

President's report to the meeting of the IUPAP Council and Commission Chairs

Taipei, 22 and 23 October 2016

Introduction

It has been a busy year, and a very interesting one. Much of what IUPAP does is straightforward and follows on in a systematic way from the annual work on conferences and working groups. That work does not need additional comment from me. This year has brought up a number of special events that I should tell you about, and I also want to open up some of my preliminary thoughts on redesigning some of our structures.

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I will take up each of these in turn.

1. Our first year and a half in Singapore

IUPAP now, at the age of 94, for the first time has an office of its own. The provision of this office space, with IT support and office staff is through the courtesy of Nanyang Technological University (NTU) and its President, Bertil Andersson, and of the NTU Institute for Advanced Studies and its Director, K K Phua. IUPAP is extremely grateful for their support.

As you may expect, setting up the new office had its challenges, but most will agree that it is running efficiently. I believe that none of you have had problems getting a response when you contact the office, although getting a response from me is a different matter. I express our sincere thanks to Maitri Bobba, and to Sun Han and the other staff of the IAS and of World Scientific who have assisted Maitri in our work

2. Seeking new members

Having our office in SE Asia makes it natural to seek new members in this region, where IUPAP is under-represented.

We have now made approaches to

- Malaysia
- Brunei
- Vietnam
- Thailand
- Indonesia

In all cases interest has been shown but more work needs to be done to persuade them to join.

By virtue of Itamar Procaccia visiting Kazakhstan we were also able to make approaches to

- Kazakhstan
- Uzbekistan

Again interest has been shown but follow-up work is necessary

3. Our Singapore company

IUPAP is unincorporated. To have a bank account which can receive our dues and pay our bills we have established a company limited by guarantee, International Union of Pure and Applied Physics Singapore Ltd (IUPAP-SG). We had a similar company (IUPAP-UK) operating in the UK for us. The corporate laws are different in the UK, and operating through a new company in a new jurisdiction has taken some getting used to. We now have completed and submitted our Company returns and our tax return for our first year. Singapore laws place severe restrictions on the operations of charitable companies, but there is a provision that a company which receives more than 50% of its income from its members pays no tax on that income. We have made a case that IUPAP-SG, the members of which (KK Phua, Bruce McKellar, Cecilia Jarlskog and L C Kwek) are representing IUPAP, is a shell company whose *de facto* members are the members of IUPAP. If this argument is accepted, IUPAP-SG will not pay taxes.

4. Elements 113, 115, 117 and 118; and the next super heavy elements

I will briefly review the process by which the discovery of elements 113, 115, 117 and 118 was analysed and the names of those elements were announced. Then I explain the current negotiations with the International Union of Pure and Applied Chemistry on how this process should be carried out for the next lot of new elements.

The process of naming a new element now has two steps

- 1 Deciding that a new element has been discovered and deciding which groups are credited with the discovery. This process is done by a Joint Working Party established by IUPAP and IUPAC
- 2 The naming of the new element, the name being proposed by the discoverers and confirmed by the Inorganic Chemistry Division of IUPAC

The process was set up in the late 1980s. The first group evaluating discovery claims was established on the initiative of IUPAP because the discovery process uses the facilities and methods of nuclear physics. It was chaired by Dennis Wilkinson and had 7 members, 5 appointed by IUPAP and 2 by IUPAC. It was called the Transfermium Working Group (TFWG). The discovery and naming of elements 113, 115, 117 and 118 is the most recent example of this process. One of the members of the JWP working on those elements was also a member of the TFWG. This JWP originally had 6 members, 3 nominated by the IUPAP on the recommendation of C12, and 3 by IUPAC. One of the IUPAP nominated members resigned and was not replaced, so the JWP had just 5 members — 4 physicists and 1 chemist. The JWP was set up in early 2012 and reported in publications in the Journal of Pure and Applied Chemistry in January 2016. Names were announced in June 2016, at which time the JWP was dissolved, having done its job. The first of the controversies associated with this set of new elements came on 31 December 2015 (all dates and times in my account are Australian times), when IUPAC made an announcement of the discovery — breaking an agreement that the discovery would be announced jointly by the Unions on the date of publication of the JWP reports,

scheduled for 20 Jan 2016. Because of the time difference between US and Australia I received no notice of the press release before its dissemination. The reason given for the early release was the leaking of the news in the Japanese press.

After publication, there was a period during which objections are invited. None were received. Those credited with the discovery were then invited to propose names and symbols for the new elements. After the analysis of the proposed names by the Inorganic Chemistry Division of IUPAC the new names were announced on June 8 in simultaneous press releases by IUPAC and IUPAP. Before the release there was another controversy, from the Nobel Symposium on Super Heavy Elements, which I learned about on 2 June. Our past president, Cecilia Jarlskog, gave a presentation at the Symposium which provided her view on process of establishing of and reporting from the most recent JWP. She expressed her disappointment that the process did not work as she had been led to believe in her negotiations with IUPAC when the JWP was set up. She also expressed her view that the work of the JWP was flawed and that the analysis of the claims should be redone by a new JWP.

I had a very large number of email and phone consultations with many physicists and chemists, and formed the view that, although many had concerns about the details of the JWP reports (the concerns involved the assignment of 113 to Riken, and the validity of the Dubna et al papers on 115 and 117), the consensus was that the conclusions would hold up if the analysis was redone. I therefore ruled that the IUPAP position was that the names should be released. As one of my correspondents put it “that decision is on your head”. Simultaneous announcements by both Unions occurred on 8 June, although almost all press reports ignored the IUPAP announcement. (The Straits Times (Singapore) and papers in Sao Paulo were notable exceptions). At the suggestion of the Chemists, the press releases contained the statement

Laboratories are already working on searches for the elements in the 8th row for the periodic table, and they are also working to consolidate the identification of copernicium and heavier elements. To be able to evaluate this work, IUPAC and IUPAP are currently reviewing the selection principle and operations of a future Joint Working Party (JWP) and as soon as these principles have been decided a new group will be formed. This new JWP will review new claims and the consistency of new results with those already evaluated by earlier JWPs.

I have had extensive discussions with Natalia Tarosova, the IUPAC president, and we prepared a draft agreement on how we should assess claims and name elements in the future. We then each started discussions with our colleagues.

The main points in the draft proposal are

- 1 The process should continue as a joint process, with more IUPAP input than in the recent past.
- 2 To ensure appropriate input from physicists in forming the JWP
- 3 To have regular involvement of C12 and IUPAP in oversight of the process (this would be a break from the recent past)
- 4 That the discovery announcement, and the naming announcement, is to be a joint announcement.

Cecilia, and many others, are of the opinion that there should no longer be a role for IUPAC in the validation and naming of new super heavy elements, given the central role played by nuclear physics in the synthesis (or discovery) of the new elements.

Clearly C12 should have the major input in establishing the IUPAP position in these negotiations. Following their discussions they proposed modifications to the draft proposal which do retain the above “main points” and do not take up the alternative of going alone.

The negotiations are ongoing. C12 will now be completely in the loop as negotiations evolve, and no agreement will be signed by me on behalf of IUPAP without the agreement of C12 and the approval of the Council

5. Our new working groups

The new working groups

- WG13 The measurement of Newton's Constant G, chair Stephan Schlamminger
- WG 14 Accelerator Science, Chair Lia Meringa

are working. Their chairs have joined us at the meeting, to tell us something of the plans of the working group, and to learn something of the operation of IUPAP.

I regret that my efforts to persuade someone to lead our other new working group on soft matter have not yet been successful.

6. The new International Council of Science (ICSU) grant round

The ICSU Grants are now for 300000 EUR per year for 3 years. They are giving out three grants. The lead applicants must be two Unions and a Union can be a lead applicant for at most one grant application.

IUPAP received requests that it be a lead applicant on two proposals, from

- *C13 Utilisation of Light Source and Crystallographic Sciences to Facilitate the Enhancement of Knowledge and Improve the Economic and Social Conditions in Targeted Regions of the World, with IUCr as co-lead applicant*
- *WG5 A Global Approach to the Gender Gap in Physics, Chemistry and Mathematics: how to measure it, how to reduce it, with IUPAC and IMU as co-lead applicants.*

The Council determined that IUPAP would be a lead applicant for the C13 proposal, and that it would be a supporting applicant for the Gender Gap proposal were it to be submitted by IUPAC and IMU, which it was under a different title: *A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?*

The IAU requested that we be a supporting applicant for a proposal titled *Science4Development* they were putting forward with IUHPST, and we agreed.

We expect to hear the results early next year.

7. The proposal that ICSU and the International Social Sciences Council (ISSC) merger

ICSU and the ISSC have proposed that they merge. ICSU has called a Special General Assembly for 24 October in Oslo. Cecilia Jarlskog will be representing us at that meeting, rather than joining us in Taipei, because it is not possible to get from Taipei to Oslo in time for that meeting. The Oslo meeting is being asked to approve in principle to pursue the merger.

Kennedy, Cecilia and I have agreed that a vote by IUPAP on the question of approving the merger, scheduled for the 2017 ICSU General Assembly if they agree in Oslo to pursue the merger, should be cast on the instructions of our General Assembly. That is why we are proposing to move our own 2017 General Assembly forward, to be before ICSU meets.

The ICSU-ISSC merger comes up at other points on our agenda.

8. The experiment of an email meeting of the Council and Commission Chairs

There were conflicting reports on the experience of running an email meeting of C&CC last October. We need to advise the next Council how to manage the conflicting demands of getting the new Chairs familiar with the operation of IUPAP, of being able to conduct the important business of deciding which conferences to support late in the year, and keeping within our income. My personal suggestion is that 2018 should have C&CC meetings like those of 2016, but that is a matter for Kennedy to lead us.

9. Expanded cooperation with bodies with similar or overlapping activities

In the last newsletter I asked some questions of our readers, in general “to challenge all readers of this newsletter to think about what IUPAP should be doing more or less of”. You may like to discuss this, but the one response I have received came from Tajinder Panesor, Head of International and Member Services, The Institute of Physics. He said

“Like IUPAP, my international work has a limited budget and it’s through working with partners that I can pool resources and achieve more ambitious outcomes.

Do the IUPAP commissions do enough to engage with national physical societies such as IOP? If IUPAP C13 was to approach me to pool our collective resources, our operating budgets would almost double and how much more could we do.”

This is certainly something that Commission Chairs should discuss

10. First thoughts about re-designing the composition of the Executive Council

There has been the suggestion that IUPAP should have an honorary treasurer. Many other Unions do have treasurers. In the past the Secretary-General has acted as the treasurer, without it appearing in the job description. At the moment, and in the recent past, I have acted as the *de facto* treasurer. The Secretary-General is not in a position to take on these extra duties, which include preparing the financial reports for this meeting, overseeing the preparation of the financial reports of IUPAP-SG, ensuring that the expenditure of IUPAP stays within its budget, and preparing yearly and triennial IUPAP budgets. I would support having a treasurer.

I am reluctant to propose expanding the size of our Council to accommodate an extra position for the treasurer, and therefore suggest that, if we decide that we should have a treasurer that we should either

A. abolish one of the Vice-President at large positions and create the Honorary Treasurer position, or

B. Assign the job of the Honorary Treasurer to one of the Vice Presidents at large.

What is your preference?

If it is decided to appoint a treasurer, there are good reasons to have someone from the country of the office in that position, but such a move would put two people, the Secretary-General and the Treasurer, from the same country on the Council.

What is your advice?

If we adopt B, we may wish to assign portfolios to future Vice-Presidents at large. As well as treasurer we could assign Gender Champion, New members, Relations with other Unions, Relations with major physics organisations (APS, EPS, AAPPS, etc). I rather like the idea of spreading the Council workload in this way.

11. First thought on expanding the size of Commissions

In 2011 the Commissions were expanded to 14 members each, to accommodate the number of shares. At the 2014 GA we had 247 shares and 251 positions on Commissions. Now we have 256 shares, even if no new members join, and still 251 positions on Commissions. We are now highly unlikely to grow an additional Commission in 2017, so as to accommodate the shares we would need to go to 15 members per commission, giving a total of 269 positions.

Do you support increasing the size of Commissions to 15 members each? If we agree we will need to bring an appropriate resolution to the 2017 GA.