



IUPAB

CONNECTING THE
WORLD OF BIOPHYSICS

**INTERNATIONAL UNION for PURE and APPLIED
BIOPHYSICS**

IUPAB NEWS

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Editor: Louise Matheson

Email: mail@iupab.org

Activities of the INTERNATIONAL UNION for PURE and APPLIED BIOPHYSICS

From the Secretary-General: Professor C.G. dos Remedios, Bosch Institute, Anderson Stuart Building F13, University of Sydney, NSW 2006, Australia.

Courier address: Room S468 Anderson Stuart Building (F13), Fisher Road, The University of Sydney, 2006, Australia.

Telephone: (+61) 2 9351 3209. Facsimile: (+61) 2 9351 6546

Email: dosremedios@iupab.org

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Editor's Note



Also, please remember to check the IUPAB website from time to time for information on conferences and schools in your region.

With best wishes,

Louise Matheson

Editor

mail@iupab.org

This year for the first time we have decided to publish a mid-year Bulletin.

The aim is to keep our members advised of current issues in a more immediate way.

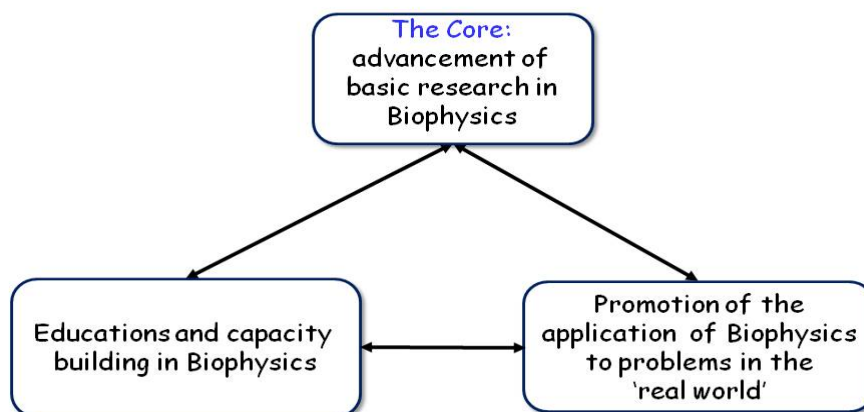
We bring you a brief Report from the President before the Annual News, as it is the beginning of his term.

I am constantly looking for news items and other material for the News, and any suggestions are welcome.

A Forward Look for IUPAB

Gordon Roberts

President, IUPAB; University of Leicester, UK; gcr@le.ac.uk



The objective of IUPAB is the advancement of research and education in biophysics across the world. In working towards this objective it is important to set priorities and attainable goals. The strategy for the future work of IUPAB has three key components:

- The flagship activity of IUPAB is the triennial series of *International Biophysics Congresses*, which play a unique role in providing overviews of the breadth and depth of international biophysics research.
- The second major activity of IUPAB is *Education & Capacity Building*, through educational courses and workshops, particularly, though not exclusively, in scientifically less-developed countries.
- The promotion of the *Application of Biophysics* in a range of fields from medicine to bionanotechnology is very

Important and requires collaborations with other relevant organisations, including other scientific Unions, in order to reach the appropriate audiences

International Biophysics Congresses

These are held every three years at locations around the world – most recently in Buenos Aires, Argentina (2002), Montpellier, France (2005), Long Beach, California, USA (2008) and Beijing, China (2011). The 17th. Congress in Beijing attracted ~2400 scientists who were treated to an enormous range of exciting oral and poster presentations – we are most grateful to our Chinese colleagues for the considerable work they put in to make the Congress a success. Following this ‘globe-trotting’ tradition, the next Congress will be held 3rd-7th August 2014 in Brisbane, Australia and the 2017 Congress in Edinburgh, Scotland.

Task Forces

The four Task Forces in IUPAB developed in a rather *ad hoc* fashion over the years. In a fundamental reconsideration of the role of Task Forces in IUPAB, Council and the General Assembly have agreed to abolish the existing Task Forces and, in the light of the priorities outlined above, establish two new ones:

1. *A Task Force in Education & Capacity Building* to develop our educational activities.
2. *A Task Force in Applications of Biophysics*, promoting applications of biophysics in fields from medicine to bionanotechnology. This Task Force will also be responsible for any contributions from IUPAB to inter-Union efforts, led by ICSU, to bring science to bear on world and societal problems.

Each Task Force will be led by a member of Council; both will also have a specific remit of working with other international organisations towards objectives of mutual interest.

Education & Capacity Building

Support for educational activities is second only to the Congress in the priorities of IUPAB. Financial support is provided for Schools and Workshops, in the form of grants to organisers, the provision of expenses towards meeting the cost of 'IUPAB Lecturers', and/or the provision of bursaries to allow young biophysicists to attend. Support for other kinds of educational activities is not excluded, but support will only be given to conventional scientific meetings if they have a strong educational element and/or they promote collaboration with other international organisations. Given the limited resources of IUPAB, there are limitations to the support which can be provided:

- In years in which an International Biophysics Congress is held, support is provided only to the Congress (notably in terms of bursaries to allow the attendance of young scientists from developing countries – for example 100 such bursaries were provided for the Beijing Congress).

- In other years, priority is given to supporting Educational activities – details of the awards for 2012 were given in the last issue of IUPAB News.

It will not be possible to fully fund Schools and Workshops, and organisers are expected to raise at least matching funding from other sources – national, regional, international or industrial. In many cases the involvement of IUPAB may be useful in leveraging such additional funding, and the Executive will gladly help with this. Those running Schools and Workshops must provide detailed scientific and financial reports; if these are not forthcoming, they will not receive funding for future Schools.

Collaborations

It is clearly the case that, if IUPAB is to make a greater impact, it will be essential to put additional resources into our activities. To achieve this, we must work collaboratively with international and/or regional organisations on initiatives of mutual interest in all the areas of activity mentioned above, notably seeking matching funding for specific initiatives.

International Unions. Several of the other International Unions within ICSU have interests which border closely on those of IUPAB, including the International Union of Biochemistry & Molecular Biology, the International Union of Pure & Applied Chemistry, and, notably, the International Union of Pure & Applied Physics, which has a Commission on Biological Physics. It is clearly particularly important that we

work closely with IUPAP, and this will be facilitated by the fact that two members of IUPAB Council are also members of IUPAP Commissions.

Regional Biophysical Associations. There are currently three Regional Biophysical Associations, the Asian Biophysical Association, the European Biophysical Societies Association, and the Latin American Federation of Biophysical Societies, each being a grouping of national Biophysical Societies. The Biophysical Society (USA) effectively covers North America, and of course has members from around the world. Each of these is an Adhering Body of IUPAB. The most conspicuous gap is Africa; it is clear that more work is needed to contribute to the development of Biophysics on the African continent, and this will be a major priority for IUPAB over the next few years.

There are considerable advantages to IUPAB in working together with these Regional Associations, notably in Educational & Capacity Building activities. This kind of partnership would have obvious organisational benefits, might keep costs down by ensuring that we make the most of the available regional resources, and would also ensure that the Schools and Workshops were appropriately tailored to the target audiences. We plan to actively promote Schools and Workshops sponsored jointly by IUPAB and the Regional Associations.

Resources

In all these areas, while IUPAB is very active, there is a great deal more we could

do. The main constraint on this is, of course, financial, and the resources of IUPAB are extremely limited. The only continuous source of income for IUPAB comes from subscriptions of Adhering Bodies (National Academies, or National or Regional Biophysical Societies). It is crucial that these subscriptions are paid promptly, and I strongly urge those holding positions in Adhering Bodies to ensure that this happens – every delayed payment means less support for students to attend Schools and Workshops.

Our new journal, ***Biophysical Reviews***(<http://www.springer.com/life+sciences/biochemistry+%26+biophysics/journal/12551>), edited by Professor Jean Garnier and published by Springer, has made an excellent start, having published some first-rate reviews. The format of short incisive reviews including free colour figures is an attractive one. It is hoped that in the future this will provide a useful income stream for IUPAB, but its success depends on a steady (and increasing) stream of papers – please consider submitting a review of your area.

IUPAB depends on the involvement of members of the international community of biophysicists – by participating in our Congresses, by running Schools and Workshops, by submitting papers to our journal and in many other ways. I do hope you will help us ensure the future success of IUPAB in promoting the science of biophysics throughout the world.

Government Funding for Biophysics in Italy

In March of this year, the Secretariat of IUPAB received a request from Dr. Michael Pusch, the special delegate from Italy, to provide background information about Italy's role in the activities of IUPAB.

This was in response to a discussion at the CNR/Italy about the usefulness of the various scientific unions. The Adhering Body was facing drastic budget cuts from their Ministry, and Dr. Pusch was keen to mount an argument in favour of maintaining support for IUPAB in the future.

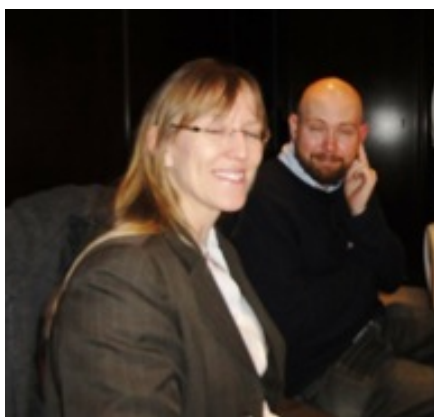
Accordingly, the President wrote a letter of support, detailing the three invited speakers from Italy at the 17th International Biophysics Congress in Beijing, as well as noting the long-standing involvement of Italy in the affairs of IUPAB. Indeed, there had been past Councillors and a President from Italy.

As it happened, there was also a Young Scientist Travel Award recipient from Italy for the Beijing Congress, Dr. Antonio Benedetto from the University of Messina. He is in Sydney, Australia at present on an Endeavour Fellowship, which is a fiercely contested award made by the Australian government.

It is very pleasing to know that Michael's efforts in Rome were successful and there was overwhelming agreement on continuing to support IUPAB.

IUPAB is always ready to help our Adhering Bodies in such circumstances, in any way that we can.

***Biophysical Reviews* - Meeting of the Editorial Board**



Dr. Sabine Schwarz, Senior Editor, Springer-Verlag and Professor at Damien Hall, Tsukuba University Japan



Prof. Michele Auger, Université Laval, Canada and Prof. Cris dos Remedios, University of Sydney, Australia

On Saturday, March 03, 2012 the Editorial Board of *Biophysical Reviews* met in San Diego, California as an adjunct to the meeting of the Biophysical Society.

The first issue for 2012 has already been published and there is a special issue on “**Computational Biophysics**” planned for the second half of the year. This will be organized by Cris dos Remedios and Haruki Nakamura.

In mid-February of this year an application was made for inclusion in **PubMed**, with a decision expected towards the end of the year.

The **Impact Factor** Application was submitted in November 2011 to Thomson Reuters/ISI, so the journal is now under review for the next 1-3 years. Thus, during this time it is vital to keep up a steady flow of manuscripts to ensure regular and timely publication.

STOP PRESS: The most downloaded articles are (174) Shang, L & Nienhaus, G.U “Gold nanoclusters as novel optical probes for in vitro and in vivo fluorescence imaging” DOI: [10.1007/s12551-012-0076-9](https://doi.org/10.1007/s12551-012-0076-9); (56) “Toward a molecular understanding of nanoparticle-protein interactions” Treuel, Lennart; Nienhaus, Gerd Ulrich; (27) “Intercalated discs: multiple proteins perform multiple functions in non-failing and failing human hearts” Estigoy, Colleen B.; Pontén, Fredrik; Odeberg, Jacob et al; (26) “A seesaw model for intermolecular gating in the kinesin motor protein” Sindelar, Charles V and (24) “Optical imaging of nanoscale cellular structures” Hedde, Per Niklas; Nienhaus, Gerd Ulrich.

Women in Science

Profile: Professor



Lucia Mendonça-Previato
Rio de Janeiro, Brazil

After her post-doctoral work in the National Research Council of Canada at Saskatoon in 1977 and subsequently (1978-79) at University of California at Berkeley, in 1980 Lucia returned to her home country of Brazil to the Federal University of Rio de Janeiro.

There she began her independent career and established a Surface Structure of Microorganisms Laboratory in the Institute of Microbiology. She remained the Director there until taking up her present position in 2001 as Chair of the Laboratory of Glycobiology at the Institute of Biophysics Carlos Chagas Filho.

Lucia Mendonça-Previato scaled the academic ladder rapidly. She was appointed Assistant Professor in 1975; Associate Professor in 1980, and full Professor in 1992.

During these years, Lucia developed a special interest in research on the structure, biosynthesis and function of glyco-conjugates present on the surface of microorganisms. However, *Trypanosoma cruzi* glycobiology was her favourite topic.

In this field she performed crucial studies, establishing the structure, biosynthesis and function of unusual glycoconjugates related to parasite-host cell interactions.

Lucia has had a symbiotic pathway, working at the frontier of knowledge, combined with a vital role caring for people affected by Chagas' disease, which is a debilitating and often fatal condition.

Chagas' disease is endemic to Latin America where it is thought to affect some 16-18 million people. In its chronic form, it leads to death from damage to the heart and digestive tract. It is transmitted to humans mainly via a blood-sucking insect, which acts as a vector for the single-celled parasite.

Currently, there is no effective vaccine to prevent the disease. Available drug therapies provoke severe side effects, and in any case are ineffective for chronic infections.

Many aspects of Lucia's work are "firsts" in this field, achieved working

closely with immunologists to make several important discoveries.

Lucia's laboratory continues to characterize many unique glyco-biology features in this parasite which will lead to significant advances towards the development of chemo- and immunotherapies not only against the *T. cruzi*, but other parasites as well.

The many prizes and awards conferred on Lucia include the 2004 L'Oréal-Unesco Award for Women Science (Latin America). She has published prolifically with 130 articles and papers to her credit, and was Editor-in-Chief of *Anais da Academia Brasileira de Ciências*, 2002-2008.

Professor Lucia continues her laboratory work enthusiastically, and motivates undergraduate students to study science. Twenty-seven Masters of Science and twenty-five PhDs have completed their degrees with her as their advisor.

She has been quoted as saying "Nobody does science alone. The collaboration between young and more senior scientists is fundamental".

Lucia is married to another scientist, Professor Jose Osvaldo Previato, and they have two children, a son and a daughter. Outside her professional life, Lucia's other interests include reading, writing and travelling. She is also a keen swimmer.

As always, I am interested to receive recommendations for more Women in Science to be the subject of future profiles for this feature. Please let me have your suggestions.

Louise Matheson - Editor

WORKSHOPS 2013 - STOP PRESS !!!

Applications are invited for IUPAB funding for eligible Workshops to be held next year, 2013.

The opening date for applications is July 02, 2012 and the closing date is August 24, 2012 at close of business in Sydney, Australia.

The criteria for Workshop funding are listed on the IUPAB website under Events “Sponsorship Policy” and the **Funding Application** form, which follows on pages 12 and 13, is also available on the website as a PDF.

Applications will be processed and the results should be available by November, with funds payable after January 1, 2013.

FUNDING APPLICATION FORM

Applications should be addressed to:

Prof. CG dos Remedios, Bosch Institute, AndersonStuart
Building (F13), The University of Sydney, Sydney 2006, Australia.
Telephone: +61 293513209; email dosremedios@iupab.org

1. APPLICANT

Name:

Official Address:

.....

.....

Telephone:

Fax:

Email:

2. TITLE OF MEETING:.....

3. LOCATION:.....

4. DATE:.....

5. PLANNED PROGRAMME IN DETAIL (Please use separate sheet,
maximum length of 1 page).

6. PARTICIPANTS

Please indicate:

Total number of participants expected (including
speakers):

Number of invited speakers:

Number of younger (<30 years) participants:

Number of participants from host country:

Please provide a list and addresses of the invited speakers/teachers, and
indicate those who have already agreed to come.

7. DRAFT BUDGET (in USD)

1. Expenditure:

(i) Invited participants (including speakers):

travel:

subsistence:

(ii) Grants to be provided to younger participants:

number =; cost:

(iii) Organization expenses:
(Assistance, Postage, Rent ...)
TOTAL EXPENDITURE:

2. Income:

(i) Request to IUPAB:
(ii) Request to Local Agencies:.....
(iii) Request to other International Agencies:
(iv) Registration Fees:
(v) Other:
TOTAL INCOME:

8. SCIENTIFIC SCOPE OF THE WORKSHOP/COURSE (10 lines):

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OBITUARY

We have been notified that on February 8, 2012 **PROFESSOR JEAN-MARC LHOSTE** passed away in Montpellier.

Professor Lhoste was a corresponding member of the French Academy of Sciences (1993); President (1996) and Honorary President (2006) of the “Comité National de Biophysique”; President of the “Société Française de Biophysique (1987-1991).

Most especially for IUPAB, Professor Lhoste was the promoter and co-organizer of the 15th International Biophysics Congress (EBSA-IUPAB-SFB) which was most successfully held in Montpellier in 2005.