

MACROMOLECULAR DIVISION (MMD)

Draft Minutes of the Meeting held in Beijing, 6-7 July 2002

The Macromolecular Division Committee met on Saturday, 6 July 2002, from 9:30 to 13:00 and on Sunday, 7 July 2002 from 9:00 to 13:00 prior to the start of IUPAC Macro 2002 at the Beijing International Convention Center in Beijing, China. Those attending: Prof. M. Baron (Argentina), Prof. D. Berek (Slovakia), Prof. M. Buback (Germany), Prof. T. Chang (Korea), Prof. A. Fradet (France), Prof. R. Gilbert (Australia) (Past President), Prof. J. He (China), Prof. M. Hess (Germany), Prof. K. Horie (Japan), V. Hoven (Thailand), Prof. J.-I. Jin (Korea) (Vice-President), Prof. R. Jones (UK), Dr. J. Kahovec (Czech Republic), Prof. S.-C. Kim (Korea), Prof. T. Kitayama (Japan), Prof. A. Khokhlov (Russia), Prof. P. Kratochvíl (Czech Republic), Prof. P. Kubisa (Poland), Prof. W. Mormann (Germany), Prof. S. Penczek (Poland), Prof. R. Sanderson (South Africa), Prof. M. Sawamoto (Japan), Prof. S. Slomkowski (Poland), Prof. R. F. T. Stepto (UK) (President), Prof. D. Tabak (Brazil), Prof. S. Tantayanon (Thailand), Prof. H. Tenhu (Finland), Dr. M. Tonge (South Africa), Prof. J.-P. Vairon (France), Prof. Jiri Vohlídal (Czech Republic), Prof. F. Wang (China), Dr. W. J. Work (USA) (Secretary).

1. President's introductory remarks and finalization of agenda.

- 1.1. Prof. Stepto welcomed everyone to Beijing and thanked Prof. Jiasong He and his colleagues for their time spent to prepare for the Division meeting.
- 1.2. This has been a time of change for the Division and Prof. Stepto noted that the transition seems to be going smoothly.
- 1.3. The agenda was reviewed and additions requested. None were suggested.

2. Approval of the Minutes of the Division Committee meeting held in Brisbane, July 2001.

- 2.1. Prof. Stepto asked whether there were any comments or corrections required for the minutes of the 2001 meeting. There were none and those minutes were approved.

3. Matters arising.

- 3.1. Prof. Stepto asked whether any matters need to be discussed that arose from last year's minutes. None were raised.

4. Report on the Activities of the Subcommittee on Macromolecular Terminology and Joint Projects with the Division of Nomenclature.

- 4.1. Prof. Hess reported that the Subcommittee has twenty-four members, fourteen projects, and five feasibility studies. Four nomenclature projects have been transferred to Division VIII.
- 4.2. Since the meeting in Brisbane, projects on *Generic, Source-Based Nomenclature for Polymers and Definitions of Terms Relating to Liquid Crystal Polymers* have been published. Two projects, *Definitions of Terms Relating to Stereochemically Asymmetric Polymerizations* and, as noted by Dr. Kahovec, the revision of the *Structure-Based Nomenclature for Single-Strand Polymers* are in press. Two projects, *Definitions of Terms Related to Polymer Blends, Composites and Multiphase Polymeric Materials* and *the History of the Commission on Macromolecular Nomenclature and Terminology* have been submitted for publication.
- 4.3. Two special projects are currently active, namely the revision of the Purple Book and the *Guide to Polymer Nomenclature and Terminology*.
- 4.4. Several other projects are advancing. The project: *Definitions of Terms Relating to Reactions of Polymers and to Functional Polymeric Materials* will be submitted for public review during the next year. The projects: *Terminology for Polymers with Ionizable Groups*, *Terminology for Polymerization in Dispersed Systems*, *Terminology for Polymerization Kinetics*, and *Polymer Class Names* will all be sent for comments by experts during the next year.
- 4.5. There are several Interdivisional projects. The first, *A Glossary of Terms Related to Gels*, is advancing through joint work with Division II and is expected to be submitted for public review by

the end of the year. The second, *Terminology in the Chromatography of Polymers*, continues to progress. The projects identified as joint projects with the Nomenclature Division include: *Nomenclature of Dendrimers and Hyperbranched Polymers*, *Nomenclature of Rotaxanes*, *Nomenclature of Macromolecular Rotaxanes*, and *Structure-Based Nomenclature for Macrocycles*. Because of the close relationship between the nomenclature for rotaxanes and macromolecular rotaxanes, the two projects will be published together.

- 4.6.** Prof. Gilbert congratulated Profs. Hess and Penczek on their recent publication in *J. Polym. Sci.* that advertises the work of the subcommittee. He asked what else the subcommittee was doing to advertise its work. Prof. Hess noted that discussions in the subcommittee over the last week have resulted in the proposal that the on-line journal *e-Polymers* will be tried as a method for disseminating information about polymer terminology. Prof. Gilbert asked whether there were plans to e-mail a table of contents to those interested. Prof. Penczek responded that if the Division approved, a section on terminology and nomenclature could be added with hot-links to the on-line versions of the documents.
- 4.7.** Prof. Stepto asked whether the subcommittee intended to resubmit a request to be organized as a Commission again in Ottawa. Prof. Hess responded that the subcommittee has decided to remain as it is now. Prof. Gilbert noted that subcommittees have limited lifetimes. Prof. Stepto responded that the subcommittee would have to be reapproved in Ottawa. By remaining a subcommittee, active members can remain on the subcommittee, but there will be no financial support for titular members as there would be if the Subcommittee were organized as a Commission.

5. Report on the Activities of the Task Groups on Polymer Characterization.

5.1. In Dr. Laun's absence Prof. Sung Chul Kim reported on the activities of the task group on the Structure and Properties of Commercial Polymers. The Task Group consists of 72 members from eighteen countries. In 2001, 59 members met in Karlsruhe. The East Asian members met in November of 2001 in Naha, Japan. A meeting is scheduled for September 2002 in London, Canada.

5.1.1. Prof. Kim reported that sixteen papers have been submitted in the last eighteen months:

Studies on Biodegradable Poly(ϵ -caprolactone) fibers is in press
Side-chain Branching in Polycarbonate is in final manuscript
Rheology and Mechanical Properties in PMMA/SAN Blends – eight papers published, three in press
Characterization of Discontinuous Fiber Reinforced Polymers – six papers published, one in press
Flow Behavior and Structure of Liquid Crystal and Aromatic Polymers – final paper in preparation.
Rubber Toughening of Plastics – one publication and three in press.

5.1.2. Two projects have been started under the new rules:

Quantifying the Scratch Resistance of Commercial Polymers. Dr. Bailey is the task group leader. The group consists of eleven members. It is to be completed within five years.

Structure and Properties of Cyclic Olefin Copolymers. Prof. Kim is the task group leader of a group that consists of ten members. Prof. Kim expects that the project, which had a three-year time limit, will be completed by the end of 2002.

5.1.3. The Task Group currently has eight feasibility studies underway. Prof. Stepto was pleased to learn of the number of feasibility studies and hopefully new project proposals to be submitted..

5.1.4. The Task Group web site continues to be used. Dr. Laun continues to manage the site.

5.1.5. Prof. Stepto suggested that the Task Group consider organizing as a subcommittee. It is a painless exercise that allows the group to be listed on the IUPAC web site. The only disadvantage is that it needs to be approved again every two years.

- 5.1.6.** Prof. Gilbert congratulated the Task Group for its work and noted that, despite the past reputation that IUPAC projects are never completed, the Task Group for the Characterization of Commercial Polymers is approaching 100% success rate of completion.
- 5.2.** Prof. Berek reported on the activities of the Task Group for the Molecular Characterization of Commercial Polymers. He says that there are 108 members, 61 from industry. However, most of the members are inactive. Inactive members are defined as those who do not respond to circular letters. Two informal meetings were held in 2001.
- 5.2.1.** Round-robin size exclusion chromatography tests were performed on polyamides, polyethylene, polystyrene, and sodium polyacrylate. One manuscript resulting from this work has been submitted. The results show that within a laboratory there is good agreement between results obtained at different times for the same material. However, between laboratories the agreement on identical samples is poor. Standardization of the technique is required; therefore, a second stage of round robin testing is recommended. A "dilemma" paper describing the problems encountered when identical samples were evaluated in different laboratories is being prepared.
- 5.2.2.** A paper that discusses the band broadening correction in size exclusion chromatography has been submitted to *J. Liq. Chrom. Rel. Technol.* An issue related to this work has been the development of a software company to sell the program that addresses the band-broadening correction; Prof. Berek thinks that the Task Group should be allowed to use the software free of charge because its work will help sell the software.
- 5.2.3.** Prof. Berek proposes that a subcommittee be approved for the task group. Areas that Prof. Berek proposes to be addressed by the subcommittee include the preparation of IUPAC reference polymer materials (the initial focus would be on PMMA) and coupled techniques such as SEC/mass spectroscopy.
- 5.2.4.** The next informal meeting of the task group will take place in August 2003 at a Conference. Prof. Stepto asked whether it was a Division approved conference and urged Prof. Berek to seek IUPAC sponsorship despite past difficulties with conference approval.
- 5.2.5.** Prof. Stepto asked about other projects that are currently listed for this task group. Prof. Berek reported that two projects were retired without any output. A third project produced only a short report due to the serious illness of the project coordinator. All of these projects will be combined and one paper written. One new project has been proposed, which has not yet been submitted to IUPAC. Prof. Stepto encouraged Prof. Berek to submit it for official IUPAC support.
- 5.3.** Prof. Buback reported on the activities of the Task Group on Kinetics and Modeling of Polymerization Reactions. The Task Group currently has 35 members from fifteen countries. Eight of the members are from industry. The objective of the Task Group is to perform thorough kinetic analysis to provide reliable rate coefficients. Prof. Buback reported that the mathematical analysis is now perfect but that reliable rate coefficients do not exist. He cited as an example that the reported propagation rate constant for MMA polymerization varies by a factor of one hundred at room temperature. He believes that methodology now exists to provide improved reliability.
- 5.3.1.** An IUPAC sponsored symposium on Free-Radical Polymerization Kinetics and Mechanism was held in Italy in June 2001. The task group met then and plans to meet again in 2002 at the American Chemical Society meeting in Boston.
- 5.3.2.** The papers that have been produced by this task group have been frequently cited by authors of papers. For example a 1988 paper has had over 120 citations and a 1995 paper has had over 200 citations.
- 5.3.3.** Several new and on-going projects were described.
- 5.3.3.1.** S. Beuermann is the project coordinator for a project on critically evaluated rate coefficients for methacrylate esters with functional, cyclic and branched ester

groups. The target is to complete this project in 2002. One paper has already been submitted for publication.

5.3.3.2. Another project, coordinated by G. Russell, focuses on critically evaluated termination rate coefficients. The current focus is experimental methods for measuring termination rate coefficients for styrene and methyl methacrylate. One paper has already been submitted and a second is being prepared.

5.3.3.3. A third project is focused on rate coefficients for alkyl acrylates. These are much more difficult to determine than those for the methacrylates. R. Hutchinson is the coordinator.

5.3.4. Prof. Penczek asked whether all of the projects were approved by the new IUPAC project approval system. Prof. Buback reported that they were.

5.3.5. Dr. Kratochvil suggested that the polymers prepared in the pursuit of the goals of this Task Group are potentially useful for Prof. Berek's Molecular Characterization projects. Prof. Berek noted that he had made such a request two years ago. Prof. Buback responded that, while it is a good idea, the quantities of polymer that are prepared are very small because the rate parameters are determined at very low monomer conversion. Thus, it would not be possible to provide samples to very many laboratories.

5.3.6. Prof. Stepto suggested that the papers that result from the projects of this Task Group be listed on the web site and requested that Prof. Jones take care of it. Prof. Jones responded that this could go directly to Fabienne. Prof. Stepto thinks that is important to have someone coordinate what is placed on the site. Prof. Sanderson suggested that citations could also be added to the web site. Prof. Stepto agreed and asked Prof. Jones to take care of it.

5.3.7. Prof. Stepto also requested that this Task Group consider organizing as a subcommittee. Prof. Buback agreed to take this action.

6. Report of the Task Group for Special Projects

6.1. Prof. Vohlidal reported on Division activities related to special projects. Currently there is one active project that is being coordinated by Prof. Stejskal and focuses on the preparation of polyaniline. A new project has been approved that is directed towards colloidal, conductive polymers.

6.2. As Dr. Kahovec pointed out, a difficulty with this Task Group is what constitutes a special project. Because of other Task Groups and Subcommittees, the Special Projects Group should cover anything that does not relate to terminology, characterization or education. Prof. Stepto suggested that special projects could be directed to functional polymers or, as suggested by Prof. Penczek, it could focus on biodegradable polymers. It was clear that most of the Division favors a different name to help crystallize projects of the type that are not subject to other task groups. Prof. Gilbert suggested that a focus on Materials would be useful. Some suggested names included Developing Polymer Materials and Developing Polymers in Systems. Dr. Work argued for the latter name because such a name suggests that the focus is on the interaction of the polymer with something else. For example, polymer in biological systems or electronic systems could be viewed as the subject of this Task Group.

6.3. Prof. Stepto suggested that this Task Group should not become a subcommittee until it either establishes a track record of successful projects or until it has developed a project list.

7. Report of the Activities of the Task Group for Polymer Education

7.1. Prof. Jin reported that the Committee on Chemical Education, which Prof. P. Atkins chairs, has been organized as a new Standing Committee within IUPAC. The next CCE meeting will be held in Beijing; Prof. J. He will attend in Prof. Jin's place.

7.2. Dr. Kratochvil provided an update of the activities of the post-graduate course in polymer science that was started in 1996 with the support of both UNESCO and IUPAC. The fifth session of the course was held in 2000-2001 with small financial support from IUPAC that allowed two

additional people to attend. The course requires fifty hours of lectures and experimental work in research. Since 1996, forty-six scientists have taken the course from Eastern Europe, Asia, and Africa. Twenty-four papers have been published; ten more are in press. Thirty-five presentations have been given at conferences. Dr. Kratochvil requested continued moral and other support from the Division. He says that the Czech Academy of Sciences provides sufficient support for five students. Prof. Stepto noted that, if Division financial support is to be continued, a project will need to be approved. It was also suggested that the publications that have resulted from this course be listed on the web-site. Prof. Gilbert asked how it is possible for the Division to allocate its funds to support this activity when they are so limited.

- 7.3. Prof. Khokhlov reported on his project on University Education in Polymer Science. He provided a list of steps that have been taken: 1) Collection of curricula and an exchange of experience were done in 1999. 2) In 2000, a meeting was held in Copenhagen that resulted in a collection of transparencies from polymer courses being posted on a web-site. 3) Another meeting was held in Eindhoven in 2001 at which representatives from the University of Mississippi demonstrated their Macrogalleria web-site, introductory biopolymers material was added to the available downloadable coursework and www.e-polymers.org was used as the site for downloadable resources. 4) Recommendations for the minimum list of topics and problems for education in polymer science have been formulated and will be available on the world-wide-web. 5) Distant lecturing facilities for specialists have been organized. It is possible to learn about atomic force microscopy through this facility now. 6) The Task Group is also trying to anticipate changes in education in the 21st century. Prof. Stepto asked whether further support is needed. Prof. Khokhlov responded that he is able to obtain support elsewhere, but any help would be appreciated. Prof. Stepto requested that the publications in e-Polymer should also be linked to the Division web-site. Prof. Horie asked who is active with this Task Group at the University of Mississippi. According to Prof. Sanderson, Lon Matthias is active.
- 7.4. Prof. Hess described the Polychar short course at the University of North Texas, which provides individuals with the opportunity to learn about polymer characterization and also provides a forum for students at the University to present their work. Support is provided for students to attend, particularly from developing countries. This year, due to concerns about travel in the US, attendance was lower than it had been in the past with only about thirty students. In a normal year, 100 to 200 people attend from about thirty countries.
- 7.5. Prof. Sanderson reviewed educational efforts in Africa. This year an Africa centered meeting was organized and supported by UNESCO with about twenty-four academics from Africa invited. IUPAC had turned down a request for support. Eritrea, Libya, and one other country have agreed to participate in courses and training. The effort is on the UNESCO web-site and Prof. Sanderson hopes that it will be on the IUPAC web-site in the future. Macrogalleria is used in third year course-work. The site has been made student-friendly. Prof. Sanderson requested that two to three new courses per year be made available over the world wide web with IUPAC sponsorship. The Materials Research Society is now organizing and African Materials Research Society, which had a meeting in South Africa. Prof. Stepto suggested that a request for IUPAC funding be made again through the Division; we have \$6000 targeted for educational programs. Prof. Gilbert noted that there is additional funding available, up to \$10,000, for educational initiatives in developing countries; it is available through Itaki's committee. Prof. Stepto requested that the publications that have been supported through Prof. Sanderson's efforts in Africa also be listed on the Division web-site.
- 7.6. Prof. Tabak reported on educational programs in Brazil. He noted that the Polymer Dictionary and the Purple Book have both been translated into Portuguese. Prof. Stepto again requested that these publications be listed on the web-site.
8. Prof. Kubisa reported on the status of Division sponsored conferences. He noted that the web page has been updated to provide links to additional information about the conferences. The Division had been active in obtaining conferences for IUPAC sponsorship. Three more conferences were identified that met IUPAC criteria. He and Prof. Penczek, as Division representatives, encouraged the organizers to apply for IUPAC sponsorship, which the organizers did. All three applied and were approved in about three

months. Prof. Kubisa also reported that about half of *Macromolecular Symposia* are published from Division sponsored symposia. Between 1998 and 2002, thirty-two conferences have been sponsored by the Division; nineteen in Europe, four in Asia, three in North America, one in Cuba, one in South America. A more even geographical distribution of conferences is desirable. It was suggested that more personal contact between Division members and scientific organizations would encourage organizing committees to consider applying for IUPAC sponsorship. Prof. Stepto noted that books and reviews that result from Division sponsored symposia should be highlighted on the web-site.

- 8.1.** Prof. Wang thanked the Division and Prof. Stepto for help in the preparation and organization of Macro 2002. A total of 1186 scientists were registered for the Macro, 704 from outside of China, and 370 students. There were scheduled 1072 presentations, 380 of which were oral, the remainder were posters. Three Nobel laureates have agreed to lecture. There were 104 invited lectures. Of the posters, about half were from Chinese scientists and half from outside of China. Prof. Stepto thanked Prof. Wang for his efforts to organize the Macro 2002 and said that he had every expectation that it would be very successful.
- 8.2.** Prof. Vairon reviewed the preparations for Macro 2004 in Paris. It is being organized by the Centre National de la Recherche Scientifique in the Paris Convention Center. There are many hotels nearby. The Convention Center has a variety of room sizes available from 50 to 1800/3700 seats available. The budget for the meeting is about 1,200,000 Euros. The registration fee is estimated to be about \$500, but Prof. Vairon is concerned about a possible deficit. A circular was provided to the members of the Division that gave the scientific program. As has been reported in previous years, the program will provide a mixture of chemistry and physics with nine topics in twenty symposia. Prof. Vairon requested the Division's input regarding what to do for sessions on education and international cooperation for polymer science. Prof. Jin commented that the polymer education session at the Seoul meeting in 1996 had the least attendance, and he suggested that it might attract more interest if it could be organized as a tutorial with famous polymer scientists providing the lectures. Prof. Vairon responded that this is what they intend to do. Prof. Gilbert suggested that providing prizes for the best papers in the education session might attract attention. Prof. Sanderson said that a possible catalyst for the session on international cooperation might be provided by short talks given by representatives of funding agencies. Another suggestion advanced by Prof. Gilbert was to involve a Nobel laureate in a young scientist program, perhaps through a luncheon with the Nobel laureate.
- 8.3.** Prof. Tabak reported that the preliminary circular for the 2006 Macro in Rio de Janeiro was available and that an organizing committee has been formed. They expect about 1500 attendees.
- 8.4.** There was no one representing the 2008 meeting in Taipei at the Division meeting. Prof. Stepto questioned whether Jong-Si Li remained the coordinator.
- 8.5.** There was also no representative from the organizing committee for Macro 2010 in the UK. It was noted that the chairman of the Macrogroup UK is the official organizer; since that is a position that rotates, the organizer needs to be changed.
- 9.** A general discussion of possible new initiatives for the Division resulted in a number of comments supporting efforts to increase the number of projects. Prof. Vairon noted that it is difficult to obtain financial support for IUPAC from France and that an increase in the number of projects would help to convince National Adhering Organizations and industry that it is worth supporting. Prof. Buback suggested that an industrial program be put in place at Macro 2004 to advertise our contributions. Prof. Vairon thought that this was a good idea. Prof. Gilbert concurred and noted that advertising is important if we wish to involve industry. Prof. Stepto questioned whether we should take the initiative to involve industry (Prof. Sanderson suggested that we do) and that he thought it would be worthwhile to somewhat separate the image of the Division from that of IUPAC. He suggested that the Division web pages highlight industrially important Division projects. Prof. Gilbert noted that this can already be done, all that is necessary is to correct the links; Prof. Jones is to work on this. Prof. Hess suggested that industry accepts things that bring them money; for example, educational initiatives will have industrial support because it is a way to provide scientists who are well trained. Prof. Berek suggested that the Division invite industrial associations to send observers to Division meetings. Prof. Stepto agreed to try to obtain the names of individuals to whom a letter of invitation could be sent. Prof. Buback expressed concern

that if too many industrial scientists are invited, that we may get too many unanswered questions. He also thought that it would be helpful to give the results of the work of Division Task Groups to industry; the question is what this means and how can it be done. Prof Penczek pointed out that industrial projects are usually confidential, but that some companies do cooperate. He suggests that Prof. Vairon organize a meeting of the chairs of industrial organizations as part of the International Collaboration Symposium at Macro 2004. Prof. Stepto thought that this would be a good idea.

- 10. Report on Division Web Page and Electronic Publications.** Prof. Jones reported the status of the Division web-site. Fabienne Meyers is in charge of both *Chemistry International* and the web-site. These interact, each drawing attention to the other. She has reported that feedback on web-sites has been sparse and that she would welcome comments and suggestions. Prof. Jones gave a tour of the Division web-site with transparencies of the information available on the different screens.
 - 10.1.** Task group chairpersons were requested to inform Fabienne with updated information about their projects. This should be filtered through Prof. Jones rather than going directly to Fabienne.
 - 10.2.** There has been a >300% increase in hits on the IUPAC web-site.
 - 10.3.** Among Fabienne's projects is one to introduce "mark-up language" to the web-site.
 - 10.4.** There are mirror sites available in Germany and Japan.
 - 10.5.** Prof Hess suggested that the IUPAC web-site be linked to outside resources at Universities and other places.
- 11. Strategy, Communication, Polymer Summit.** Prof. Jin addressed this topic. He suggested that the Division maintain its current strategy for communication. He highlighted Prof. Baron's newsletter as an example of good information to send to National Adhering Organizations. He suggested that the web-site alone is not good enough and that Division sponsored conferences should be publicized in *Chemistry International*. Each Division sponsored conference should have a representative attending who should prepare a report to be published in *Chemistry International*. He suggested that we need to do a better job communicating with polymer and chemistry federations. We also need to establish more subcommittees, including one for education. Prof. Jin suggested a list of initiatives: 1) Invite more scientists and students from economically deprived countries to Division sponsored conferences; 2) the Division should become involved with the publication of general chemistry textbooks to add sections on polymer science; 3) reduce meeting time – use e-mail more; 4) prepare a history of the Division before it is lost.
 - 11.1.** Several questioned how this strategy could be accomplished.
 - 11.2.** Prof. Baron commented that it would not be difficult to circulate his newsletter more widely if the Division agrees to do so. Without dissent, the members of the Division endorsed this activity.
 - 11.3.** Prof. Gilbert suggested that a speaker pack be prepared to send to Division representatives at Division-sponsored meetings; he agreed to e-mail an MMD-tailored speaker pack to Prof. Stepto, Prof. Jin, Dr. Work, Prof. Kubisa, and Prof. Penczek so that they could make it available.
 - 11.4.** Prof. Berek suggested that all output of the Division should be sent to the heads of macromolecular societies. Prof. Jin responded that this is what is intended. He noted that Fabienne could set up a listserv to do this; input is required from the Polymer Summit to identify the names of those who should be included on the list.
 - 11.5.** Prof. Horie reminded the Division that the December meeting in Kyoto is entitled *Strategy for Polymer Science and Technology*; it will focus on emerging technologies such as biopolymers, polymers in the environment, ... Included will be a panel discussion with Profs. Stepto, Abe, Wegner, and Levon to comment on their perspectives on the future of polymer science and technology. This will be followed by a discussion by Profs. Jin, Hess, Sawamoto, and Gilbert on the role of IUPAC in the future.
 - 11.6.** A booklet that lists the world polymer organizations and their leadership is updated at the Polymer Summit that takes place at each World Polymer Congress. This information could be very helpful for these initiatives.

12. Recruitment to the Division. Prof. Gilbert noted that effective recruitment is tied to projects. Task group leaders gain satisfaction, prestige, networking, and publications that are highly cited. Terminology work is valuable for writing patents and effective international communications. Prof. Stepto noted that terminology also has legal implications. An idea for improved recruiting is the addition of an MMD page in program booklets for IUPAC sponsored conferences. One was provided in the program for the 1998 meeting, but it needs to be updated and reduced to one page. Prof. Gilbert commented that it was difficult to get National Adhering Organizations to act. He suggested that perhaps an approach to industry organization presidents could identify new industry-IUPAC projects at World Polymer Congresses; however, he warned that we need to listen to them rather than tell them what we think to be important. He thought that perhaps Dr. Laun could effectively lead an initiative to identify industrially relevant problems for the MMD. He further suggested that National Representatives should be encouraged by the Division President to obtain ideas. Prof. Buback suggested that we should consider granting the use of the IUPAC label to indicate quality. Prof. Vairon commented that the heads of industry usually do not have time to meet for such a discussion, but he thought that it might be possible to host a dinner for them. Prof. Penczek finished the discussion by noting that two of the plenary lectures given at the Warsaw World Polymer Congress were given by vice presidents for research from two companies; he thought they gave effective lectures.

13. Budget, Projects and Division Structure.

13.1. Prof. Stepto reported that the total budget for the Division is \$47,500, of which 75% is allocated to projects and 25% to operating costs. He proposed the following provisional allocation for the project budget:

Terminology -	\$12,000
Characterization -	\$12,000
Education-	\$6,000
Special Projects-	\$6,000

The budgets are for two years. He suggested that the maximum budget for a project would be \$3,000. Prof. Berek asked whether a minimum project budget could be defined. Prof. Stepto responded that he could not propose a minimum. Prof. Hess asked how this budget compares to the old system. Prof. Stepto responded that it is an increase relative to the historical amount, but not more than was available during the last biennium.

13.2. Prof. Stepto showed the detailed project budget breakdown. Joint projects with Division VIII provide added funds.

13.3. There are more characterization projects than are listed on the budget sheet; Prof. Stepto is worried about this. He asked whether a subcommittee should be formed? Prof. Buback noted that the Characterization subcommittee is always involved in conferences, which reduces their need for financial support. This is good if all Task Group Leaders are able to participate. Prof. Stepto proposed that Division operating funds together with project funds could help when a subcommittee meets at a conference but he continued to ask whether a subcommittee should be formed. Prof. Baron supported the formation of a subcommittee because he thinks that it centralizes and organizes tasks preventing them from becoming too loose. Prof. Gilbert commented that the track record is what justifies subcommittees and that the Division should assess productivity before moving forward with new subcommittees. Prof. Sanderson proposed that subcommittees should become proactive and not wait for projects to come to them. Prof. Kim commented that the two year lifetime for a subcommittee is too short and there is a need for a system that permits subcommittees to have a longer lifetime. Prof. Stepto says that this can be done, but they must be reestablished every two years, which is no problem if the subcommittee has been productive. He suggested that all possible subcommittees be identified before the Ottawa General Assembly and that Characterization becomes three subcommittees. He also suggested that a Subcommittee for Education be established. Profs. Berek, Jin, Kim, and Buback all agreed that this was a good idea. Prof. Jin suggested that those involved in the Division's education initiatives comment on the proposed subcommittee. Prof. Kim favored consulting Dr. Laun before moving forward. Prof. Stepto requested that lists of names be prepared for the Secretary and the Secretariat.

14. Division Elections 2003.

- 14.1.** A Nominating Committee is needed for the election at the General Assembly in Ottawa. Prof. Stepto stated that no more than two members of the Nominating Committee can be from within the Division and at least three should be from outside. The previous Nominating Committee consisted of Profs. Stepto, Janca, Kajiyama, Lenz, and Tabak. The Nominating Committee needs to identify candidates for Secretary and four titular members. All may suggest candidates. Prof. Stepto proposed that Prof. Jin chair the Nominating Committee and that he be the second Division member. Prof. Berek suggested that the Nominating Committee should be made up of people involved in IUPAC. Prof. Stepto responded that this cannot be done under the current rules. Prof. Kratochvil asked whether it makes sense to do it this way? Prof. Gilbert responded that this method is a Bureau requirement. Prof. Vairon expressed his opinion that North America is under-represented. Prof. Jin responded that this is a good point; he has been trying to encourage American scientists to become involved. Prof. Stepto asked whether the Division is happy to have Prof. Jin be the chairman of the Nominating Committee with himself as the second member on this occasion; there were no objections.
- 14.2.** Dr. Work asked about whether electronic voting would be used by the Division in 2003. Prof. Stepto responded that other Divisions did all of their voting electronically. Prof. Gilbert supports a mixed voting system as used in 2001 and suggested that we do more to support absentee voting. Prof. Stepto asked whether the Division continues to support absentee voting? The Division agreed that this is a good idea.
- 14.3.** Prof. Stepto proposed that the Nominating Committee identify where each vacancy is in Characterization, Terminology, and Education and that each open position have an individual election. The Division unanimously agreed to this.
- 14.4.** The electorate for the 2003 elections was proposed to include Associate Members, Titular Members, National Representatives, and active Task Group Leaders. These will all have the right to vote, by proxy if necessary.

15. Other Business.

- 15.1.** Prof. Berek noted that the Federation of European Chemical Societies has proposed a pan-European chemical meeting similar to the American Chemical Society meeting. He suggests that the Division participate.
- 15.2.** A question was raised about the quality of papers that are published from Division approved symposia. It was suggested that such papers should be reviewed if the Division approves the symposium. Prof. Stepto responded by saying that as far as he is aware, papers from symposia are reviewed.
- 15.3.** Prof. Jin reported that Korea plans to have a polymer symposium in 2005, immediately before the General Assembly in Beijing.
- 15.4.** Prof. Stepto requested that the membership list that the Secretary prepares should include all scientists active in projects and requested that the Task Group leaders provide Dr. Work with a list of active members.
- 15.5.** Prof. Stepto asked whether the following individuals who are currently on the membership list should be removed: H. Chan, Grzywa, T. He, G.-H. Hsiue, Kishore, Kramer, Matisons, Seppala, Swift. The Division agreed that these were inactive.
- 16. Date of Next Meeting.** The Division will have two half-day sessions between August 8 and August 13, 2003 at the General Assembly in Ottawa. (Added later: the Division meetings will take place on the mornings of the 9th and 10th of August).

William J. Work

Secretary, Division IV