

Activity report of C6:

1) International Conference of Biological Physics, ICBP 2014 (Category A), was held at Beijing, China for the period of June 18-22, 2014.

Conference Background and Overview

The International Conferences on Biological Physics of the International Union of Pure and Applied Physics bring together physicists and scientists in related fields to report the latest breakthroughs and achievements in the frontiers of biological physics and exchange information about all aspects of living-systems studies. The conferences are also important and effective forums to enhance international collaboration among scientists from various parts of the world.

Following previous successful conferences in San Diego, USA (2011), Montevideo, Uruguay (2007), and Gothenburg, Sweden (2004), the 8th IUPAP International Conference on Biological Physics (ICBP2014) was held on the campus of the Institute of Physics, Chinese Academy of Sciences on June 18-22, 2014. The first two days (June 18-19) encompassed a training workshop; and the remaining three days (June 20-22) included 5 plenary lectures, 12 research symposia, one poster session, and one special session honoring the winners of the IUPAP C6 Young Scientist Prize. This conference also served as the general meeting of the IUPAP C6 [Biological Physics] Commission.

Conference Demographics

The conference was attended by over 500 researchers (registered and last-minute attendees from many local institutions) from 26 countries;

44% faculty

10% postdoctoral scholars

38% graduate students

8% undergraduate students

70% of all **attendees** were from **developing countries**

35% of all **attendees** were **women**

30% of all **invited speakers** were **women**

It is important to note that although “faculty” represented 44% of the total participants (by total head count) at the conference, almost 50% of the faculty were invited speakers, session chairs and/or organizers. If we exclude the “faculty presenters”, junior researchers (postdoctoral scholars, graduate and undergraduate students) accounted for almost 80% of all attendees. Over **50% of the junior researchers received** some kind **financial assistance** (full/partial travel awards, registration/housing waivers, etc.) from the conference.

Conference Program Summary

The conference was preceded by a workshop organized by Prof. Ming Li (University of Chinese Academy of Sciences), Xin Zhou (University of Chinese Academy of Sciences), Fangfu Ye (Institute of Physics, Chinese Academy of Sciences), and Jin Wang (Stony Brook University). The workshop included 16 one-hour faculty lectures, introducing to the attendees some important techniques used in biophysical studies and recent progresses and discoveries associated with these techniques. Over one hundred graduate students and postdoctoral scholars attended the workshop

The conference included five plenary talks and 12 conference symposia. The plenary talks were presented by scientific leaders in their respective fields, including **one Nobel Laureate:**

Anna Barker (Arizona State University),

Michael Sheetz (National University of Singapore),

Yigong Shi (Tsinghua University)

Sunney Xie (Harvard University), and

Ada Yonath (Weizmann Institute, 2009 Nobel Laureate in Chemistry).

The **12 conference symposia** included **84 invited talks**, by both junior and senior researchers, on topics encompassing the entire range of leading-edge biological physics research. The conference also included a half-day poster session in which around **150 posters** were presented.

2) C6 meeting at Beijing on June 21, 2014 on the occasion of ICBP2014

Attendee: K. Yoshikawa (Chair) , Aihua Xie (Vice-Chair)

Rita Maria Cunha de Almeida, Zhong-can Ou-Yang, David Bensimon, Imre Derenyi, Ramakrishna Ramaswamy, Silvia Morante, Galina Riznichenko,
Observer: Li Ming

Contents of Discussion:

- i) Nomination of Aihua Xie as the next Chair of C6 has been approved from all of the members attended.
- ii) Next place of ICBP after Beijing has been discussed. Exchange of the opinions have been made, including possible places such as Brazil, Italy, Hungary, and France.
- iii) Candidates for the positions of Vice-Chair and Secretary of C6 have been discussed.
- iv) As for the decision as the opinion of C6 commissions concerning the above items, 1) and 2), Aihua and Kenichi continue the discussion. Until the end of July, we may decide the opinion as C6.

3) Young Scientist Prize

We have selected three awardees from 31 nominations, for the winners for the prizes 2012, 2013 and 2014. We had a ceremony at the 8th IUPAP International Conference of Biological Physics (ICBP 2014), together with the special session on the lectures of the winners.

IUPAP C6 Young Scientist Prize 2012 - Dr Tuomas Knowles, University of Cambridge

... for his seminal contributions to the biophysics of macromolecular self-assembly into highly ordered bio-polymers in the context of both, fundamental biophysics and application in materials science and molecular medicine. This work represents a remarkable advance that has fundamentally changed the way we understand assemble and mis-assemble processes of proteins at the molecular level.

IUPAP C6 Young Scientist Prize 2013 - Dr Marina Kuimova, Imperial College London

... for her seminal contributions to elucidating the intracellular environment during normal cell function and photodynamic therapy using advanced imaging techniques. To this aim, Dr Marina Kuimova has developed highly innovative time-resolved optical techniques and has pioneered the use of novel fluorescent molecular rotors to map intracellular viscosity.

IUPAP C6 Young Scientist Prize 2014 - Prof Dr Yi Cao, Nanjing University

... for his seminal contributions to development and application of atomic force microscope based single molecule force spectroscopy to study the nanomechanics and mechanical unfolding dynamics of proteins. This work is a milestone for our current understanding of the mechanical design of mechanically stable elastomeric proteins, and opens tremendous new opportunities for tailoring the mechanical properties of biomaterials.

4) Cooperation with AC4 (Medical Physics)

Joint symposium between C6 and AC4 was held on June 20 at ICBP2014.

Symposium Title: 'The Physics of Cancer'

Session Organizers: Herbert Levine(Chair), Fridtjof Nüsslin, Kenichi Yoshikawa

Session Chair: Herbert Levine (Rice University, USA)

5) Connection with IUPAB

Prof. Silvia Morante is conducting the role as the representative of C6 for the connectivity with IUPAB, International Union of Pure and Applied Biophysics. Joint discussions with plural Bio-Unions are now under discussion.