was within the rules that govern the use of the Samsung grant.

#### 19. Name of the Division (Stepto)

19.1. A proposal to change the name of the Division was presented by Prof. Stepto. He noted that the Division no longer concerns itself only with macromolecules. It also has projects that involve polymers and materials. He said that a number of e-mail comments suggested that "macromolecules" should not be lost from the Division name. A new suggestion has been to change the name to "Macromolecules and Polymer Materials Division. Prof. Sawamoto asked whether it was acceptable to leave chemistry out of the name. Prof. Stepto

responded that that was fine. Dr. Jost reminded the Division that a name change would require Council approval. Prof. Penczek suggested that “polymer” would be all inclusive. Prof. Russell asked what was the aim of the change? Prof. Stepto responded that the new name would better reflect what the Division does. Profs. Hess and Kratochvil asked why it was necessary to change; any change would create confusion. Prof. Vairon suggested that a change would help to increase participation. He noted that macromolecules are fundamental and that scares industry away. Prof. Beuermann suggested that most people use polymer rather than “macromolecule”. Prof. Ober stated that polymers and materials better reflect what the Division does.

- 19.2. A vote was taken to establish whether the Division wished to change its name. The vote was 23 – 11 in favor of change. Prof. Sanderson proposed that the choice be made between the “Polymer Division” and “Macromolecules and Polymer Materials Division.” The vote for the two names was 19 in favor of “Polymer Division” and 12 in favor of “Macromolecules an Polymer Materials Division. Thus, pending Council approval, the name will be changed to the “Polymer Division.” Dr. Jost suggested that the procedure to be followed was to send him a note requesting that the change be added to the Bureau agenda for the General Assembly in Beijing.

20. Division Elections 2005 (Jin)

- 20.1. Prof. Jin stated that there would be four openings for titular membership in 2005, including vice-president, and that all associate members must be elected. He reminded the Division that titular members are limited to four years of service unless they become officers and that associate members serve for two years and may be reelected once.
- 20.2. The procedure for elections was presented:
- 20.2.1. For the elections in 2005 a nominating committee consisting of five members is needed. Three of the members must be from outside of the Division. Prof. Sanderson asked who would select the outside members for the nominating committee. Prof. Jin answered that the President and Vice-President would make that decision.
- 20.2.2. Nominations for the open positions may be proposed by the nominating committee, titular members, associate members, national representatives, project leaders, and national adhering organizations. Dr. Jost noted that the National Adhering Organizations would be asked to nominate candidates for Division committees in August or September with an expectation that they would respond by December or January. Prof. Buback asked whether nominations would be for specific positions. Prof. Jin responded that he does not intend to change the practice that was followed in 2003.
- 20.2.3. The nominating committee selects the candidates from those nominated.
- 20.2.4. Titular members are elected by the existing titular members, associate members, national representatives, and task group leaders. Anyone standing for election to titular membership automatically becomes a candidate for associate membership if they are not elected to titular membership. The by-laws require that the associate members be selected by the Division

Committee only. The choice of associate members is made by the Division Committee to ensure that the Division is geographically balanced and to insure that it has all of the skills needed to pursue its goals. Dr. Dijkstra asked what difference there is between titular and associate members. Dr. Jost responded that titular members received support to attend General Assemblies. For years not having a General Assembly, support for travel was at the discretion of the Division President.

20.2.5. National Representatives, although often nominated by National Adhering Organizations, need not be so nominated. National Representatives are selected by the Division Committee. The Division is restricted to ten National Representatives.

20.2.6. The election will take place electronically, as in 2003, and will be finalized at the General Assembly. There is a desire to complete the elections to titular membership as early as possible so that the newly elected members could have the opportunity to attend the General Assembly.

21. Vice-President's Topics (Jin)

21.1. Prof. Jin had no additional topics to discuss.

22. Any Other Business.

22.1. Prof. Stepto requested that the Division and subcommittees that will meet at WPC 2006 need to identify dates for their meetings by March, 2005.

22.2. Prof. Henry commented that he was pleased with the high level of activity in the Division and the diversity of projects that are being pursued. He likes the way we use feasibility studies to develop new projects.

22.3. Prof. Stepto requested that the Division members and task group leaders consider writing articles for Chemistry International. He noted that the Analytical Chemistry Divisions is writing a series of articles on the needs in developing countries. He suggested that anyone who has something to contribute should send it with a copy to him.

23. Date of Next Meeting

23.1. The next meeting will be held 13 – 14 August 2005 at the General Assembly in Beijing.

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William J. Work, October 2004