

# INORGANIC CHEMISTRY DIVISION COMMITTEE OF IUPAC

Meeting at Grenoble 8<sup>th</sup> and 9<sup>th</sup> July 2004

## MINUTES

**Attendance:** *Present* were *President*, Anthony West, *Past President*, Gerd Rosenblatt, *Secretary*, Leonard Interrante; *Titular Members*: Alan Chadwick, Christian Chatillon, Norman Holden, Robert Loss, and Kazuyuki Tatsumi; *Associate Members*: John Corish and Tyler Coplen; *National Representative*, Venceslav Kaucic and *IUPAC Vice-President*, Bryan Henry. *Apologies* were received from *Titular Members* Claudio Biancini, Helmut Sigel and *Commission II.1 Chairman*, T. Ding, who could not attend.

### 1– Introductions and Announcements

The meeting commenced at ca. 9 a.m. on Thursday, July 8, 2003. President West, who had succeeded Past-President Rosenblatt after his resignation and its subsequent acceptance by the IUPAC president in May, 2004, welcomed the members and IUPAC Vice-President (and President-Elect) Bryan Henry to the meeting. He also thanked Chatillon for acting as the host for this meeting. He then asked Henry to say a few words about IUPAC.

Henry spoke briefly about IUPAC and noted that it was originally created because of the needs of the chemical industry; these needs continue today and part of our task is to find a way to better serve these needs in the future. He also indicated that he had been asked by IUPAC to carry out a critical evaluation of the new Project system and that he was trying to attend as many of the Division Committee meetings this year as possible to learn about their efforts to nurture and develop new projects. He noted that it is a policy of IUPAC to reward success and, therefore, those Divisions that generate a large number of high quality projects may qualify for extra funding through the Projects Program. He stressed that he was attending as an observer and to answer any questions about IUPAC and the Project system, rather than to offer direction or unsolicited advice.

Each of the members present at the meeting then introduced themselves and described their professional affiliations and areas of expertise.

### 2 – Agenda

The Agenda was modified by President West to include some changes in the order of discussion of several topics and a report by the visiting Vice-President (Bryan Henry) that he had requested regarding Henry's visits to other Division Committee meetings and their efforts to encourage/stimulate project proposals. This report was presented on the second day of this two-day meeting, (*see item 16*).

### **3- Minutes from Division Meeting in Ottawa**

Minor changes in the previously distributed minutes for the Ottawa meeting that had been suggested by Norman Holden were agreed upon. With these changes, the minutes were approved by unanimous vote and accepted as modified.

### **4 - Reports of IUPAC Bureau and Executive Actions (President, Past-president)**

Past-President Rosenblatt had previously transmitted to the Division members a copy of the minutes for the IUPAC Executive Committee Meeting on April 3-4, 2004. An oral report was not given at this meeting.

### **5- The Future and Status of Commissions and Sub-committees Within the Divisions of IUPAC - Prospects for Funding of Commission Activities Outside of the Project System (West, Coplen)**

Coplen gave a short presentation on the problems that had been experienced by Commission II.1 as a result of the adoption of the new “project-based” system by IUPAC in 2000. It was felt by many members of the Commission that this new system was not working well and that the mentoring aspect that was present in the old system was lost with the new system that did not encourage (i.e., by providing sufficient long range support for) face-to-face meetings of the task force members. There was some discussion about the budget allocations for the Commission before and after 2000 and Corish pointed out that, prior to 2000, the Commission had received ca. \$25,000/biennium, including travel for Titular members of the Commission to Division and IUPAC General Assembly meetings (in an estimate provided by the Commission, this sum was ca. \$20,000 for the last biennium). However, as was noted by Coplen and Holden, having to apply for all of these funds through Project applications that are based on specific, separate, tasks has proven to be problematic, given the strong interrelationship among, and continuing nature of, these tasks and the need for regular meetings and communication between the people involved. Moreover, this has turned out to be extremely time-consuming in terms of the paperwork required, and has resulted in much uncertainty about the continuity and the amount of funding that would be available. This was brought home by the initial and final results of the Division’s efforts at the end of 2003 to secure continuing funding for Commission activities. Several project proposals were submitted in 2003 for funding on behalf of the Commission at the end of the last biennium that were subsequently rejected by the outgoing IUPAC Secretary General and later on only partially funded by the incoming IUPAC President in 2004, after then-Division II-President Rosenblatt appealed against this decision. Vice-President Henry agreed that face-to-face meetings of the Commission were needed and that some certainty about the funding for Commission activities was also required. He felt that IUPAC could deal with this problem and agreed to take this up with the IUPAC Executive Committee.

## **6- Review of Division Budget Allocations and Expenditures**

The Division Project Coordinator, Coplen, presented the Division budget allocations and expenditures for Projects for the current biennium. The following single project was funded through the IUPAC Treasurer: 2003-033-1, Wieser, Determination of atomic weights using new analytical techniques; total committed: \$14,800. This left \$38,400 in the Division budget for Projects and \$12,800 for Operations, assuming a 25/75% split for Operations/Projects. This Operations portion of the budget is generally spent on the off-year Division Committee meeting, and this year's meeting in Grenoble is likely to consume nearly all or more of this allocation. Permission from IUPAC is required to move funds from Projects to Operations; however, such permission is usually granted with good reason.

## **7- Current Status of the Inorganic Division Officers and Titular Members**

Past President Rosenblatt and President West presented their interpretation of the current status of the Division Officers and Titular Membership that had come about as a result of the recent resignation of then-President Rosenblatt, his succession by then-Vice-President West, and the pending resignation of H. Sigel as Titular Member. Prof. Sigel had previously indicated, in an email message to President West and Secretary Interrante, that since he was unable to attend the current meeting of the Division and our next meeting at the IUPAC Assembly in Beijing due to other commitments at those times, "I consider it as fair to step down as a TM as soon as possible, but at the latest by the end of 2005 (you may decide this) that you can elect a new member either in Grenoble or at the latest at your meeting in Beijing." As a result of these resignations and the subsequent succession of West to the Division Presidency, the position of Division Vice-President is currently vacant, as well as one TM position. President West decided to take up the question of Sigel's proposed resignation with the Division Executive Committee, along with the choice of the next Division Vice-President (President-Elect). The results of these deliberations were to be announced to the Division Committee at the start of the second day of our Meeting on Tuesday, July 9, 2004.

## **8 - Report from Commission II.1 (and Sub-committees on Extra-Terrestrial Isotopic Ratios, Isotopic Abundance Measurements, and Applications of Isotopic Specific Measurements)**

Loss and Coplen presented a summary of the meeting of Commission II.1 in Ottawa, at the IUPAC Assembly. At this meeting, John de Laeter reported on the completion of the Report, "Atomic Weights of the Elements: Review 2000" and the need for an additional \$4,000 USD for reprints of Review 2000, which have since been delivered. Although the Subcommittee on Isotopic Abundance Measurements (SIAM) did not meet in Ottawa, a Table of Isotopic Compositions of the Elements has been prepared for publication by the same group of authors who had published the Review 2000 document. This report has been submitted for publication to J. Phys. Chem. Ref. Data. The Subcommittee for Natural Isotopic Fractionation has completed its work with two published reports; it was decided that this Subcommittee would not be renewed after Ottawa and it was disbanded in December 2003. The Sub-committee on Extra-terrestrial Isotopic ratios (SETIR) met under the

Chairmanship of M. Ebihara at Ottawa. The SETIR members reported on the progress of their work and their plans for publishing a review article in 2004. It was noted that the names of two members, E. Roth and C. Quétel, of SIAM had been left out of the listing in the 2004-2005 IUPAC Handbook and that this omission should be corrected.

A written report was received from SETIR Sub-committee Chairman Ebihara and is attached as *Appendix A*.

**Project number 2002-049-2-200, Isotopic Composition of the Elements for Global User Communities.** Loss reported briefly at the current Division meeting about the ideas behind this project, which held a workshop in Ottawa. This project was to develop a comprehensive system for the reporting of evaluated isotopic abundance data in the form of isotope ratios. It will prepare and publish a complete table of isotopic ratios for all elements taking into account natural isotopic variability. Prototype tables were generated using data for nickel, sulfur and osmium. Reporting data as isotope ratios rather than absolute abundances is a major departure. Recognizing the difficulties involved in the re-evaluation of the literature for many elements, the group proposed a new proposal number 2003-031-1-200, Isotopic Compositions of Selected Elements. A workshop was held in Reston, Virginia in April 2004, in which substantial progress was made, although much work still needs to be done. This is estimated to be a four to six year project that should lead to improved consistency between the Table of Isotopic Compositions and the Table of Standard Atomic Weights.

**Commission II.1 Report:** Chairman T. Ding, who was unable to attend this meeting, had previously submitted to the Secretary a written report, which is attached to these minutes as *Appendix B*. Coplen prepared a Power Point Presentation based on Prof. Ding's report and presented it on behalf of Prof. Ding. After describing the major activities of the CIAAW in the current year, the report mentioned some problems and made several suggestions, which are described in detail in the attached written version.

## 9- Reports from Other Sub-Committees

### Sub-committee on Materials Chemistry

Corish, the Sub-committee Chairman, reported that the last meeting of the Sub-committee was at the General Assembly in Ottawa. A copy of the minutes for that meeting had been previously circulated. There was insufficient time to set up and announce an "official" meeting of this Sub-committee as part of the current Division meeting here in Grenoble; however, if time and everyone's schedules permit it, an informal meeting of the Division members who were also members of this Sub-committee (West, Rosenblatt, Corish, Interrante, Chadwick, and Chatillon) would be held after the Division Committee meeting concludes on Friday.

Corish reported that he had not received a response from Prof. Bai regarding his offer, on behalf of the Sub-committee, to provide input to the planning of the "materials chemistry" portion of the IUPAC Biennial Congress in Beijing, despite that fact that it was previously agreed that the Division would be able to contribute to the planning of the Congress. In fact, it came out in the discussion that this lack of response from the Chinese organizers was also encountered by Division members Tatsumi (TM) and Mathur (NR), who had also made specific suggestions regarding the program for the Beijing Congress. Henry recommended

that we resubmit these suggestions, and our Division's request for input to the program, through the Division President and that we copy Fabienne Meyers on these attempts to provide input to the Congress program. Rosenblatt suggested that this might be a job for the IUPAC Executive Committee, to facilitate contact between the organizers of this next Biennial Congress and the IUPAC Divisions. In any case, it was agreed that we should make another, unified, response from the Division and that this should go through the Division President's office. Corish also reported that he had still not obtained a response from Steyn regarding the plans for WAM III, which was presumably to be held in Stellenbosch, South Africa in 2005 and that no application for funding from, or sponsorship by, IUPAC had been received as yet. He indicated that he would be trying again to get a response from Steyn immediately after this meeting (this subsequent contact led to a response that indicated that WAM III was indeed planned for September 5-8, 2005 in Stellenbosch, South Africa).

A written report was submitted to the Secretary by Corish and is attached to these minutes as *Appendix C*.

### **Sub-committee on Characterization of Carbonaceous Materials**

No response to a request for a report was received from the Sub-committee Chairman, Boehm, who was reported by Rosenblatt to be ill. According to Rosenblatt, as a consequence of Boehm's illness, this Sub-committee is currently "in limbo".

## **10- Claims for New Elements**

S. Corish reported that the proposed name for element  $Z = 111$ , Roentgenium, with symbol Rg, was currently in a period of public scrutiny, which would end on October 31, 2004. There are currently no indications of any objections to this name. The Joint IUPAC/IUPAP Working Party is currently inactive and will not resume work until sufficient publications regarding the discovery of any new elements emerge. Marinov continues to pursue his earlier claim for the discovery of element 112; however this claim had been firmly rejected by the Joint Working Party. Paul Karol has suggested that one new member of the Working Party may be needed. Any such member should be an acknowledged expert and he/she should not be involved with any of the participating laboratories. The Working Party would not be asked to commence work on assigning the discoveries of elements beyond 111 until sufficient new literature had emerged – Paul Karol would be asked to advise on this.

Rosenblatt noted that West should be prepared to report on the discovery of element  $Z = 111$  at the next meeting of the IUPAC Bureau in October. The Bureau had been empowered at Ottawa to formally approve the name, provided that all the requirements for its examination had been met, on behalf of the IUPAC Council.

A written report was provided by Corish, which is attached as *Appendix D*.

## **11- Reports from Other IUPAC Bodies**

### **Interdivisional Committee on Terminology, Nomenclature and Symbols**

Corish reported that this Committee seems to be working well with most of its business being conducted via email.

### **Chemical Nomenclature and Structure Representation Division (VIII)**

Neil Connelly had reported in an email message to the Secretary that the revised Red Book on Inorganic Nomenclature is out for public review, which will be completed by the end of August 2004. He will be meeting with 2-3 others of the project team in Budapest and they will finalize the book there. They expect to submit it for publication shortly thereafter and he hopes that "it will appear in all good bookshops in the New Year (or maybe for Christmas)".

### **12- Status of the 2004 Revision of the Periodic Table**

Rosenblatt reported that he had obtained agreement from IUPAC that the Inorganic Division would be coordinating this revision of the Periodic Table of the Elements and that, after approval of Element Z = 111, we will publish an article in PAC. He suggested that the Division President organize a task force to handle the subsequent public announcement. This new version of the periodic table, a preliminary view of which was shown to the Division members, will include only IUPAC approved recommendations and thus would not address any proposed changes in the overall structure and presentation of the Table, such as the appropriate position for the element H (Hydrogen) in this Table.

### **13- Project-by-Project Review**

Coplen presented a summary of the current status of the various Projects that are being pursued under the management of the Division Committee, and of the funding that had been allocated to these projects.

#### **1999-001-1-200 – Nomenclature of Inorganic Chemistry – Revised 'Red Book', Part 1; Project leader: Connelly; Division Project Monitor: Kaesz.**

The budget for this Project has been expended (\$9,930 allocated; \$9,921 spent) and the Project is on track for publication (*see item 11 regarding the report by Connelly*)

#### **1999-049-1-200 – Thermodynamic characterization of high temperature superconductors in the yttrium-barium-copper-oxygen system; Project leader: Voronin; Division Project Monitor: West.**

None of the funds that had been allocated to this Project (\$5,000) had yet been spent. Nonetheless, West reported that Voronin had indicated that this project was at the completion stage and that he wanted to extend its duration without additional cost. A short report was also received by Interrante from Voronin, which is attached to these minutes (*see Appendix E*).

**2000-002-2-100 – Standarization of methods for the characterization of inorganic membranes; Project leader: Ma; Division Project Monitor: Chadwick.**

\$5,000 had been allocated to this project but none of these funds have yet been expended. A brief report from Ma had been received (on June 24, 2004) by the Division Secretary indicating that most of the drafts that he had requested from the Task Force members had been received; however, after reviewing these drafts, he realized that considerable rewriting was required. Due to the busy schedule of the participants, the rewrite of the draft has not been completed. He will be going to two related meetings in the next four weeks (the 2004 North American Membrane Society Annual Meeting, June 27-30, 2004 and the 8<sup>th</sup> International Conference on Inorganic membranes, July 18-21, 2004) and will have the opportunity to discuss with all of the group leaders and to set the schedule for the submission of the rewrites. After these meetings, he will provide us with a report on his discussions with the group leaders and other leaders in the field. He will also provide us with an assessment and his recommendations regarding the feasibility of continuing the project. (*see full report by Ma: Appendix F*)

**2000-020-2-200 – Collecting, testing and dissemination of experiments in solid state and materials chemistry; Project leader: Kizilyalli; Division Project Monitor: Corish.**

Only \$225 of the \$8,600 that had been allocated to this Project had been expended. The Project leader, Kizilyalli, has been quite ill and has experienced difficulties in obtaining the reports from the other laboratories that are needed for this Project. As a result, the Project appears to be stalled at present.

**2000-022-1-200 – Characterization of Carbon Materials; Project leader: Boehm; Division Project Monitor: Rosenblatt.**

Nothing has been spent of the \$5,500 allocated to this project and, as was reported by Rosenblatt in Section 9, under **Subcommittee on Characterization of Carbonaceous Materials**, the Project leader has been ill and the Project should be considered as “on hold” for the present.

**2000-024-2-200 – Teaching of high temperature materials chemistry at universities; Project leader: Balducci; Division Project Monitor: Rosenblatt.**

Again, nothing had been spent of the \$4,800 originally allocated for this Project. Nonetheless, Rosenblatt reported that some progress has been made and that he expected to see Balducci in August at the Gordon Conference and would be discussing this with him. A short report was received by Interrante from Balducci, which is attached to these minutes (*see Appendix G*)

**2001-015-1-100 – Standard potentials of radicals; Project leader: Stanbury; Division Project Monitor: Rosenblatt.**

This Project was jointly funded with the Physical Chemistry Division (I) at the level of \$15,000, of which \$6,373 had been spent thus far. A detailed report from Stanbury had been received by the Division Secretary, which is attached to these Minutes as *Appendix H*. Rosenblatt reported that the Project has made good progress, but that they anticipated needing a 4<sup>th</sup> year and additional funds to complete it.

**2001-019-2-200 – Guidelines for mass spectrometric isotope ratio measurements; Project leader: Walczyk; Division Project Monitor: Coplen.**

Although none of the \$2,000 that had been originally allocated to this Project has yet been spent, Coplen reported that Walczyk, while being quite frugal, has attended 3 meetings and published one paper on the Project. A final meeting of the task force is planned for 2005, which will expend the funds and produce a final report.

According to Coplen, the purpose of this project is to improve data quality and data comparability in basic and applied research in the area of isotope measurements (such as between TIMS and ICP-MS measurements). Their plan is to create an awareness amongst users of potential sources of systematic bias in isotope ratio measurements and to build a consensus within the user community regarding possible recommendations for minimizing systematic bias in isotopic analysis. To execute their plan, they intend to design a list-server to discuss issues related to the harmonization of mass spectrometric measurement techniques and to make presentations at international meetings to create an awareness for harmonization issues amongst users. They also plan to publish a paper on perspectives of inorganic mass spectrometry. Whereas quality control issues, especially in the field of multicollector inductively coupled plasma mass spectrometry (MC-ICP-MS), are subject to often emotional discussions, their revised plan of action involves providing a choice of practical approaches for quality control, establishing quality standards in isotopic analysis and bringing 2-3 participants together to finalize the draft of the manuscript and expend the funds remaining.

**2001-042-1-200 – Review of isotopic abundances in extraterrestrial materials; Project leader: Ebihara; Division Project Monitor: Holden.**

The funding for this project (\$6,000) has been expended and the Project leader (who is also the SETIR Subcommittee chairman) reports that a 10-element literature survey is almost complete and draft of review article will be completed by September 2004 with publication to follow.

**2002-049-2-200 – A new comprehensive report on the isotopic compositions of the elements for global user communities. Phase 1; Project leader: Taylor; Division Project Monitor: Coplen and Holden.**

\$5,410 of the originally allocated \$8,000 was spent on a meeting of the Task Force at the Ottawa General Assembly. This leaves another \$2,590 for another meeting on this mainline Commission project.

**2003-006-1-100 – NMR chemical shifts – updated conventions; Project leader: Harris/Becker; Division Project Monitor: Chadwick.**

\$4,280 of the originally allocated \$7,000(\$2,000 from Division II) has been spent thus far on this Project. No further report regarding this Project was received from the Project leader or Project Monitor.

**2003-031-1-200 –Isotopic compositions of selected elements; Project leader: Berglund; Division Project Monitor: Loss.**

\$8,400 of the originally allocated \$12,000 has been spent thus far on this Project. The first meeting of the task force was held in Reston, VA in April of this year.

**2003-033-1-200 –Determination of atomic weights using new analytical techniques; Project leader: Wieser; Division Project Monitor: Loss.**

This core project of Commission II.1 was funded by IUPAC President Sydnes out of IUPAC treasury funds at \$14,800 for the current biennium (see item #6). Purpose of Project: New analytical techniques, including inductively coupled plasma-mass spectrometry, have recently provided atomic weights with unparalleled precision. The purpose of this project is to assess the uncertainties in these new methods in atomic-weights work, evaluate published work, and, if possible, make recommendations to update IUPAC's Table of Standard Atomic Weights.

**2003-034-1-200 –Classification, terminology and nomenclature of Borophosphates; Project leader: Kizilyalli; Division Project Monitor: West.**

\$16,000 has been allocated for this Project, none of which has thus far been spent. Due to the illness of Dr. Kizilyalli (see above), another the task force member, Prof. Rudiger Kniep, of the Max Planck Institute, has been asked to take over the leadership of this Project.

**High Temperature Mass Spectrometry: accuracy of the method and influence of the ionization cross-sections.**

Rosenblatt, the Project monitor, reported that this is a long-standing project within the Division that no longer has a Project number, nor is it "on the books" of IUPAC Projects; however, the Project leader, Chatillon, has continued the work and has recently completed a manuscript, which has been submitted for publication to PAC.

**14- Reports on Recent and Planned Division Sponsored Conferences**

Rosenblatt reported that the next High Temperature Materials Conference, HTMC XII, will be held in Vienna, Austria at the TCU, with A. Mikula as the Organizer. An informal committee, chaired by K. Hilbert, has been set up to solicit potential hosts for the following

Conference in 2009. As was noted previously by Corish, in his report on the Materials Chemistry Subcommittee, the status of the series of Workshops on Advanced Materials, and in particular, WAM III is currently uncertain and he is awaiting a reply from the proposed Conference organizers in South Africa. A detailed report was subsequently received by the Secretary regarding WAM III, which is attached to these minutes as *Appendix I (see also Item #9, Report on the Materials Chemistry Subcommittee by Corish)*.

At this point, the meeting was adjourned for the day, and was reconvened the next day at 9 a.m.

#### **15- Selection of Officers and a New TM for the Current Biennium**

President West reported on the results of the Division Executive Committee's discussions regarding the filling of the vacancies in the office of the Division Vice-President and on the Division Committee for TM that had resulted from his succeeding Rosenblatt as President in April 2004 and Sigel's offer to resign his position as TM. After consultation with the other officers, West had asked Tatsumi to fill the current term as Division Vice-President and Tatsumi had agreed. He will serve as Division Vice-President through 2009, pending approval of the IUPAC Bureau or Executive Committee. Sigel's offer to resign his position as TM was accepted by West who then asked current AM Coplen to serve as TM for the remainder of Sigel's term, through December 2005. Coplen subsequently agreed to this change in his position from AM to TM. A revised list of the members of the Inorganic Division, along with the dates for their initial service to the end of their current term, is attached to these minutes as *Appendix J*. In the case of the officers and TMs who had assumed their positions in the current (even numbered) year, due to the resignation of the previous holders of these offices, the terms extend to the end of the biennium (the odd numbered year) after the completion of their 4 year terms, subject in each case to the approval of the IUPAC Bureau or Executive Committee (*see Interim Revised Division Rules, Appendix K*).

#### **16- Nominating Committee for the Available TM positions**

West announced the selection of the new Division Vice-President, Tatsumi, as Chairman of the Division Nominations Committee for the upcoming Division Committee member election in 2005. Interrante volunteered to serve as the other current Division Committee member on this Nominating Committee. Several names were suggested as possible candidates for the three other (external) members of the Nominating Committee. Tatsumi will contact these individuals to determine their willingness to serve on this Committee. This Nominating Committee will solicit nominees from the members of the Division (including the TMs, AMs, NRs and Commission members) and then determine a "short list" of two-three candidates for each of the three open TM positions, with the understanding that the three positions will be restricted to candidates who are representative of one of the three main subject areas, Elements, Molecules and Solid State/Materials, that have been established as foci for the Division's activities. The election of TMs will be carried out by email, and should be completed by March 2005, so that the new TMs can be invited to attend the Beijing General Assembly and Division meeting in August.

## 17- The Division Rules

Rosenblatt and Corish had prepared and distributed to the members a proposed list of the revised Rules for the Inorganic Division (*Appendix K*), based on the model that Becker had suggested earlier. Many of the other Divisions were using this model as the starting point for their revised Rules. Holden had previously submitted to the Division Committee members a number of issues and specific suggestions relating to these Rules. One of these issues was the lack of a direct connection between the two Sub-committees that are currently part of the Commission structure (*see CIAAW diagram in Appendix N*) and the Commission itself. It was agreed by the members present that these Sub-committees should be formally recognized as part of the Commission and that they should report through the Commission Chairman. The agenda for the next Division meeting in Beijing will reflect this change in the Subcommittee reporting procedure. There was much discussion about these and other uncertainties about the Rules and, in particular, regarding what constitutes the Electorate for the Division TMs. Henry agreed to pursue the latter question in particular with the IUPAC Executive Committee. West asked Rosenblatt and Corish to consider the points raised by Holden and during the discussion, and to circulate another revised version of the rules for comments and final approval by the Division members.

## 18- Informal Presentation by IUPAC Vice-president Bryan Henry on the Project Solicitation Process Being Used by Other IUPAC Divisions

As requested by Division President West, Henry gave an overview of what he had learned about the Project solicitation and monitoring processes that were being used by the various other Divisions, from his visits to their Division Committee meetings this year. After the Division Committee meeting, he submitted a report to the Secretary regarding his impressions from the meeting, which are attached to these minutes as *Appendix L*.

He noted that "Division A" spent its entire meeting discussing strategy for soliciting Projects and that it was quite successful in getting Projects from their Young Observers. The Division Committee generates and nurtures projects, and they make extensive use of Conferences to develop project applications. They have a workshop associated with the General Assembly the aim of which is to generate 3 or 4 new projects. They also use Chemistry International to advertise and publicise the results of their completed Projects. Interdivisional cooperation works well for them and they make extensive use of web pages with typically one web page per project. They seemed to like the new system and felt that it was working well for them. They have a lot of projects, mainly of shorter duration (up to 3 years), which have brought in a number of new people and have generated publications. Most of these projects generally involve only one face-to-face meeting with most of the work done outside of these meetings, which were devoted mainly to coordination of the efforts.

Division B was a relatively large Division that used a subcommittee structure to generate projects. One TM oversees the projects of a particular subcommittee. Certain of these subcommittees have been more effective than others in generating and monitoring projects. They try to choose new members for their Division who will suggest projects.

Division C is a small Division that includes two members from industry. Each project has a mentor that keeps pretty close track of the progress on the project. They use the project system to get new members for the Division Committee. Each member is expected to

generate ideas for projects and find people to do the projects. They have three very diverse subcommittees that have established certain strategic directions for their projects; they have been quite successful in getting projects from less developed nations. They have more projects lined up than they can fund. They like the project system.

Division D has been probably the most successful in generating new projects. A 1-2 year feasibility study is done on almost all projects, usually without funding; they report on these studies at their Division Committee meetings. They do much work by email and typically have 6 projects running at any one time and several feasibility studies underway. Division members are typically on 3-4 task forces but they would chair only one. They have been successful in obtaining industrial support for their projects. They received a grant of \$150,000 from one corporation and use the interest from this money to generate projects.

In general, most of the other Divisions are managing 3 - 4 times the number of projects that we have. Henry mentioned several other potential sources for additional funding, including the Committee on Chemical Industry (COCI), which is involved in projects concerned particularly with the public perception of chemistry and industrial safety. The Committee on Chemical Education (COCE) is looking for joint projects, particularly involving the developing countries. Chemical Research Applied to World Needs (CHEMRAWN) runs international conferences; they try to generate projects from the conference reports. The International Committee for Scientific Unions (ICSU) involves IUPAC, IUPAP, the US NAS, RSC and others; they like to promote interdisciplinary and intersociety collaborations. They fund some very large projects, \$50,000 and up.

Some general comments about projects from Fabienne Meyers: it is suggested that Divisions use subcommittees to foster/nurture proposals and help to develop ideas; the subcommittee then takes the responsibility for the proposal and helps the project leader to develop a successful proposal; there are big differences among the Divisions in the degree to which they monitor their proposals – maintaining close and frequent contact with the Project leader leads to more successfully completed projects and publications. More publicity is needed for projects; generate write-ups for chemical industry and give them a web page; the role of the Project Coordinator is very important (Coplen was cited as a good example).

After Henry's presentation, there was some discussion about how we could be more effective in generating projects and in monitoring projects. It was generally agreed that the area of "molecular inorganic chemistry" needed particular attention and that we needed a Sub-committee to work on generating ideas for projects and people to carry them out. Rosenblatt suggested that Tatsumi might lead this effort to form a Sub-committee and explore project ideas, perhaps through a workshop to be held at the next General Assembly. Tatsumi agreed to organize such a Sub-committee and to look into scheduling a workshop. We agreed that we should try to hold at least two such workshops at the Beijing meeting, including one in the solid state/materials area. West will write to Kip Powell, of the Analytical Division, to ask for advice regarding how to set up these workshops and to Chun Li Bai regarding the Beijing GA and Congress programs. Chadwick noted that we need to make some improvements in our current "system" for monitoring projects. It was suggested that we generate a one-page Project report form, which we will send out via email to the Project leaders every 6 months, to be completed and returned to the project monitors. Coplen agreed to work on preparing such a form and to coordinate sending it out to the Project leaders.

## 19- Review of Pending Project Proposals

2003-027-1 – Ebihara – Review of Isotopic Abundances in Extraterrestrial Materials (Part 2) - \$8,000 was requested but not funded. This project is currently on hold, pending completion and publication of Part 1, which is expected later this summer or in the Fall of 2004. Thus, this project needs to remain on the books as a proposal upon which the Division has not yet made a decision.

2003-032-1 – Ding - Atomic Weights of the Elements 2005 - \$15,000. This project was rejected by the Secretary General; see Section 21.

2003-047-1 – Tuli – Publication of Nuclear Wallet Cards - \$5,000 requested. Rejected by the Secretary General. Division V declined to be involved.

2003-048-1 – Holden – Develop a method to combine uncertainty and variability in atomic weight and isotopic composition measurements - \$9,900. Holden indicated that he would like to hold on this for now, as he is not able to get started on it this year anyway.

2003-049-1 – Holden – \$9,900; withdrawn from consideration.

## 20- Role and Responsibilities of Commission II.1

Coplen and Holden presented a 18 point summary of the key areas of responsibility of Commission II.1 (CIAAW) *Appendix M*. It was generally agreed that the Commission needed to have direct funding on a long-term basis to support its activities. What was not so clear is where this funding would come from, how much was needed, and how this could be arranged. Rosenblatt said that the Treasurer of IUPAC could be asked for permission to use some of the project funds that are allocated to the Division for the operation of the Commission and that such a request would likely be received favorably; however, permission would be required every two years. Henry suggested that a long-term commitment could be made to the funding of Commission II.1. **Action:** West to write to the IUPAC President, with a copy to Henry, regarding continued funding of II.1 mainly from Division funds. It was suggested that the amount should be sufficient to allow the Commission to meet at least every two years (not necessarily to always coincide with the General Assembly) but would not be sufficient for them to run all of their projects; they would then need to request additional funds from the Division in the form of project proposals. Regarding the prospect of holding the next Commission meeting in conjunction with the Beijing General Assembly, it was agreed that the prospective costs of this, as opposed to a meeting in another location, should be considered, along with other factors, in determining the actual meeting site and dates.

It was proposed and agreed that the Chair of Commission II.1 should attend all regular Division II meetings to facilitate presentation of the Commission's activities. This can be authorized by the Division President. For Beijing, support for the meeting of Division II.1 has already been agreed. **Action:** West to write to David Black requesting use of Division funds for this. At the Beijing GA there may well be pressure on finding meeting rooms; we need to decide on our meeting times as soon as possible and inform J. Jost if we are to have

workshops, as in that case bigger rooms will be needed. Commission II.1 needs a room for 2 days.

Loss showed a graph that he had prepared that illustrated the structure of CIAAW (the Commission on Isotopic Abundances and Atomic Weights) and the interrelationship of the subcommittees (SIAM and SETIR) and projects within the Commission (*Appendix N*).

## **21- Review of New Project Proposals**

2003-032-1 – Ding - Atomic Weights of the Elements 2005 - \$15,000. Holden suggested that we consider this proposal withdrawn and instead fund the Commission at the level of \$12,800 (\$15,000, minus the cost of producing the report) out of Division funds. We subsequently agreed to do this.

## **22- Adjournment**

Henry thanked the Division Committee for accepting his presence at the meeting and commented that the isotopic abundance work was critical to IUPAC. West thanked Henry for his interest and contributions and Chatillon for his excellent organization of the meeting. The meeting was adjourned at 2:50 p.m. and was immediately followed by an informal meeting of the Materials Chemistry Subcommittee members present. The minutes of this meeting were not available at the time of this writing and will be distributed subsequently.

Leonard V. Interrante  
Secretary, Division II  
Troy, NY U.S.A.  
November 22, 2004

## **Appendix A: Report of the Subcommittee on Extra Terrestrial Isotopic Ratios**

Mitsuru Ebihara  
Chairman

The work on this project, which was expected to be finished at the end of 2003, has been delayed. The literature survey of ten major journals to obtain the appropriate literature to be cited in the subcommittee's review paper is almost complete.

The preparation of a draft version of the review manuscript will begin at the beginning of this summer. It is expected that the subcommittee will complete the draft of the review article by September 2004.

## **Appendix B: Report from the Commission II.1**

Prof. T. Ding, Chairman

### **1. The activities of Commission members in the first half-year of 2004.**

During the commission meeting in Ottawa, the members of Commission formed working parties to develop projects to be submitted to the Division as follows:

- 1) TSAW : the Biennial Table of the Standard Atomic Weights of the Elements.
- 2) Report on the Isotopic Compositions of the Elements for global user communities (part 2).
- 3) Guidelines for mass spectrometric isotope ratio measurements (part 2).
- 4) Review of Isotopic Abundances in Extraterrestrial Materials (part 2)
- 5) An application in the form of a project or otherwise to reprint the Element by Element Review of the Atomic Weights with a more substantial cover or book form of this publication.

Based on these proposals, the Division Committee proposed to IUPAC 4 projects. They are:

2003-027-1: Rev Isotopic Abund in Extrater Matr-Part 2

2003-031-2-200: Isotopic Compositions of Selected Elements

2003-032-1: Atomic Weights of the Elements 2005

2003-033-1 Determination of Atomic Weights Using New Analytical Techniques

Eventually, after a tremendous effort on the part of the Division, especially Division president G. M. Rosenblatt, two proposals (2003-031-2-200 and 2003-033-1) were approved. These two projects are being carried on by the members of the project groups. Besides, an old project, "A new comprehensive report on the isotopic compositions of the elements for global user communities" (2002-049-2-200), is also being carried on by the members of the project groups. The progress of these projects will be reported to the Division separately.

However, the other projects have not been approved by IUPAC yet. There is also a question of whether or not funds can be obtained from IUPAC to hold the Commission meeting in 2005 in Beijing. The commission had already failed to make a report on "Atomic Weights of the Elements 2003". We all know that the biennial report of the "Atomic Weights of the Elements" is the major outcome of our Commission's efforts. If nothing comes out in 2005, there will be a question on if the Commission itself is needed to exist.

Since the Commission meeting in Ottawa, hot discussion on the matter of our Commission has been carried on among members of our Commission, within the Division and between the IUPAC president and our Division president. However, no satisfactory conclusion has been achieved so far.

## 2. The state of the Commission.

Currently the state of our Commission is rather unclear.

### 1) Firstly, the position and functions of the Commission within the Division are not clearly stated:

In item 1 of the Division rules, it is stated that “The Inorganic Chemistry Division’s responsibilities are to promote, advance, and manage IUPAC activities in the broad field of Inorganic Chemistry, pure and applied. **The work covers areas from elements and their properties, through molecules and compounds, to complex solid-state materials**”. **The work on isotope chemistry is not mentioned.**

In item 9 (b): The Division Committee may recommend to the Council through the Bureau the creation of Commissions to study topics of international scientific or technical significance requiring agreement, standardization, or codification, under the provisions of B4.301. The creation, continuation, membership, and activities of Commissions of the Division are governed by the subsections of B4.3. However, **the Commission on isotopic abundances and atomic weight is not specified. And it seems that this Commission can be terminated anytime.**

### 2) The relation between our Commission and its former Sub-committees becomes obscure:

In the membership lists of IUPAC bodies, the Sub-committee on extra-terrestrial isotopic ratios and the Sub-committee on isotopic abundance measurements have become two of four Sub-committees under the Division. The relationship between these two Sub-committees and the Commission is not noted. The activities of these two Sub-committees can be arranged and guided by the Division Committee directly, and there is no need for involvement of the CIAAW.

### 3) One of the core projects, “Atomic Weights of the Elements 2005”, has not been approved

There was a discussion in Ottawa with the incoming IUPAC President and our President in which it was agreed that the continued funding of the work of the Commission would result from the submission of project proposals, which would undergo scientific review. However, one of the core projects, i.e. “Atomic Weights of the Elements 2005” was not approved by IUPAC and There is also a question of whether or not funds can be obtained from IUPAC to hold the Commission meeting in 2005 in Beijing. As a result, the activity of the Commission has been almost frozen.

If this situation is not changed, the Commission will cease to exist except in name. And if the Commission terminates its work, the work of the Sub-committees will be dispersed and their influence will be weakened.

## 3. Some thoughts on the future of the commission.

There seems to be no contradiction on the importance of work on atomic weights and isotopic abundances among the Bureau, the Division and the members of our Commission.

At the 1999 IUPAC General Assembly in Berlin, the Bureau issued the policy statement that “The Bureau wishes to emphasize that it is not the intention of the (organizational) changes that it has proposed to discontinue nor even to interrupt those activities, such as the collection and critical assessment of useful data, the work on **atomic weights and isotopic abundances,**

and on chemical nomenclature, on which the international reputation of the Union has been established. The proposed changes will provide more **flexible and effective** structures within which these activities will continue.”

In Ottawa the incoming IUPAC President and Division President agreed that the continued funding of the work of the Commission would result from the submission of project proposals. Then, based on the suggestions of the members of our Commission, the Division Committee proposed to IUPAC four projects. The Division President, Dr. Rosenblatt, gave strong support to these projects, and eventually resigned from the position of Division President as a result of the refusal of these key projects of the Commission.

There is no need here to explain the opinions of the members of our Commission regarding the importance of work on atomic weights and isotopic abundances.

The discrepancy between the different sides is how to carry on the work relating to atomic weights and isotopic abundances. The Bureau expected that “the proposed changes will provide more flexible and effective structures within which these activities will continue.” However, the members of the Commission and probably also Dr. Rosenblatt, have found the present situation is unstable and serious. This condition should be considered seriously in the Division meeting in Grenoble and proper suggestions of our Division on this matter should be presented to the Bureau of IUPAC.

The suggestions of Commission II-1 on these matters can be summarized as following:

- 1) **The first and minimum request is to find a way to carry on the project “Atomic Weights of the Elements 2005” and obtain funds to hold the Commission meeting during IUPAC assembly in Beijing.** On the latter subject, if the Bureau or Division can provide part of the funds, the Chinese members of the Commission will make an effort to seek some support from Chinese sources.
- 2) **Giving a proper description in the Division rules regarding the position and function of Commission II-1 within Division II and defining the relation between the Division and the Commission and between the Commission and the related Subcommittees.**
- 3) **It might be best to consider the formation of a new Division on Isotope Chemistry within IUPAC, in which the work on atomic weights and isotopic abundances will be the major task.** In recent years, isotopic studies have grown very fast in the geological, biological, environmental, medical and commercial fields. There is increasing demand from various sources that asks isotope chemists to help solve related basic problems, such as providing absolute isotopic ratios, certifying isotopic reference materials, defining measurement scales and determining isotopic fractionation factors. If a Division on Isotope Chemistry is formed within IUPAC, the activities of IUPAC will be widened and IUPAC will catch up with the trend of scientific progress. In so doing, the problem of the limited budget of Division II, and its tenuous connection with isotope chemistry, will disappear automatically.
- 4) **Looking for an alternate international umbrella organization to IUPAC for the Commission to operate under.** If the Commission’s present situation cannot be improved, it might have to look for an alternate international umbrella organization to IUPAC for the Commission to operate under. We hope that it would not ultimately be required to find such an alternative organization.

### **Appendix C: Report on the Materials Chemistry Sub-Committee**

The Materials Chemistry Sub-Committee has not met since the General Assembly in Ottawa. When this Division Committee was originally scheduled for these dates in Grenoble it was intended to include in the schedule a meeting of the Sub-Committee, or at least of those members from this Division, but the several months of uncertainty that preceded this meeting made planning for this impracticable.

A number of actions for the current biennium were agreed at Ottawa in the general areas of projects, utilisation of the IUPAC Lecturer scheme and the WAM series of meetings. It was also agreed that a Website dedicated to the work of the Sub-Committee would be established and linked to the IUPAC site.

In so far as I am aware no progress has been made with either of the projects discussed nor with the preparation of the website. A separate report will be presented to this meeting on the efforts to organise WAM III in South Africa, which was the first potential site chosen at Ottawa.

Outside of the programme agreed at Ottawa, the chairman reported that on receipt of the First Circular for the IUPAC 40<sup>th</sup> Congress at Beijing he had noted that Session 3 was to be devoted to 'Materials Chemistry and Nanochemistry. He had been advised by the then Division President that this session was being organised by Professor Steptoe, the President of Division IV. He had contacted Professor Steptoe who had replied that whereas he had passed on some suggestions for Session 5 (on another topic), that Session 3 was, as far as he was concerned, wide open. He suggested writing to Chunli Bai, one of the organisers and copying to the incoming IUPAC President, the then President and Secretary General and to the Secretariat. This he had done on December 5<sup>th</sup> of last year offering the expertise of the Materials Sub-Committee to the Congress for session 3 in the selection of topics and of speakers and in any other way in which assistance could be provided. No reply had been received from any of those contacted and there the matter had rested.

John Corish,  
Dublin,  
July 4<sup>th</sup>, 2004.

#### **APPENDIX D: Report on the naming of new elements**

Since the General assembly at Ottawa the Provisional Recommendation for the naming of the element of atomic number 111 has been published. The name proposed by GSI, the group to whom priority was assigned by the joint IUPAC/IUPAP Working group, is Roentgenium symbol Rg. This proposal was first informally examined and approved by an expert group and then formally approved by the Division Committee to go forward to the next stage of the process. The Provisional Recommendation was then put onto the IUPAC website and is currently its requisite period of public scrutiny. It has simultaneously been sent to in excess of twenty referees – fifteen positive responses are required.

At Ottawa the IUPAC Bureau was given the authority by the Council to formally approve the name of element 111, provided that all the standard requirements with respect to the reviewing process have been met. The period of public scrutiny and review will end on October 31<sup>st</sup> next and this is the earliest time at which the name can be approved.

The IUPAC/IUPAP Working Group is inactive at the moment and will not resume its work until sufficient new publications emerge to warrant a new examination of discovery claims. One piece of business remains from the last report of the Working Group. One claimant, Professor Marinov, disputed the findings of the report in respect of element 112 which he claims to have discovered in 1971. But the response that he submitted was considered as unsuitable for publication in PAC. Professor Marinov continues to dispute all of these decisions and has now again submitted a slightly revised response for publication and has written directly to the Presidents of both Unions to make his case. His letter to the President of IUPAC was noted in the minutes of the Executive Committee from Bangalore.

John Corish,  
Dublin,  
July 3<sup>rd</sup> 2004.

**Appendix E: Report on Project 1999-049-1-200 – Thermodynamic characterization of high temperature superconductors in the yttrium-barium-copper-oxygen system (from Project leader Voronin)**

Moscow 28.06.04

To: IUPAC Division II President Prof. Anthony West  
cc: IUPAC Division II Secretary Prof. Leonard Interrante

Dear Colleagues:

The work at the project 'Thermodynamic characterization of high-temperature superconductors in the yttrium-barium-copper-oxygen system' is at the completion phase. Last year some complication took place because of departure two active members of task group from Russia abroad on the long time. In this connection I would like to ask you about possibilities (1) to extend the staff of the project task group on one new member, (2) to use the available budget of the project for the future work.

Regards,

Prof. Gennady Voronin (TGC)

**Appendix F: Report on Project 2000-002-2-100 – Standarization of methods for the characterization of inorganic membranes (by Project Leader Ma)**

Dear Professor Interrante:

June 24, 2004

As indicated in the last report, most drafts were received. Infuriately, after reviewing the drafts, considerable rewriting was required. Due to the busy schedule of each individuals, the rewrite of the draft has not been completed. I will be going to two related meetings in the next four weeks and will have the opportunity to discuss with all the group leaders to set the schedule of the submission of the rewrite. The two meetings are: The 2004 North American Membrane Society Annual Meeting, June 27-30, 2004 and The 8<sup>th</sup> International Conference on Inorganic Membranes, July 18 - 21, 2004. After the meetings, I will provide you with a report on my discussions with the group leaders and other leaders in the field. I will also provide you with my assessment and recommendations on the feasibility of continuing the project.

I will be departing early tomorrow morning for North American Membrane Society Meeting and will not have access to e-mail but will communicate with you after my return from the meeting.

I apologize for the lack of progress in the past year.

Sincerely yours,

Ed Ma  
Frances B. Manning Professor of Chemical Engineering

**Appendix G. Report on Project 2000-024-2-200 – Teaching of high temperature materials chemistry at universities (from Project leader Balducci)**

A first draft report was submitted last year to task group members and to a number of colleagues expert in the area of properties and behavior of high temperature materials. They were asked to send comments, suggestions and integrations useful to prepare a second draft of the document. Only few responses were received (I regret for this). However the document has been improved since by adding some suggested topics to the list with accompanying explanations and with a number of useful references taken from the general list of references. This work is still in progress and is the basis for a second draft report. I intend to submit this draft (although incomplete) to the task group members before the next Gordon Conference (to be held beginning of August) where some of them could meet, discuss and improve the document.

G. Balducci

**Appendix H. Report on Project 2001-015-1-100 – Standard potentials of radicals (from Project Leader Stanbury)**

George Wilson  
Cc: Anthony West, Leonard Interrante, Gerd Rosenblatt  
IUPAC Program Officer  
Dept. of Chemistry  
University of Kansas

July 1, 2004

Dear George:

This is a progress report on my IUPAC grant: IUPAC Project - Standard Potentials of Radicals.

As you recall, the grant started in January 2002, and we had the first task group meeting in May, 2002, in Braunwald, Switzerland. At that time we all met face-to-face for the first time, refined the scope of the project, identified short-term and long-term tasks, and assigned tasks to the various task-group members for the forthcoming year. None of the costs of that meeting were covered by IUPAC, as we had additional funding from ETH (Zurich). Over the next year we started the process of evaluating specific radical equilibrium constants and redox potentials. One task-group member resigned (John Butler, UK), and another task-group member was added (Dave Armstrong, Calgary). For three days spanning May and June 2003 the task group had its second meeting, again in Braunwald. This second meeting incurred IUPAC expenses.

Now we have had our third annual meeting, again in Braunwald, during the days of June 6-8, 2004. A new task group member attended this meeting, Steen Steenken, who is a radiation chemist from Germany. Significant progress on the task was reported, with the following highlights. 1) A confidential web site for the project has been created. This web site will eventually take the form of the final product of the task group. As we also plan to publish the results in a journal, it is necessary for copyright reasons to keep the web site confidential. This web site does not display all of the work conducted by the task group, but it does indicate the general form of the results as they are developing. If IUPAC personnel would like permission to access this web site, please contact me (David M. Stanbury). 2) We have established a

collaboration with Branko Ruscic (at Argonne National Labs, USA), who is using optimization software to process a thermochemical network that is constructed from our recommended equilibrium constants. This optimization is leading to a self-consistent set of thermochemical data for radicals in the network, and it also propagates uncertainty in a systematic way. 3) Dr Steenken, who has now joined the task group, will extend the range of radicals considered by the project to include those derived from nucleotides. 4) A consensus is emerging regarding the hotly contested equilibrium constant for homolysis of HOONO. 5) A consensus has been reached regarding many of the important reference radical potentials. 6) Many more evaluations for specific equilibrium constants and standard potentials have been generated and approved.

With the costs of this third meeting, our IUPAC funds will be largely consumed. Although we are making good progress, it seems as though we may require a 4<sup>th</sup> year to complete the project. We will be contacting appropriate IUPAC personnel to discuss the options for a project extension.

Sincerely, David M. Stanbury

### **Appendix I: Report on WAM III Conference proposed for Stellenbosch September 2005**

Following contact with Professor Steyn immediately after the General Assembly in Ottawa a letter was sent on September 19<sup>th</sup> 2003 asking that a local Organising Committee be put in place and seeking the information necessary to make the application for funding to the UNION. A reply was received on February 2004 indicating that the Organising Committee had been constituted comprising members from Stellenbosch University, the University of Capetown, the University of the Western Cape and iThemba Laboratories, formerly the National Accelerator Centre. September was to be the proposed date and the letter included details on some of the membership of the Committee, a list of proposed themes and sought input and advice. Professor Steyn also indicated that he had made initial approaches to the South African Government through the Director General of the Department of Science and Technology. A reply was sent immediately saying that the Sub-Committee on Materials chemistry would be very happy to assist and advise as he had requested and reminding him that we still required the basic information required to make application to the UNION for funding. I also asked him to nominate a particular person on the Committee with whom I could communicate as he had indicated that because of pressure of work he would not be able to fully participate himself. I also outlined the model used in the two earlier WAM Meetings. I asked for a prompt reply but there has been no further communication. I heard from Professor Steyn in May on another matter and again reminded him of the need for further information and sent another direct request in July. So far there has been no reply.

I have also been in contact with the secretariat and understand that, as yet, no application for funding has been received.

John Corish,  
Dublin,  
July 4<sup>th</sup> 2004.

## Appendix J: Current Membership of the Inorganic Division



### Inorganic Chemistry Division Committee 2004-2005

<b>Name</b>	<b>Status</b>	<b>IUPAC service</b>	<b>NAO</b>
<b>*Prof. Anthony West</b>	<b>TM President</b>	<b>2000-2005</b>	<b>UK</b>
<b>*Prof. Kazuyuki Tatsumi</b>	<b>TM Vice President</b>	<b>2002-2005</b>	<b>Japan</b>
<b>*Prof. Leonard Interrante</b>	<b>TM Secretary</b>	<b>2000-2007</b>	<b>US</b>
<b>*Dr. Gerd M. Rosenblatt</b>	<b>TM Past-President</b>	<b>1996-2005</b>	<b>US</b>
<b>Prof. Alan V. Chadwick</b>	<b>TM</b>	<b>2002-2007</b>	<b>UK</b>
<b>Prof. Christian B. J. Chatillon</b>	<b>TM</b>	<b>2000-2005</b>	<b>France</b>
<b>Dr. Norman Holden</b>	<b>TM</b>	<b>2002-2005</b>	<b>US</b>
<b>Prof. Claudio Bianchini</b>	<b>TM</b>	<b>2002-2007</b>	<b>Italy</b>
<b>Dr. Robert D. Loss</b>	<b>TM</b>	<b>2004-2007</b>	<b>Australia</b>
<b>*Dr. T. B. Coplen</b>	<b>TM Project Coordinator</b>	<b>2000-2005</b>	<b>US</b>
<b>Prof. Tiping Ding</b>	<b>AM Chairman, Commission II.1</b>	<b>2004-2005</b>	<b>China/ Beijing</b>
<b>Prof. John Corish</b>	<b>AM</b>	<b>1996-2005</b>	<b>Ireland</b>
<b>Prof. Vladimir P. Fedin</b>	<b>AM</b>	<b>2002-2005</b>	<b>Russia</b>
<b>Prof. Herbert D. Kaesz</b>	<b>AM</b>	<b>1998-2005</b>	<b>US</b>
<b>Prof. Myunghyun Paik Suh</b>	<b>AM</b>	<b>2002-2005</b>	<b>Korea</b>
<b>Dr. Milan Drabik</b>	<b>NR</b>	<b>2004-2005</b>	<b>Slovakia</b>
<b>Prof Ahmet Gul</b>	<b>NR</b>	<b>2004-2005</b>	<b>Turkey</b>
<b>Dr. Vimal K. Jain</b>	<b>NR</b>	<b>2004-2005</b>	<b>India</b>
<b>Prof. Venceslav Kaucic</b>	<b>NR</b>	<b>2002-2005</b>	<b>Slovenia</b>
<b>Prof. Henrique E. Toma</b>	<b>NR</b>	<b>2002-2005</b>	<b>Brazil</b>
<b>Prof. S. Mathur</b>	<b>NR</b>	<b>2004-2005</b>	<b>Germany</b>
<b>* members of the Division Executive Committee</b>	<b>10TM, 5AM, 6 NR</b>	<b>From beginning of IUPAC service to end of current term</b>	



## Commission on Isotopic Abundances and Atomic Weights

Name	Status	Current Term	Past Service	NAO
Prof. T. Ding	TM Chair	2004-2005		China/Beijing
Prof. M. Wieser	TM Secretary	2004-2005		Canada
Dr. M. Berglund	TM	2004-2005		Belgium
Dr. J.K. Böhlke	TM	2004-2005		US
Dr. T. Walczyk	TM	2004-2005		Switzerland
Dr. S. Yoneda	TM	2004-2005		Japan
Dr Mo-tian Zhao	TM	2004-2005		China/Beijing
Dr. A. M. Foulliac	AM	2004-2005		France
Dr. H. Hidaka	AM	2004-2005		Japan
Prof. Y. K. Xiao	AM	2004-2005		China/Beijing
Dr. P. de Bièvre	NR	2004-2005		Belgium
Dr. J. de Laeter	NR	2004-2005		Australia
	7 TM, 3 AM, 2NR			

### Representatives on Standing Committees

Education: Professor Leonard Interrante

ICTNS: Professor John Corish

## Appendix K: Interim Revised Division Rules

### Inorganic Chemistry Division (II)

#### DIVISION RULES

1. The Inorganic Chemistry Division's responsibilities are to promote, advance, and manage IUPAC activities in the broad field of Inorganic Chemistry, basic and applied. The work covers areas from elements and their properties, through molecules and compounds, to complex solid-state materials.
2. The Division is managed by its Division Committee under the Statutes, Bylaws, and policies of the Union; *cf.* S10 and B4.1 and their subsections. The Division Committee initiates and manages scientific projects, conferences, and other activities in Inorganic Chemistry and cooperates with other Divisions and Standing Committees in interdisciplinary programs.
3. In accord with B4.103, the composition of the Division Committee is as follows:
  - (a) No more than 10 Titular Members (including all Officers as defined below)
  - (b) No more than six Associate Members
  - (c) No more than six National Representatives
4.
  - (a) Titular Members of the Division Committee are nominated and elected for a term of four years by an electorate defined by Bureau decisions pursuant to B4.103. Candidates for titular membership are nominated by the Nominating Committee described below.
  - (b) Associate Members may be elected by the Division Committee for a term of two years, subject to reelection for a second two-year term, as provided in B4.103.
  - (c) National Representatives may be elected by the Division Committee on nomination by National Adhering Organizations for a term of two years, subject to reelection for a second two-year term, as provided in B4.103.
  - (d) Interim appointments to fill vacancies on the Division Committee occurring between meetings may be made by the Division President, after consultation with the other Division Officers, for a term ending at the end of the year in which the next General Assembly is held. Interim appointments are subject to approval by the Bureau or Executive Committee.
5. Candidates for Titular Member of the Division Committee are named by a Nominating Committee, prescribed by IUPAC policy and procedures defined by the Bureau, as follows:
  - (a) The nominating committee consists of five members (subject to an exception by the Bureau), with no more than two members from the existing Division Committee and the other three members chosen from outside IUPAC on the basis of the breadth of their expertise. The Division President will not be a member of the Nominating Committee.

- (b) The Nominating Committee is appointed by the Division President with the concurrence of the IUPAC Executive Committee.
  - (c) Categories of vacancies may be established by the Division Committee if desired to ensure diversity in subject-matter expertise, geographic distribution, or other characteristics. More than one nominee for each vacancy is desirable but not required.
6. Elections are conducted by electronic mail following procedures defined by the IUPAC Secretariat.
7. The Officers of the Division are as follows:
- (a) The President is the administrative head of the Division, chairs meetings of the Division Committee, and is an *ex officio* member of all bodies of the Division. The President serves as a member of the Bureau and is the principal representative of the Division within and outside the Union.
  - (b) The Vice President (President-elect) acts for the President in his absence and assists the President as requested. He shall assume the office of Division President in the event of the President being unable to perform the functions of that office, without prejudice to the forthcoming period of office as President.
  - (c) The Secretary assists the President in carrying out the business of the Division and maintains the records of the Division.
  - (d) The immediate Past President assists the President as requested.
8. Officers of the Division are elected by the Division Committee, subject to final approval by the Council. The Officers together form an Executive Committee to act for the Division Committee between meetings. Subject to limitations in B4.103, the terms of office are as follows:
- (a) The President, and Vice-President each serve a term of four years, not subject to reelection.
  - (b) The Past President serves a term of two years not subject to reelection.
  - (c) The Secretary serves a term of four years and is eligible for reelection to a second term of four years.
9. (a) The Division Committee may establish and the Division President may appoint subsidiary bodies, such as subcommittees, working parties and advisory groups, which all may have the status of Division subcommittees as described in S10.6. The terms of reference or charge to each group, as well as its lifetime, shall be established by the Division Committee. Task groups will be formed to carry out specific projects under general IUPAC policies for the conduct of projects.

- (b) The Division Committee may recommend to the Council through the Bureau the creation of Commissions to study topics of international scientific or technical significance requiring agreement, standardization, or codification, under the provisions of B4.301. The creation, continuation, membership, and activities of Commissions of the Division are governed by the subsections of B4.3.
  - (c) The Division Committee and Division President exercise responsibility and oversight over all bodies created under parts (a) and (b).
10. These Rules may be amended by the Division Committee, subject to approval by the Council.

**APPENDIX L: Report by Vice-President Bryan Henry****REPORT ON IUPAC TRIP TO GRENOBLE FRANCE FOR DIVISION II MEETING**

I attended the Division II off year meeting to obtain insight into the operation of the project system within this Division. Division II has one of the two Commissions remaining within IUPAC and, in part, because of this, they have encountered some difficulties with the transition to the project mode of operation. I was warmly welcomed to the meeting and fully included in all of the discussions. The format of the meeting consisted of round table discussions among the twelve participants. The meeting was non confrontational with an emphasis on moving forward and finding pragmatic solutions to allow the Division to participate fully, and to succeed within the current IUPAC framework. At the close of the meeting, they very kindly expressed their appreciation of my presence, and assured me that my participation had been helpful in their deliberations. In what follows I will focus on aspects of the meeting relating to the project system. It is not intended to be a record of all that took place but rather a summary of my own impressions. In places, for reasons of clarity, I have grouped discussions together that occurred at different times but were related to the same issues.

The meeting began with a frank discussion of the problems facing the Division within the new IUPAC structure. The Division activities have three main thrusts: Atomic Weights, Isotopes, etc (Commission II.1), Materials, and Molecular Inorganic Chemistry. The first of these areas is the one with most of the active projects. There was unanimous agreement that work in this area was important, of a high scientific standard, and a valuable part of IUPAC activities. However the Division believes that concentration in this area and attempts to deal with problems relating to II.1 have resulted in neglect of the other two areas. By the end of the meeting, generation of projects and increased activity in the latter two areas were identified as major strategic goals. In particular they will set up a subcommittee in the Molecular area to nurture and build this aspect of their activities.

While there are clearly some misconceptions about the central operations of IUPAC, the difficulties relating to II.1 are real. Work in this area is carried out by an expert, and highly dedicated and coordinated group of scientists. There are some internal issues, particularly within the Subcommittee on Isotopic Abundance Measurements, that can be dealt with by minor changes within the operations of the Division. The Division recognizes these issues and is prepared to deal with them. The Division also has a concern with possible procedures to retrieve money from projects that have exceeded their completion dates. However the main perceived difficulties relate to the operations of II.1. In essence the problems of II.1 involve the need to finance face to face meetings of the commission and to do so in a reliable, secure and predictable fashion. The Division is convinced, and I agree, that II.1 requires such meetings to operate successfully. After some discussion that proceeded at various times throughout the two days of the meetings, there was general agreement that a meeting of II.1 need not occur at a General Assembly but should occur at the economically most feasible and convenient location. They will analyze Beijing with these thoughts in mind to decide whether or not to meet there.

While funding such meetings of II.1 through successful applications for several related projects with common task group members is an option, the Division believes that this is inefficient, time

consuming and does not provide the reliability and certainty required for planning. Some form of block funding to II.1 with most or all of the funds coming from the Division budget could go a long way to meeting many of their concerns. Such a block grant would fund the core operations of II.1, while access to the project system in the usual competitive fashion could provide additional funds to accomplish their scientific goals.

The Division realizes that the amounts of money available under the project system are at least as large, or larger, than under the previous commission system. In fact they discussed comparisons of funding for II.1 in the 2000-2001 (old system) and 2002-2003 (new system) biennia and noted the significant increase in the latter period.

They noted that Commission II.1 still must satisfy the bylaws under 4.3 that were designed at the time of IUPAC's previous Commission based operations. While no specific instances of problems were identified, there was a concern that some revision may be needed to reflect the current reality.

The need for timely revisions of atomic weights was discussed along with the fascinating issue of isotopic abundances and their variation. ICP-MS produces results that are often in disagreement with the more traditional TIMS determinations. However my understanding from the discussion (and I caution that I am certainly not an expert in this area) is that only the latter data are used in revising existing atomic weights. Thus the Division believes that it is indeed timely to proceed with such revisions.

The Division fully supports Professor West and is grateful that in the current circumstances he has agreed to assume the role of President. Professor Rosenblatt has agreed to stay on and continue to provide valuable assistance and advice in the role of Past President. Professor Tatsumi has been elected to the position of Vice-President. Dr. Ty Coplen was nominated to fill a Titular Member vacancy.

The Division Budget was reviewed as were existing projects. Division II has a very successful monitoring system whereby each project is assigned an individual monitor. Currently Task Group Chairs are asked to respond on the status of projects on an annual basis. The Division agreed on the basis of later discussion (*vide infra*) that a common form should be devised and that task groups should respond every six months through their monitors. They noted that a significant amount of money was available for projects, and they needed to do a better job in generating and preparing project applications, particularly in the Materials and Molecular areas, to access these funds.

They discussed participation in the Beijing Congress and expressed some frustration on the lack of feedback from Congress organizers on their suggestions.

They reviewed progress on the naming of element 111, Roentgenium, Rg. In their view everything is proceeding smoothly and they understand that the name is likely to be approved at the upcoming Bureau meeting subject to no negative comments by October 31, the end of the period for public scrutiny.

They discussed the production of a new periodic table made in accordance with all existing IUPAC recommendations and including 111. They understand that the new table will come out after Bureau approval in October.

The Division is concerned that suggestions for nominations from NAO's for new members to serve on the Division Committee reach the nominating committee in time that elections can be held so that the newly elected members can participate in Beijing. *(Note: The Secretariat is aware of this concern and has set up a timetable requesting NAO input that meets the desired timelines.)*

At the conclusion of the first day of the meeting, the President asked if I could make a presentation the next morning that focused on what the other Divisions and groups that I had visited were doing with regard to the Project system. The following morning, I spoke for about 20 minutes summarizing what I had learned from visits to Divisions IV, V and VII, and from meetings with Tom Tidwell (Division III), Peter Atkins (CCE), David Evans (COCI), John Malin (CHEMRAWN) and Fabienne Meyers (Secretariat). An extensive discussion occurred that lasted for about two hours. Several of the actions mentioned in the preceding paragraphs (e.g. six month reporting, activation of project activity in Materials and Molecular, etc.) arose in part from this discussion. There was extensive discussion of strategies for generating projects and publicizing existing projects.

The Division expressed the need to move forward and to participate more actively and effectively in the project system. While the activities relating to Commission II.1 will continue to be the primary scientific focus, there is a clear initiative to broaden Division activities. The meeting ended on an optimistic note. It was a very real pleasure to participate and I welcomed the opportunity to become more aware of Division II activities.

## Appendix M

### Responsibilities of Commission II.1 by N. Holden<sup>1</sup> and T. B. Coplen

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#### Responsibilities and Tasks of the Commission on Isotopic Abundance and Atomic Weights (CIAAW)

1. Prepare and publish a Table of Standard Atomic Weights (TSAW) every two years.
2. Prepare a Table of Relative Atomic Masses and Half-lives to allow users to determine an atomic weight for samples of an element without any stable or long-lived nuclides.
3. Prepare a Table of Isotopic Composition Evaluations (TICE) about every six years.
4. Resolve any discrepancies between Atomic Weights from TSAW (1) and TICE (3).
5. Provide information on the isotopic abundance ratios of extra-terrestrial samples.
6. Distribute their biennial report to 75 publishers and other organizations.
7. Prepare and publish a 4-place Table of Atomic Weights for students, periodically.
8. Prepare and publish a timely 5-place Table of Atomic Weights for bench chemists.
9. Evaluate natural isotopic fractionation effects on isotopic ratios of the elements.
10. Investigate the differences in isotopic composition derived from thermal ionization (TIMS) and from inductively coupled plasma (ICP-MS) mass spectrometer instruments.
11. Study how to decide whether a particular element is natural occurring or synthetic.
12. Evaluate impact of the uncertainty in atomic mass on uncertainty in atomic weight.
13. Study the best method for treating and presenting asymmetric uncertainties in data.
14. Study methods to combine instrument bias, reproducibility, man-made and natural variability, and statistical variations to determine an overall total uncertainty in measurement.
15. Define what a Standard Atomic Weight value of a chemical element should be, what type of uncertainty is appropriate, and how it should be best presented.
16. Study how to treat relative isotopic abundance ratio data (delta values) and the best method for incorporating such data with absolute isotopic abundance measurement data.
17. Provide isotopic abundance data for geological, biological, environmental, medical, commercial, chemistry and physics users, and forensic analysis for homeland security.
18. Provide help to isotope chemists with absolute isotopic ratios, certifying isotopic reference materials, and defining measurement scales and isotopic fractionation factors.

## Appendix N - Structure of Commission II.1

### CIAAW Structure

