

Report to the IUPAP Council and Commission Chairs meeting.

IUPAP-C2

Commission on Symbols, Units, Nomenclature, Fundamental Constants and Atomic Masses

November 5-6, 2010

- **Recommendation of IUPAP to the Consultative Committee for Units (CCU).** Following up on the 2008 IUPAP Resolution on Redefinitions of SI Units, a document with the recommendation of IUPAP was submitted at the CCU meeting in May 2009. At the CCU meeting in September 2010 the recommendation of IUPAP was reaffirmed. A committee attached to C2 to monitor changes in the SI and to consider further recommendations has been formed.
- **Commission C2 Meetings.** Commission C2 held two meetings in 2010. One in conjunction with the Conference on Precision Electromagnetic Measurements, in Daejeon Korea on June 17 and another in conjunction with the meeting of the CCU at the International Bureau of Weights and Measures (BIPM), in Sèvres, France on September 16. The report from the latter meeting is included below.
- **Commission C2 Website.** The C2 web site will no longer be supported at its present location and a new host needs to be found. It is expected that IOP will provide space on the IUPAP website for pages to be maintained directly by the individual Commissions.
- **Red Book.** An update of the Red Book on nomenclature in physics published by IUPAP has been undertaken by C2. This book has been widely distributed since its latest revision in 1987. The revision will be of particular importance when the redefinitions of SI Units are implemented. A committee attached to C2 has been formed to carry out this task.
- **Conference recommendation.** Conference on Precision Electromagnetic Measurements (CPEM 2012). C2 recommends support of this series. The next conference is to be held in Washington DC. This conference has applied for IUPAP support and is recommended for support as a Type A conference by C2.
- **Young Scientist Award.** C2 is recommending changing the time criterion on the Young Scientist Award to refer to the start of the professional career rather than to receipt of the Ph.D. The reason is that not every professional in the fields of interest necessarily holds a Ph.D.
- **Committees attached to C2.** The suitability of commissions forming committees to address specific issues is to be raised with IUPAP. This is of particular interest for C2, because the range of topics covered in the commission is broad and the number of available experts in each area within the commission is limited. Thus it is beneficial to form appropriate committees consisting of experts from C2 together with other experts who are not members. There are people willing to participate and this can considerably enhance the effectiveness of the commission.

- **Report of the C2 meeting in September 2010**

IUPAP Commission C2 – SUNAMCO

Meeting at BIPM, Sèvres

16 September 2010 at 14:00

Present: Peter Mohr (USA, Chair), Christian Bordé (France, Vice-Chair), Stephen Lea (UK, Secretary), Jörn Stenger (Germany, Member), Jeff Flowers (UK, Associate Member), Savely Karshenboim (Russia, Associate Member), Ian Mills (representing IUPAC), Michael Kühne (Deputy Director, BIPM, Observer), Ambler Thompson (NIST, Observer).

Thanks are due the BIPM for providing facilities for this meeting.

1. Formation of a subcommittee to revise the IUPAP Red Book on physics nomenclature.

The provisional list of members proposed at the June 2010 meeting at CPEM was confirmed: Stephen Lea (Chair), Christian Bordé, Jeff Flowers, Jeremy Frey, Savely Karshenboim, Peter Mohr, Kumar Sharma, and Jörn Stenger. It would be desirable to have input from other IUPAP Commissions as well as other relevant groups and Scientific Unions in addition to IUPAC, e.g. the Particle Data Group, IAU, IUGS. In the light of this the group should be referred to as the Committee for Revision of the Red Book on Symbols, Units, and Nomenclature in Physics, rather than as a subcommittee of SUNAMCO. The possibility of establishing this Committee as an IUPAP Task Group should be raised with the IUPAP Secretariat.

Not all C2 members currently have access to the Red Book either in hard copy or PDF. The stock of hard copies is thought to be distributed among past C2 chairs and others but should be consolidated so that it can be made available on request. The PDF version generated by Jeff Flowers had been available on the C2 website formerly hosted by SP (Sweden); this has been unavailable for the past two years. Copies of the PDF to be distributed to C2 members. Some sections of this PDF version could not easily be compiled from the original TeX files and hence are scanned in from the printed version. Peter Mohr will attempt to solve the TeX issues so that a uniform PDF version can be made available. The most urgent step is to make this PDF available via the proposed IoP-hosted C2 website, with links to related sites e.g. CODATA, PDG, IUPAC Green Book.

The format of a revised Red Book was debated. Whilst it will be convenient to publish revised or additional sections on the website as they are produced, it is considered desirable to publish a definitive hard-copy edition at some appropriate point. This fulfils the desire to have an authoritative, citable document. The PDG's Review of Particle Properties was put forward as a model.

2. Formation of a subcommittee to refine the C2 position on the redefinition of the International System of Units and the timing of the changes. The provisional list of members proposed at the June 2010 meeting at CPEM was confirmed with one addition: Peter Mohr (Chair), Stephen Lea (Secretary), Christian Bordé, Jeff Flowers, Savely Karshenboim, and Jörn Stenger. This group should also seek input from other IUPAP Commissions (e.g. the Commission on Physics Education) and eminent physicists from outside the metrology community. Consequently it should not be designated a subcommittee of C2 but will provisionally be referred to as the SUNAMCO Committee on the Redefinition of the International System of Units. It is recognised that it can have little influence on the timing of changes. It was also noted that the 26th IUPAP General Assembly adopted a resolution (resolution 8) on the SI redefinitions, *i.e.* the proposed changes do have the support of the wider

physics community. The initial function of this committee will be to publicise the proposed changes. There is a particular need for 'popular' articles in languages other than English, e.g. in the magazines of national Physical Societies.

A first meeting of this Committee is proposed to coincide with the Royal Society meeting in January 2011.

3. Restatement of the criteria for the Young Scientist Award in order not to set the time limit based on completion of the Ph.D., which is not a requirement, but rather on the metrology career starting date. It was agreed at the June 2010 meeting that reference to the Ph.D. is not relevant. Peter Mohr will raise this at the next Chairs meeting. Possible candidates were mentioned; the committee was reminded that the award is made via a nomination process.

4. Discussion of candidates for the SUNAMCO medal. A number of candidates were mentioned and a list will be circulated to C2 members to stimulate discussion and elicit further suggestions.

5. Formulation of a policy on the representation of physics terminology and vocabulary by organizations that include representation by C2/IUPAP. The Red Book – ultimately in its revised version – is the authoritative document for the IUPAP position on these matters.

6. Reports from C2/IUPAP representatives to other organisations. Peter Mohr gave a verbal report on the outcome of the CCU meeting which directly preceded this meeting. A form of words for redefinition of the SI units has been recommended to CIPM and should then go to the 2011 CGPM.

Savely Karshenboim reported on the activities of the Russian national committee on units in promoting changes to the SI. A meeting is to be held in December at which Peter Mohr is an invited speaker.

Other reports had been received at the June CPEM meeting.

The question of IUPAP representation on bodies concerned with units where we are not already represented, e.g. IAU, was raised. We should be selective, as we do not have the manpower or resources to cover all the requests received.

C2 provides or is requested to provide IUPAP representation to numerous bodies but there appears to be no standard procedure for issuing letters of appointment. Stephen Lea and Peter Mohr to pursue this with the IUPAP secretariat.

7. Formulation of the C2 Web pages on the IOP-IUPAP server in the UK. Provision of these pages by IoP has become a matter of urgency as other C2 activities are depending on it. Stephen Lea to pursue this with IUPAP secretariat/IoP.

Once the pages are available, the following should go on as a priority:

- The Red Book in its current (PDF) form.
- Information on the proposed changes to the SI.
- Information on the Young Scientist Award and SUNAMCO medal.
- A restricted section for members-only material.

8. Representation of the atomic mass community on SUNAMCO. Savely Karshenboim reminded the

meeting that the atomic mass community is now under-represented on the commission and that the chairmanship had formerly alternated between individuals from the fundamental constants and atomic mass communities. Commission meetings were also formerly held at atomic mass conferences as well as at CPEM. The range of candidates for the Young Scientist Award is also affected by the lack of representation of this community. However, as nominations for C2 membership are made by national organizations, this matter is largely out of the hands of the current C2 membership.

9. Next meetings.

The SUNAMCO Committee on the Redefinition of the International System of Units will meet as a satellite to the Royal Society meeting on the new SI, London, 24-25 January 2011.

A full C2 meeting is proposed as a satellite to the next CODATA meeting, which is expected to be held at the BIPM in mid-2011.

Stephen Lea
23 September 2010

