Analytical Chemistry

by Brynn Hibbert, division secretary

The Analytical Chemistry Division (Division V) Committee duly convened in the steamy Caribbean island of Puerto Rico. The Spanish colony that had resisted the Dutch and British for 400 years, finally succumbed in the Spanish-American war of 1899. It now hosts cruise ships and international conferences in its purpose-built congress center. Eleven members of the Analytical Chemistry Division Committee came together, under its President Aleš Fajgelj, to plan its activities for the following biennium. Division V tends to be at the heart of collaborations—making chemical measurements is an indispensable part of every activity of every division, and so much of the work of the committee revolves around meeting and greeting friends from across the organization. IUPAC President Nicole Moreau spent time with the group, listening and contributing to the discussions.

Division V has two major subcommittees, the Subcommittee on Solubility and Equilibrium Data (SSED), and the Interdivisional Working Party on Harmonization of Quality Assurance (WPHQA). These bodies turn out a vast number of reports and recommendations, and have contributed to the prominence of the division. The SSED critically evaluates solubility and equilibrium data that have been published in the scientific literature, and produces the majority of the division's published output. In a collaboration with the National Institute for Standards and Technology, the division publishes the IUPAC-NIST Solubility Data Series in the American Institute of Physics's *Journal of Physical and Chemical Reference Data*. Clara Magalhães, the subcommittee chair, reported that the 100th issue of the series will soon be published–a stunning achievement considering each volume is comprised of many parts.

The WPHQA is the focus for metrology in chemistry, an expanding and increasingly important aspect of our work, impacting as it does on decisions made in healthcare, the environment, forensics and all aspects of trade. The IUPAC Technical Report "Metrological Traceability of Measurement Results in Chemistry: Concepts and Implementation" was first published online in June 2011 after 10 years of continuous work by the four authors (P. de Bièvre, R. Dybkaer, A. Fajgelj, D. B. Hibbert. *Pure Appl. Chem.* 2011, Vol. 83, No. 10, pp. 1873–1935; http://dx.doi.org/10.1351/PAC-REP-07-09-39). This is an example par excellence of the long-term view that is often taken by IUPAC in order to prepare thoughtful and important works for the world of chemistry.

The central effort of the division, started in Glasgow in 2009, is the revision of the Orange Book under the editorship of the Division Secretary. *The Compendium of Analytical Nomenclature, 3rd Edition*, the so-called Orange Book, was published in 1997 and—apart from a pioneering online version prepared by David Moore www.iupac.org/publications/analytical_compendium (and interestingly a Catalan version of the second edition in 1987)—has grown old gracefully while seeing the rise of the IUPAC online Gold Book, and enormous changes in the practice of analytical chemistry. The 4th edition of the Orange Book will have a new title, and 11 new and completely revised chapters. Each chapter is being coordinated by an active member of the division and is funded through the project system. If you are interested in this work and think you can help, please contact the appropriate team leader, or the editor (Brynn Hibbert).

The Analytical Division Committee at the San Juan General Assembly (photo Boguslaw Buszewski)

Chapter	Title	Chair
Chapter 1	Fundamental concepts and terms (metrology), chemometrics (and statistics), quality assurance.	Paul De Bièvre
Chapter 2	Sampling and sample preparation	Zoltan Mester
Chapter 3	Methods of analysis depending on measurements of mass and volume	Maria F. Camões
Chapter 4	Separation	Tatyana Maryutina
Chapter 5	Spectroscopic methods of analysis	Yngvar Thomassen
Chapter 6	Mass spectrometry	Zoltan Mester
Chapter 7	Electrochemical methods of analysis	José M. Pingarrón
Chapter 8	Radioanalytical methods	Zhifang Chai
Chapter 9	Surface analysis	Luisa Maria Abrantes
Chapter 10	Thermal methods of analysis	Carlos Castro
Chapter 11	Immuno- and bio-analytical methods of analysis	Jan Labuda

The International Year of Chemistry has seen many contributions from analytical chemistry. Pertinently, we heard of the many activities of our Polish colleagues celebrating the work of Maria Sklodowska-Curie.

The Analytical Division is active on many fronts and is looking forward to the current biennium. It meets in Europe in February 2012 and invites anyone who can contribute to our activities to contact the president.

Organic and Biomolecular Chemistry

by Gerrit Koomen, division president

The mission of the Organic and Biomolecular Chemistry Division (Division III) is to promote the goals of IUPAC in the field of organic and biomolecular chemistry in the broadest sense. To this end, the division consists of a Division Committee and six subcommittees. Together, these promote the formulation and execution of projects on relevant chemical problems, the staging of chemical conferences on important areas of chemistry, the education and professional development of chemists worldwide, the advancement of chemical industry, and the application of chemistry to meet the world's needs. The division is committed to utilizing the talents of chemists from around the world in these activities, and promoting diversity in our membership.

Division elections for the biennium 2012–2013 were held by e-mail in February 2011. The 2012–2013 membership is available on the IUPAC website. During its meeting in San Juan, the division reviewed proposals and assessed progress on current projects. Updates are reported online and are regularly featured in *CI*.

The heart of the division consists of six subcommittees, each of which, in addition to conducting IUPAC projects, is concerned with organizing major international conferences, such as those listed below.

Green Chemistry

The first CHEMRAWN VII prize for Atmospheric and Green Chemistry was awarded to Noureddine Yassaa from Algeria. He received the prize during the 3rd International Conference on Green Chemistry (ICGC-3) in Ottawa, Canada, 15–19 August 2010. ICGC-4 will be held in Foz do Iguacu, 25–29 August 2012 (see calendar, inside back cover)

Organic Synthesis

The 18th International Conference on Organic Synthesis (ICOS 18), 1–6 August 2010, Bergen, Norway, was very well organized and very successful. The Thieme prize in Synthetic Organic Chemistry was awarded to Phil Baran, who presented an excellent lecture and showed how organic synthetic schemes might change drastically in the future. ICOS 19 will he held in Melbourne, Australia, 1–6 July 2012.

Biomolecular Chemistry

The 27th International Symposium on the Chemistry of Natural Products (27ISCNP), held jointly with the 7th International Conference on Biodiversity (ICOB-7), took place in Brisbane, Australia, 10–14 July 2011, under the co-chairmanship of Ron Quinn (Griffith University) and Mary Garson (University of Queensland). The symposium saw an attendance of 180 delegates from over 20 countries. Topics included isolation/discovery, synthesis, chemical ecology, phytochemistry, and biosynthesis.

Photochemistry

The 23rd IUPAC Symposium on Photochemistry was held in Ferrara, Italy, from 11–16 July 2010 under the chairmanship of Franco Scandola. The next meeting (24th in series) is scheduled for Coimbra, Portugal, 15–20 July 2012. The scientific chair is Hugh Burrows.

Structural and Mechanistic Chemistry

The 20th International Conference on Physical Organic Chemistry was held in Busan, Korea, from 22–28 August 2010, under the chairmanship of Dae-Dong Sung. ICPOC21 will be held in Durham, UK, 9–12 September 2012.

Biotechnology

The 14th International Biotechnology Symposium was held in Rimini, Italy, between 14–18 September 2010 under the chairmanship of Fabio Fava and Francesco Nicotra. IBS 2010 hosted over 50 invited speakers and 2200 scientific papers from 84 different nations. The 15th IBS 2012 will take place in Daegu, Korea, 16–21 September, under the chairmanship of Young Tae Yoo.

Chemical Nomenclature and Structure Representation

by Ture Damhus, division secretary and Richard Hartshorn, division president

The Chemical Nomenclature and Structure Representation (Division VIII) met, together with a number of observers, during the General Assembly in San Juan. There were also meetings in various project groups just before and just after the division committee meeting. A list of some of the new and ongoing projects provides an impression of the breadth of the division's work:

- Organic and inorganic preferred IUPAC names (PINs)
- basic guidelines for organic, inorganic, and polymer nomenclature (colloquially, the *Essentials*)
- nomenclature of flavonoids
- glossary of small molecules of biological interest
- a number of polymer-related projects, often designated as joint projects between Division VIII and Division IV (Sub-Committee on Polymer Terminology)
- contact to ISO working group on nanotechnology terminology and nomenclature
- new project on inorganic polymer nomenclature
- participating in workshop arranged by the European Commission's Taxation and Customs Union on the use of chemical names in customs declarations and translation of such names into all the EU languages
- a number of projects on the IUPAC International Chemical Identifier

One project distinguished itself by being very close to completion when we met in San Juan: the *Principles of Chemical Nomenclature* book, edited by division committee member Jeff Leigh. The book was published in November 2011, see the Jan-Feb 2012 *CI*, p. 26 or <www.rsc.org/shop/books/2011/9781849730075.asp>. Jeff Leigh was applauded by the division committee for his significant work in pulling together a volume written by a team of 10 authors with initially very different views and styles!

The planned 4-page *Essentials* flyers, intended for a very broad audience, had been designated a 2011 IYC activity, and we noted that the projects were moving, although completion in 2011 will not be feasible.

The committee also noted that planning was underway for a workshop on chemical nomenclature in conjunction with the EU customs organization. This workshop was held in November 2011 as part of IYC activities and will be described in a separate article in *CI*.

During the Division VIII meeting, the committee had discussions with visitors from the Division IV Subcommittee on Polymer Terminology about coordinating the many polymer nomenclature and terminology projects. Other visitors included representatives from the IUPAC Committees on Chemistry Education (CCE) and on Chemistry and Industry (COCI), who gave updates on the work of those two committees. Division VIII also sent representatives to attend the meetings of CCE and COCI as well as other IUPAC bodies. Indeed, the Division VIII meeting was scheduled in such a way to allow representatives to attend at least some of the meetings of other divisions.

Division VIII has a very large Advisory Subcommittee. The name is misleading; it is really not a *sub*commit-

tee, but a separate group of interested individuals that the division committee can use as a sounding board. It is a forum where questions and comments are often exchanged. The division welcomes anyone interested in the ongoing discussions to join the Advisory group webboard.

Chemistry and the Environment

by Willie Peijnenburg, division secretary

As usual, the biannual meeting of the IUPAC Division on Chemistry and the Environment (Division VI) was devoted mainly to monitoring progress of the projects carried out within the umbrella of the division, to review incoming project proposals, to exchange information on issues of relevance to the division and to its sub-committees, as well as to discuss division business issues in terms of budget, representation, planning of future activities like division meetings and conferences, and modification of the division rules in order to have them in agreement with the bylaws of IUPAC. Sixteen division members attended the meeting; three apologies for absence were received. In addition, three enthusiastic Young Observers attended, two of whom will be actively involved in future division activities.

The biggest change in the future composition of the division is that Titular Member Keiji Kanaka (Japan) after many years of faithful service to IUPAC will be replaced by Guibin Jiang (China), as Kanaka's maximum term of service expired in 2011. Ten new national representatives will be part of the division in the 2012–2013 biennium.

Following the division meeting, two symposia were organized by division members Laura McConnell and Hemda Garelick as part of the 43rd IUPAC World Congress.

Subcommittees

At the moment, three subcommittees are operational:

- Subcommittee on Environmental Compartments
- Subcommittee on Biophysical Processes
- Subcommittee on Crop Protection Chemistry

A fourth subcommittee (Food Chemistry) is operational at a rather low profile. As the topic of food chemistry is of relevance to IUPAC, it was decided that the incoming president of the division (Laura McConnell) will make a last effort to revitalize the subcommittee. Unless within a period of about one year an active group of scientists is found that are willing to serve, the subcommittee will officially be terminated. Another option that will be investigated is to include the topic of food chemistry in the Subcommittee on Crop Protection Chemistry.

A new topic that was raised while discussing the activities of each subcommittee was "Green Chemistry." IUPAC is considering how to revive the topic of Green Chemistry, which would likely involve the active participation of the division. One of the considerations for the division is whether or not to establish a new subcommittee on sustainable chemistry, possibly replacing one of the existing subcommittees.

Projects

Currently, 10 projects are running, eight have been completed successfully, and two projects had to be terminated because of lack of progress. Thereupon, eight proposals for new projects are under consideration by the division committee. One of the highlights of the activities of the division is the publication of a series of books within the framework of the IUPAC-Wiley Book Series on "Biophysico-Chemical Processes in Environmental Systems." Unfortunately, the senior co-editor on this series, Prof. Huang, passed away two years ago. The division committee supported the proposal to appoint Prof. Xing (University of Massachusetts, Amherst) as the new co-editor.

Detailed information on the various projects may be found at the IUPAC website.

Recently Published

The 3rd volume in the series "Biophysico-Chemical Processes in Environmental Systems" was published in May 2011: *Biophysico-Chemical Processes of Anthropogenic Organic Compounds in Environmental Systems,* Baoshan Xing, Nicola Senesi, and Pan Ming Huang (eds.) John Wiley & Sons, 2011, ISBN: 978-0-470-53963-7. see www.wiley.com/WileyCDA/WileyTitle/productCd-0470539631.html. This book is the outcome of IUPAC project 2008-001-1-600

www.iupac.org/web/ins/2008-001-1-600