

**IUPAC POLYMER DIVISION MEETING
DRAFT MINUTES**

**IUPAC General Assembly, Beijing
9.00–12.30 & 14.00–17.30, 13 & 14 August 2005**

The Macromolecular Division Committee met on 13-14 August 2005. Those attending: Prof. G. Allegra (Italy), Dr. R. Bailey (UK), Prof. D. Black (UK?), Prof. M. Buback (Germany), Prof. T. Chang (Korea), Prof. K.-N. Chen (China - Taipei), Prof. G. Costa (Italy), Prof. A. Gomes (Brazil), Prof. T. Gorman (USA), Prof. M. A. Gurkaynak (Turkey), Prof. J. He (China), Prof. M. Hess (Germany), Prof. K. Horie (Japan), Prof. M. Jaffe (USA), Prof. A. Jenkins (UK), Prof. J.-I. Jin (Korea, Vice-President), Prof. R. Jones (UK), 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), Dr. F. Meyers (USA), Prof. G. Moade (Australia), Prof. W. Mormann (Germany), Prof. N. Nakabayashi (Japan), Prof. C. Ober (USA), Prof. S. Penczek (Poland), Prof. R. Sanderson (South Africa), Prof. M. Sawamoto (Japan), Prof. J. Stejskal (Czech Republic), Prof. R. Stepto (UK, President), 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. There were no additions to the agenda. Prof. Stepto welcomed everyone to Beijing.

2. Apologies for Absence.

2.1. Prof. Stepto reported that Prof. Pasch was unable to attend this year.

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

3.1. Dr. Work apologized that the corrections sent to him for the Paris minutes had not been made due to the theft of his lap-top computer in January which had all Division related e-mail recorded on it. He asked that any important corrections be repeated. There were none and the minutes were approved.

4. Matters arising.

4.1. Prof. Stepto reported that the Bureau had approved the change of the Division's name to the Polymer Division in September, 2004. There was no need for Executive Council approval. There were no other matters raised.

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

5.1. Prof. Hess reported on the work of the Sub-Committee on Macromolecular Terminology over the last year. There are 29 members of the Sub-Committee, 25 of whom are very experienced. There are sixteen projects running and one dormant project. Seven projects are interdivisional. One project has been published, Definitions of Terms Related to Polymer Blends, Composites, and Multiphase Polymeric Materials, and one other is in the final stages of preparation for publication. Eight other projects are nearing completion including the polymerization kinetics, polymerization in colloidal systems, the Guide to Polymer Nomenclature and Terminology, the revised Purple book, and three interdivisional projects. The project concerning controlled radical polymerization is making good progress. A revision of the document

concerned with the terminology related to crystalline polymers is underway. The dormant project is nomenclature of polymeric rotaxanes; it was held up until Division VIII completed its project concerning the nomenclature of monomeric rotaxanes; that project has now been completed and it should be possible to restart the project on nomenclature of polymeric rotaxanes. A new project has been started by Prof. Vert which is directed towards the terminology related to polymers used in biomedical applications. A number of feasibility studies are underway including the definitions of terms for ultimate properties of polymers, the elastic properties of polymers, the terminology for the terminology related to self-assembly of polymers, terminology related to electromagnetic field-responsive polymers, and computer translation of terminology and definitions into other languages.

- 5.2. Prof. Jenkins asked the status of the projects proposed by Prof. Mita concerning abbreviations and source-based nomenclature? Prof. Hess responded that the projects will be discussed at the SMT meeting following the Division's meeting.

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

- 6.1. Dr. Bailey reported that seven meetings of the subcommittee have taken place since the Ottawa General Assembly, the latest on 11 August. There have been eight publications and nine papers submitted. All of the subcommittee's business is now conducted on the IUPAC website. Detailed descriptions of the projects and links to publications and presentations are available from the website. The subcommittee currently has 76 members, 30 of whom are from industry. There are seven active projects including recommendations for the presentation of mechanical and rheological data (14 members), the structure and properties of polyester elastomers (8 members), Nylon/clay and polypropylene/clay nanocomposites (7 members), and four additional projects. The subcommittee has five feasibility studies, which includes a study of polyamide melts (controversial because of water absorption effects) and PVC foams. Ten new projects are under consideration. The emphasis of the subcommittee is on the relationship between structure, properties, and processing.
- 6.2. Prof. Stepto asked whether there was an overlap with the activities of the Developing Polymer Materials group. Prof. Ober responded that the current projects do not overlap, but that it would need to be reviewed. Prof. Stepto suggested that the review be done and a determination made about where things belong.
- 6.3. Prof. Sawamoto asked whether the prediction of properties by computer modelling has been considered as project. Dr. Bailey responded that proposals have been received to compare predictions made by finite-element analysis to actual properties and the relationship between rheology and properties. He further commented that the subcommittee largely goes where its member's interests take it. Prof. Sawamoto suggested that there would be great value in simply surveying the computer modelling software that is available.
- 6.4. Prof. Stepto asked whether industrial involvement went beyond simply providing samples for analysis. Dr. Bailey responded that once a sample is available laboratories from both academia and industry participate in characterization. Prof. Kim stated that there is usually much participation by industrial scientists, but less so this year due to timing.

- 6.5. Prof. Stepto asked whether the subcommittee is linked to the Division website. Dr. Bailey responded that you could link from the subcommittee to the Division, but not in the other direction. Prof. Stepto asked that Prof. Jones and Dr. Bailey create such a link.

7. Report on Molecular Characterisation Projects (Pasch).

- 7.1. In Prof. Pasch's absence, Prof. Stepto reported that one project on the characterization of epoxides had been completed. Two new projects, one on data treatment for gel permeation chromatography and one on starch have been started. Three new projects have been submitted, all within the Division.

8. Report on Polymerization Projects (Buback)

- 8.1. Prof. Buback reported that the Subcommittee currently has 28 members from twelve countries; two members are employed in industry. The Subcommittee exists because there is a need for accurate determination of rate coefficients for homopolymerization and copolymerization in different media and by different mechanisms. There continues to be a large number of citations to the papers produced by the Subcommittee, which demonstrates the value of the Subcommittee's work. In 2005, two papers have been published: Critical evaluation of termination rate coefficients for methyl methacrylate and styrene. One more paper is planned for publication in PAC. Prof. Buback showed several Arrhenius plots of termination rate coefficients as reported in the Polymer Handbook and compared them to Arrhenius plots after the Subcommittee has completed its evaluation. A marked improvement was apparent for both MMA and styrene. Several new projects have been started, including a project to quantify the reliability of ESR for studying polymerization reactions (Yamada), a project to study the polymerization of water soluble monomers (supported by BASF, Lacik), and a project on the mechanism of RAFT polymerization where the goal is to present a "dilemma" paper at the ACS meeting in Washington. Project ideas under consideration include rate coefficients for ionic polymerization, a survey of reliable initiator decomposition kinetics, and a critical evaluation of chain transfer rate coefficients.
- 8.2. Prof. Jones asked whether the Subcommittee had a relationship with the publishers of the Polymer Handbook. Prof. Buback responded that there was no current involvement, but that he expects that there will be involvement once the next edition is in preparation. Prof. Stepto asked whether it would be possible to establish contact. Prof. Buback asked for help to identify whom to contact at Wiley to make the correct contact.
- 8.3. Prof. Jenkins asked whether dimerization had been considered to explain the large MMA concentration effect on its termination rate coefficient. Prof. Buback responded that it had been considered but that it did not give good agreement with the results.
- 8.4. Prof. Stepto asked whether the Russell project on k_t needed to be extended. Prof. Buback replied that he thought it would be very desirable. Prof. Stepto said that he would support an extension.
- 8.5. Prof. Stepto noted that the Subcommittee name emphasizes the role of modelling in its work, yet that seems to be a subsidiary task. Prof. Buback responded that modelling is very important to the Subcommittee's work, but he understood the point. Later in the Division meeting he suggested that the

Subcommittee name could be changed to: Subcommittee on Polymerization Kinetics and Processes.

8.6. Prof. Jenkins asked to be reinstated to the Subcommittee. This was accepted.

9. Reports on Developing Polymer Materials Systems (Ober, Vohlidal, Work).

9.1. Prof. Ober reported that the goal of this working party has been to define projects in the forefront of polymer science. In the last year, one project has been published on Polyaniline Thin Films. A feasibility study on the terminology of electromagnetic field responsive polymers has resulted in a list of terms that was provided in Bordeaux; this has been submitted to experts in both the Czech Republic and the United States and positive responses have been received. A feasibility study for a project on Self-Assembled Polymeric Systems has resulted in a list of terms prepared by Profs. Jones and Ober; it was suggested that a project be submitted on this topic. A draft project proposal to characterize biodegradable polyesters has been received from Prof. Chen with encouragement from Prof. Penczek. Other possible project areas that have been suggested include: biomimetic polymers, polyrotaxanes, stimuli responsive polymers, and nanofabrication.

9.2. Prof. Sawamoto commented that it is important that this working group consider materials to be included in its mandate.

9.3. Prof. Stepto commented that a lot of the work proposed is terminology and, therefore, one role of this group is to feed existing subcommittees. He also noted that it is important to include the generation of new ideas as an important part of the working group's work.

9.4. Prof. Jin suggested that the Division may wish to take an interdisciplinary approach to the nanofabrication proposal. Prof. Stepto noted that the Materials Subcommittee already exists and that we should take it upon ourselves to become involved in that subcommittee. The Division should present our initiatives to them. Prof. Ober suggested that both nanofabrication and biomimetic materials could be part of a joint program.

10. Reports on Education Projects and Activities (Jin, Sanderson, Vairon, Ober)

10.1. Prof. Jin provided an overview of the Division's educational initiatives. He reported that the 2005 Samsung Award will be given to Prof. Kratochvil's Postgraduate Course in Polymer Science to be distributed to one or two students for their financial support. Prof. Jin acknowledged Prof. Richard Stein's help in obtaining an agreement with the National Plastics Center to use an educational CD-ROM on plastics and their contributions to society; the Division's educational programs will be permitted to use the CD-ROM without royalty. Finally, Prof. Jin noted that the 18th conference on chemical education was held in Istanbul in 2004; the 19th will be held in Korea in August, 2006.

10.2. Prof. Kratochvil reported the results of the Czech Academy of Sciences continuing Postgraduate Course in Polymer Science. The 9th session that was just completed had 9 students and the 10th session, which will start in October, also has 9 students. The course is ten months in duration and consists of 50 hours of lectures on modern polymer science, IUPAC nomenclature and terminology, and work on research projects. Over the nine years that the course has been offered, there have been 72 graduates who have contributed 87 papers to the scientific literature and 92 communications at conferences. Ten countries have sent students to the course.

10.3. Prof. Vairon reported that the Polymer Education Symposium held at Macro 2004 was well-received by his colleagues in France. The symposium helped convince

those in France that an IUPAC Education Committee exists and that it is important to French-speaking polymer scientists. The outcome has been an education project for French-speaking scientists (Froyer).

- 10.4. Prof. Mormann reported that he continues to collect industrial educational video material to be made available on the web. Funding is an issue for the work. Prof. Stepto asked how much support is available for the video initiative. Prof. Jin responded that there should be funding available from CCE and Prof. Stepto suggested that the Division can provide support. Prof. Costa asked whether it would be possible for polymer educators from Italy to be involved. Prof. Mormann and others expressed their opinion that it is desirable to have others involved.
- 10.5. Prof. Ober commented on the National Plastics Center's CD-ROM that Prof. Stein has made available to the Division. He noted that it will be available for distribution for the cost of reproducing the CD. In addition, he suggested that it be available through the Division's website. To do so will require some conversion. Prof. Stepto asked whether this initiative overlaps with the Prof. Mormann's video initiative. Prof. Ober responded that it does not duplicate what Prof. Mormann is doing. Prof. Kratochvil asked what background is required to understand the material. According to Prof. Ober, the material has a general public focus, but there are some aspects presented that are better appreciated if the student has some technical background. Prof. Hess suggested that search terms need to be identified to make the material accessible. Prof. Stepto asked what was needed to move forward. Prof. Ober suggested that funding is needed to support an undergraduate to convert the CD into a web accessible format. A project proposal will be submitted with support requested from the Division and CCE. Prof. Jones will help to coordinate to make the results accessible on the Division's website.
- 10.6. Prof. Stepto reported that the Division has provided support for educational conferences. To obtain support the conference organizers have submitted project proposals. Support for educational initiatives comes, in part, from the Samsung award. The Division is able to contribute \$12,000/biennium from the Samsung fund. The Division officers and a Samsung representative decide who will receive the award. In years in which a World Polymer Congress is held, a young chemist is selected for the award; in alternating years, the award is given to support polymer education. Prof. Stepto requested that Prof. Kratochvil write to Samsung to thank them for the award.
- 10.7. Prof. Atkins, chairman of CCE, addressed the Division. He asked whether there was anything new that CCE could help with. Prof. Stepto noted the new initiatives discussed at the Division's meetings and the intention to make educational materials available on-line. Prof. Atkins responded that the principal interest of the CCE is to address educational needs in countries where a stronger need exists than in Europe, North America, Asia, and Australia. Prof. Vairon asked whether CCE focuses on certain countries. Prof. Atkins suggested that the focus is on Africa, South America, India, Pakistan, and others that are at a similar level of development.
- 10.8. Prof. Stepto asked whether it is time to make our educational task group a subcommittee. There was a general feeling that this would be a good idea. Prof. Atkins expressed some concern that this would result in some duplication of CCE efforts, but he was pleased that we treat education as an important part of the Division's mission. If we proceed, he would like more than one member of CCE on the Division's subcommittee. A group will get together to propose the structure of the subcommittee with CCE representation and involvement.

11. New Project Areas

- 11.1. Nothing was raised that were not included in task group or Subcommittee reports.

12. Monitoring of Projects (Stepito)

- 12.1. Prof. Stepito presented a copy of a Progress Reporting form that has been developed by Division V and asked whether the Division wished to implement it too. Prof. Hess commented that something similar is done each year in the SMT. Prof. Kratochvil commented that implementing such a reporting form simply adds bureaucracy. Prof. Stepito responded that it would make the Division president's life easier. Currently 32 projects have been approved. Prof. Buback noted that completing such a form added an additional burden to Task Group Leaders and that a requirement that they completed every six months was too frequent. Prof. Jones suggested that they should be completed in January or February and not at the Division meeting, where an update is already done. Prof. Stepito agreed and suggested that the President will decide when he would like it to be completed.

13. Reports on Division-Sponsored Conferences (Kubisa, Penczek) and forthcoming World Polymer Congresses (Brazil, de Souza Gomes; Taiwan; U.K.;)

- 13.1. Prof. Kubisa reported that there have been eleven conferences sponsored by the Division in 2005. Prof. Penczek suggested that the Division could sponsor as many as 20 polymer symposia each year. Prof. Stepito suggested that the Division attempt to increase the number to fifteen from the current eleven.
- 13.2. Three of the conference proceeding have been published in Macromolecular Symposia in 2005 totalling 788 pages. This compares to 1648 pages published in Macromolecular Symposia in 2004. Prof. Buback asked for an explanation of the reduction in the number of pages published. Prof. Stepito responded that Wiley is refusing to accept some articles/conferences. Each symposium is permitted only one issue with a limit on the number of pages in the issue. Wiley pays \$1000 to IUPAC for each conference published; the Division now receives all of the money for each of its conferences that are published in Macromolecular Symposia. Prof. Vairon noted that many high level lecturers refuse to have their work published in Macromolecular Symposia because of its low impact factor. Prof. Jin expressed his wish that five issues of Macromolecular Symposia be devoted to Division-sponsored conferences each year.
- 13.3. Prof. Penczek promoted the advantages of *e-Polymers*, which has agreed to take all of the posters from symposia. Prof. Vairon noted that *e-Polymers* will take the entire proceedings from a conference as well as the posters.
- 13.4. Prof. Vairon provided a slideshow of photographs made during the World Polymer Congress 2004 in Paris.
- 13.5. Prof. Gomes summarized the organization and planning for the World Polymer Congress taking place in Rio de Janeiro in 2006. Thirteen symposia are planned. The chairmen of the subsections and several hundred invited lecturers have all been identified. The second circular will be sent by October, 2005. Prof. Stepito noted that the issue of unpaid dues to IUPAC had been resolved and that this was a requirement for IUPAC sponsorship of the WPC. He asked whether any of the session chairmen are from outside of Brazil. Prof. Gomes responded that all were from Brazil. Prof. Jin suggested that it was very desirable to identify session co-chairmen from countries other than Brazil. A number of potential co-chairmen were identified for the different sessions. The composition of the international advisory committee was also discussed.

- 13.5.1. Prof. Sanderson noted that each member of the international advisory committee should receive 100-200 copies of the circular for local distribution.
- 13.5.2. Prof. Buback suggested that it is necessary to have a session on polymerization kinetics and fundamentals.
- 13.5.3. Prof. Sawamoto asked whether there were plans for a Polymer Summit and whether it was planned to be part of the session on international cooperation. Prof. Stepto noted that for the Polymer Summit to happen it was necessary to send invitations from the organizing committee to the heads of all polymer societies asking for their participation. Prof. Sawamoto requests that the heads of polymer societies be strongly encouraged to attend.
- 13.5.4. Prof. Sanderson suggested that it would be a good idea to have a student poster session. He also thinks that it would be valuable to get the government involved to encourage student participation. Prof. Stepto suggested that some IUPAC money may be available to help foster student participation.
- 13.5.5. Prof. Hess asked whether it would be possible to arrange for venues for the Division and subcommittee meetings. Prof. Gomes responded that it could be arranged in the same hotel. Prof. Jin suggested that each subcommittee chairman should write to Prof. Gomes to request a room and the amount of time required. The Division will meet before WPC 2006.
- 13.6. Prof. Chen announced that progress continues to be made in preparation for WPC 2008 in Taipei. The conference will be titled "Polymers at the Frontiers of Science and Technology. The scientific program committee has been identified. It will consist of ten symposia. A list of plenary lecturers is being prepared. The conference website is www.pst.org.tw/macro2008.
- 13.6.1. There were several questions about sessions devoted to Polymer Division initiatives, including sessions on international cooperation (Stepto), a session of the public's understanding of polymers (Jin), and a session on polymerization fundamentals and kinetics (Buback). Prof. Chen assured the Division that these sessions would all be part of the program. Members of the Division agreed to help organize these special sessions.
- 13.6.2. Prof. Jin expressed concern about participation in the conference from the mainland of China. Prof. Chen responded that if that becomes an issue, there are plans to have two conferences in parallel.
- 13.6.3. Prof. Jones asked whether there would be any new members of the international advisory committee. Prof. Jin responded that that issue is being addressed.
- 13.6.4. Prof. Sawamoto asked if the emphasis would be on polymers used in the electronics industry. Prof. Chen responded affirmatively.
- 13.6.5. Prof. Vairon suggested that some budget to support students would be desirable. Prof. Stepto noted that IUPAC money could be obtained to help students from developing countries.
- 13.7. Prof. Stepto reported that the Macrogroup UK is moving forward with its plans to organize Macro 2010 in Glasgow. Prof. Lovell is currently responsible for organizing the conference. He plans to attend Macro 2006 in Brazil.
- 13.8. The Division discussed possible venues for Macro 2012. Prof. Ober reported that he had been contacted by Prof. McGrath about holding a WPC in Blacksburg, Virginia, USA. Prof. Gurkaynak suggested that the Division consider Turkey. Finally, Prof. Tantayanon of Thailand has requested that the conference be held there. Prof. Stepto asked that each of the candidate countries prepare a presentation for the meeting in Brazil.

14. Recruitment to the Division (Stepito, Jones, Kubisa, Penczek).

- 14.1. Prof. Stepito summarized the Division's strategy to use conferences, observers invited to Division meetings, project involvement, and National Representatives as a means to recruit new members. To help, all Division sponsored conferences receive brochures to be included in the conference packet that provides information on the Division's activities.

15. Report on Division Web Page and Electronic Publications (Jones, Work)

- 15.1. Prof. Jones outlined the current practice for updating the website, which is primarily done through Fabienne Meyers.
- 15.2. Prof. Hess noted that some SMT documents are not yet available on the website. He also reported that this listed translations are sometimes those of documents that have been superseded by more recent documents. There is a need to indicate which documents are current and which are outdated. Prof. Stepito asked that the Subcommittee check the publications listed and to note the current versions on the website.
- 15.3. Other subcommittees are concerned that only papers published in *Pure and Applied Chemistry* are available on the IUPAC website. Only references are given to non-PAC publications. The Subcommittee on Polymer Structure and Properties has its non-PAC publications available on its website.
- 15.4. Prof. Penczek suggested that *e-Polymers* could be an important means to publicize the Division's work. Prof. Kahovec is the Division's representative with *e-Polymers*. It has been available for free since 2001 and will remain free for at least two more years. Papers are published within about six weeks of receipt. It has a good impact factor with >200,000 hits/month. About 35,000 papers have been published. One section exists that is devoted to polymer education. Prof. Jones noted that *e-Polymers* was suggested as an aid to public review at the Bordeaux meeting in 2004. Moreover, a "hot-link" should exist between the Division's website and *e-Polymers*.
 - 15.4.1. Prof. Buback asked whether all Division-sponsored conferences would be published in *e-Polymers*. Prof. Penczek responded that they were not currently published there, but that they could be.
 - 15.4.2. Prof. Kim asked whether *e-Polymers* appears in the science citations core journal list. Prof. Penczek responded that he was not sure.
 - 15.4.3. Prof. Stepito suggested that the links between *e-Polymers* and the Division's website should be strengthened. He asked what the Division should put on the *e-Polymers* website. Prof. Kahovec suggested that Division news, including a short summary of the minutes from various meetings. Prof. Stepito thought it would also be valuable to provide a list of conferences and publications. Prof. Vohlidal suggested that links to terminology and nomenclature documents should be put there.
 - 15.4.4. Prof. Stepito requested that a report be prepared on what is on the Division's section of *e-Polymers*. Profs. Jones, Kahovec, and Penczek will be responsible. All content is to be passed through Prof. Jones.

16. Strategy, Communication, Polymer Summit (Jin, Horie, Sawamoto)

- 16.1. Prof. Horie started the discussion of this topic by reminding the Division about the 2002 Strategy meeting that took place in Japan. The next strategy conference will be held in New York from June 10 – 14, 2007. It is being organized by Profs. Levon and Ober. The topic will be Macromolecules for a Sustainable, Safe, Healthy World. The first circular will be available by the end of August, 2005.

Prof. Ober commented that the organizing committee and international advisory committee for the 2007 meeting had been identified. They plan to use the resources of the ACS POLY and PMSE divisions to help.

- 16.2. Prof. Sawamoto summarized the Polymer Summit held at WPC 2004. An expanded Directory of World Polymer Organizations was prepared that includes summaries of activities of the different polymer organizations. In the future the Directory will be available in electronic form. The results of questionnaires completed by the heads of polymer organizations identified the hot topics for different regions of the world. Many topics were common to all regions but there were also regional differences, for example natural rubber in areas where it is produced and polymers in the marine environment in regions where marine related industry is important. A number of areas of emphasis were identified including: precision control of polymer architecture, nanotechnology and nanomaterials, biodegradable polymers, and multidisciplinary topics (e.g. polymers in medicine). Prof. Sawamoto expressed his wish that a report on the findings from the questionnaire be published in *Pure and Applied Chemistry*.
- 16.2.1. Prof. Stepto commented that the IUPAC Division needs to be included in the list of polymer organizations that make up the Directory and have an input on strategy. He also expressed disappointment in the degree to which the various polymer federations have involved themselves in IUPAC. He asked whether the Directory is sent to the heads of polymer federations. Prof. Sawamoto responded that it is.
- 16.2.2. Prof. Vairon suggested that there are many workshops on a wide variety of topics each year and that not everything should be focussed through the European Polymer Federation.
- 16.2.3. Prof. Buback expressed his opinion that a hot topics session organized at each WPC would be a good way to involve new people and identify future international advisory committees.
- 16.2.4. Prof. Stepto proposed that the efforts on strategy are valuable and should continue as a project.

17. Budget, Projects and Division Structure (Stepito, Jin)

- 17.1. Prof. Stepto reported the financial status of the Division. Projects are limited to budgets of about \$2000/yr. Fourteen new projects have been added. The budget for the last biennium has been:

Basic Division Budget	\$47,500
Samsung Fund	12,000
Wiley Macromolecular Symposia	4,000
Division Reserve (Executive Committee)	6,000
Project Committee (Interdivisional)	25,500

Prof. Jin asked whether this level of funding will continue. Prof. Stepto responded that the Basic Division Budget will increase to \$52,500 for the next biennium. He noted that the Division has the largest number of projects/\$, which has helped obtain additional funds.

- 17.2. The sub-committee structure of the Division was discussed. The Subcommittee on Polymer Structure and Properties will continue. Prof. Buback wishes to continue the Subcommittee on Modelling of Polymerization Kinetics and Processes with an altered name: Subcommittee on Polymerization Kinetics and Processes. Prof. Ober proposed that the Task Group for Developing Polymer Materials Systems be made a subcommittee; the name will be changed to the

Subcommittee for Developing Polymer Materials. Prof. Stepto suggested that someone from the Subcommittee on Polymer Structure and Properties be involved with Developing Polymer Materials, perhaps one from each global region.

- 17.2.1. The proposed Subcommittee for Polymer Education (see 10.8) will consist of Profs. Vairon (chairman), Froyer (Secretary), Russell, Ober, Mormann, Jhurry (Hess to contact), San Thang (CSIRO – Moade to contact), Jin, Chen, Costa, Kratochvil, Sanderson, Hess, Kitayama, Nowakowska (Penczek to contact), Kitayama, and two representatives from CCE. Prof. Vairon will be the Division's representative on CCE. The Division approved the formation of this subcommittee.
- 17.2.2. The proposed Subcommittee for Developing Polymer Materials will consist of Profs. Ober (chairman), Stejskal (co-chair), Penczek, Vohlidal, Vairon, Jin, Hess, Chen, Costa, Sawamoto, Jhurry, Stepto, He, Moade, Gorman, and Lemstra (Vairon to contact) and industrial members Drs. Work, Bailey, Won Lee (Samsung, Kim to contact) and J. C. Daniel (Vairon to contact). The Division approved the formation of this subcommittee.
- 17.3. Prof. Vairon noted that the project in the Polymerization Kinetics and Processes Subcommittee on the kinetics and mechanism of ionic polymerization is supported by a number of large companies. He further noted that all invited representatives from large companies to a special session on industrial needs at WPC 2004 attended. These high level scientific officers of companies agreed to prepare one or more proposals for projects that IUPAC may consider. He noted that the project may not be suited to the Division. Prof. Kratochvil suggested that the Division stress the involvement and interest of industry in the work of the Division. Prof. Vairon proposed that the Division have a subcommittee for industrial relations. The Division generally thought that this already exists within existing and planned subcommittees in the Division and IUPAC. Prof. Stepto asked whether Prof. Vairon could put together a vision of what could be done. Profs. Ober, Penczek, Jin, Sawamoto, He, Kim, Chen, Costa, and Bailey agreed to work with Prof. Vairon to propose what could be done. Prof. Ober asked whether there was a special role for the Developing Polymer Materials Subcommittee to help involve industry. The same group will address this as part of their proposal. Prof. Penczek expressed concern that industry is often unwilling to share information and that this could prevent efforts to involve them more.
- 17.4. Prof. Penczek suggested that the Division consider establishing a Subcommittee on Biomaterials. Prof. Stepto responded that he thought that it would be best handled in the Subcommittee on Developing Polymer Materials for the time being.
- 17.5. Prof. Stepto asked the Division's opinion about an effort directed towards modelling. It was decided that this proposal would be put on the agenda for the 2006 meeting.
- 17.6. Prof. Sanderson suggested that the Division use its website to obtain suggestions for new projects; this would provide an opportunity to have a mixture of solicited and unsolicited projects. Prof. Stepto responded that he thinks it best for the subcommittees to decide how to move in new directions.

18. Division Elections 2005 (Jin)

- 18.1. Prof. Jin reported that the Division elections were held entirely by e-mail this year. 69% of the electorate voted in the election for Division officers and Titular Members and 65% of the electorate voted in the election for Associate Members. The election results were as follows:

18.1.1. Officers and Titular Members:

	<u>Votes</u>
<u>Vice President:</u>	
Christopher K. Ober	26
Krzystof Matyjaszewski	12
<u>Conference:</u>	
Stanislaw Penczek	Approved 34-1, 3 Abstentions
<u>Terminology</u>	
Michael Hess	25
T. Kitayama	12
<u>Molecular Characterization/Developing Polymer Materials:</u>	
T. Chang (Molecular Characterization)	21
Jiri Vohlidal (Developing Polymer Materials)	8
Jara Stejskal (Developing Polymer Materials)	7

18.1.2. Associate Members:

	<u>Votes</u>
<u>Structure and Properties</u>	
Rob S. Bailey	Approved 30 – 0, 5 Abstentions
<u>Terminology</u>	
Dick Jones	21
Tatsuki Kitayama	13
<u>Developing Polymer Materials</u>	
Jiri Vohlidal	16
Jara Stejskal	19
<u>Conference</u>	
Przemyslaw Kubisa	Approved 31 - 0, 3 Abstentions
<u>Education and Public Understanding</u>	
Jean-Pierre Vairon	15
Werner Mormann	8
P. Kratochvil	12
<u>Strategy and New Members</u>	
Gaetano Guerra	8
Mitsuo Sawamoto	24

18.1.3. Prof. Stepto reminded the Division that National Representatives must be nominated by their National Adhering Organization. Some of the nominations this year have not been provided by the NAOs. It may be possible for the

Division to have twelve National Representatives, but a limit of ten may be imposed. Nominations are needed from France for Pascault and New Zealand for Russell.

18.1.4. Appointments as Division Representatives to Other IUPAC Bodies:

<u>IUPAC Body</u>	<u>Appointee</u>
CHEMRAWN	None
Committee on Chemical Industry	Dr. Work
Committee on Chemical Education	Prof. Vairon
Division VIII	Prof. Jones
ICTNS	Prof. Kahovec

19. Vice-President's Topics (Jin)

- 19.1. Prof. Jin commented that the Division has no direct link to the organizing committee for the IUPAC Chemical Congress taking place simultaneously in Beijing. Prof. Stepto responded that he had made the suggestion at the Bureau meeting at the General Assembly in Ottawa that all Divisions be represented on the organizing committee for the Congress. This suggestion was passed on to the organizing committee for the Beijing Congress, but nothing happened. Prof. Penczek suggested that the Division representative for the organizing committee for the General Assembly be used to aid in obtaining representation on the organizing committee for the Congress. For the Torino General Assembly, this is Prof. Costa. She agreed to make the case for Division representation.
- 19.2. Prof. Jin wants the Division to develop projects related to public understanding.
- 19.3. Prof. Jin also would like the Division to work towards obtaining younger more diverse membership. Prof. Stepto requested that the subcommittee chairmen provide an up-to-date list of the membership of their subcommittees.

20. Any Other Business

- 20.1. Prof. Stepto thanked Prof. Buback and Dr. Bailey for preparing posters for the General Assembly.
- 20.2. Dr. Work, on the behalf of Dr. Metanomski, presented a list of the major Macromolecular Symposia sponsored by IUPAC. These date back to the 1950s. The numbering of the Symposia are incomplete and inconsistent. Dr. Metanomski would like the Division's help to complete the numbering. Also, since the Gold Coast Conference in 1998, a number has been assigned as an International Polymer Symposium, as a World Polymer Congress and Macro with the year designated. All designations have some value and Dr. Metanomski suggested that the designations be formalized. The Division decided to keep the consecutive numbering and the Macro designation for future naming of conferences. It was suggested that the proceedings from all of the early conferences had been published in J. Polymer Sci, Part C. It may be possible to follow the conferences through the years through that journal and thereby complete the numbering. Prof. Stepto requested that the incomplete list be sent to all members on the Division's mailing list to enlist their help.

21. Date of Next Meeting.

- 21.1. The next meeting will be held on 15 July 2006 in Rio de Janeiro from 9:00 – 18:00 and as needed on 16 July 2006. Subcommittee meetings should be arranged by the subcommittee chairmen by contacting Prof. Gomes with copies of the requests sent to Dr. Work and Prof. Jin.

