

**The 169<sup>th</sup> Committee Meeting of the British Biophysical Society, held from  
12.30 pm – 4.00 pm on Wednesday 28<sup>th</sup> September 2016 in room 114, Whiteley Suite,  
Old Chemistry Building, at Imperial College London**

## **Edited Minutes**

**Date:** 28<sup>th</sup> September 2016

**Present:** Anthony Watts (Chair), Tharin Blumenschein (Secretary), Guy Grant (Meetings Secretary), Jeremy Craven (Treasurer), John Sanderson, John Seddon, Svetlana Antoniuk, Olwyn Byron, Robin Leatherbarrow, Mark Leake and Mark Wallace.

**1** **Apologies:** Gordon Roberts, Peter Crowley, Syma Khalid, Ehmke Pohl, David Scott, Tuomas Knowles and Rob Cooke.

**2** **Approval of Minutes of the 168<sup>th</sup> meeting**

The Minutes were accepted with minor corrections to the dates of a future satellite meeting.

**3** **Matters Arising**

Mark Leake provided an update on Stage 2 of the EPSRC Physics of Life initiative, which will include sandpits and organisational funds, with a meeting in October. The website is currently being set up.

#### 4 **Chairman's Report** (Anthony Watts)

- Wrote to the new Honorary Members and heard back from all of them. They were all happy to be nominated.
- A lot of time was spent organising the IUPAB/ EBSA/ IoP/ BBS Congress, almost all speakers are confirmed at this stage, only one missing confirmation. Now approaching exhibitors, and looking for satellite meetings, a number of which are currently in planning by different people. One of the possibilities is to convert the "Physics of Emergent Behaviour" meeting into a satellite meeting.

**Action:** Mark Wallace to follow up

- Attended the symposium in honour of Bonnie Wallace, which was sponsored by the BBS, with the BBS banner. Bonnie has also recently been made an honorary member.

#### 5 **EBSA/IUPAB Activities** (John Seddon/Gordon Roberts)

**EBSA** – the committee met on 24<sup>th</sup> June, in Madrid. As this was the day after the Brexit vote, there was interest from the Spanish media, and members of the committee gave an interview. A statement of regret was placed on EBSA's website.

The 2019 EBSA Congress will take place in Madrid.

Nominations are being called for the 2017 Young Investigator's Medal, and for the Avanti Polar Lipid/EBSA Award. The deadline will be 31<sup>st</sup> December. There were changes in the rules for the Young Investigator's Medal, and one nomination should be provided by Society. Nominations for the Avanti award are done individually.

It was suggested that the BBS should nominate Philipp Kukura to the EBSA Young Investigator's Medal. Documents from his BBS Medal nomination will be circulated to the committee.

**Action:** Tharin

The next EBSA committee meeting will take place in Debrecen, Hungary, on 21<sup>st</sup> January 2017.

**IUPAB** – Gordon Roberts was not able to attend this meeting to report, but IUPAB is looking for nominations for a new General Secretary.

Tony has been in correspondence with the IUPAB regarding the Congress.

IUPAB (as well as EBSA) will be supporting approximately 50 travel bursaries for the Congress.

#### 6 **IOP Activities** (Mark Wallace)

There was a committee meeting in the end of May. The *Physics of Emergent Behaviour* meeting was discussed at the meeting.

The *Tom Duke Prize Lecture*, which will be awarded every 2 years, has now started. Perhaps it could be combined with the BBS Irish Lecture Tour.

The IoP core curriculum contains no Biophysics. There will be a meeting of the Biological Physics Group to discuss, and the BBS should send a letter to the IoP

about it.

**Action:** Mark Wallace and Jeremy to compose the letter, Tony to send it to the CEO of IoP

## 8 **Secretary's Report** (Tharin Blumenschein)

- 1) *Cross-representation with the RSC* – Contacted Rob Field, who brought up the subject with the CBID committee. This brought up the question of lack of cross-representation within the RSC Divisions, which they will look into. The CBID sent an update email to its members, with new council members, prize and award winners, and upcoming meetings.
- 2) *Royal Society of Biology* – We are now members, and have already been invited to a number of events.
- 3) *Biophysics Week 2017* – Will be March 6<sup>th</sup> – 10<sup>th</sup>. We should again plan as many events as we can.

Each committee member should plan to organise at least a lecture. John Sanderson mentioned an undergraduate lecture in Durham, Tharin suggested a symposium of the CMSB at UEA. Mark Wallace may update the poster.

**Action:** all  
Investigate the possibility of organising an event at the Crick Institute.

**Action:** Tony

- 4) *New committee members* – I have been approached by two people volunteering to join the committee. Neither of them is currently a member. We discussed the possibility of having the 2018 meeting in one of those 2 places, but came to the conclusion that the committee is already on the large size. We will keep the 2 candidates in mind for future committee membership, but their case would be strengthened by joining the BBS.

Possible locations for the 2018 BBS meeting could be Southampton or Kent, suitable local people will be approached. We should also keep in mind that the Astbury Conversation will happen in April 2018.

**Action:** Tony

## 9 **Treasurer's Report** (Jeremy Craven)

While in the past it has been too difficult to set up Direct Debit payments, companies such as GoCardless may now make it possible for a society our size, with the advantage that it would allow us to take online payments and payments from members living in foreign countries, unlike our current Direct Debit system. We should investigate that possibility further.

**Action:** Jeremy Craven and Mark Wallace

## 10 **Meetings Secretary's Report** (Guy Grant)

## 2016

*6<sup>th</sup> – 8<sup>th</sup> July: BBS Biennial Meeting, Liverpool.*

It was a very enjoyable meeting, attended by approximately 180 people from 14 countries. There were a number of poster prizes, which have all now been delivered. Svetlana has written a nice report for The Biochemist, attached as an appendix to the end of these minutes. Photos will be posted on the BBS website.

**Action:** Svetlana to send photos to Mark Wallace

*12<sup>th</sup> – 14<sup>th</sup> September: Physics meets Biology, Cambridge, organised by IoP. We have been invited to co-sponsor. Mark Wallace gave a talk; we provided a travel bursary and a poster prize.*

*15<sup>th</sup> December: Protein-protein interactions, self-assembly and aggregation, Wellcome Trust, London. One-day meeting. Registration should be £20 for members and £50 for non-members. The list of speakers is almost finalised.*

**Action:** Tuomas Knowles, Guy

## 2017

*16<sup>th</sup> – 20<sup>th</sup> July: Joint IUPAB / EBSA / BBS / IoP Congress, Edinburgh.*

100-120 travel bursaries will be available from EBSA and IUPAB combined. Twelve £500 poster prizes will also be available. A public lecture will be given by Chris Dobson at the opening of the meeting (2 pm on Sunday, 16<sup>th</sup> July), on the topic of Alzheimer's. The website is live, plenary speakers are confirmed, social trips are being put together. Exhibitors are being contacted. Abstracts will be published on an issue of the European Biophysics Journal. Satellite suggestions are being sought. The conference banquet will be an integral part of the meeting and available to everyone, and there will be a whisky tasting on Monday. Abstract deadline is 24<sup>th</sup> March 2017, and short oral presentations will be selected after.

The current candidates for the 2023 Congress are Quebec and Copenhagen.

**Action:** all

*21<sup>st</sup> – 23<sup>rd</sup> July: Satellite meeting - The Interplay Between Membrane Physics and Cell Biology, Durham.*

**Action:** John Sanderson

*December: a one-day meeting to be organised, volunteer required. We should try to book SOAS early to ensure that we can have the dates we wish.*

**Action:** Guy to book SOAS, all to think of a topic

## 2018

*April: Joint meeting with the Belgian Biophysical Society, Brussels. Andre Matagne is the contact.*

*The Artificial Cell (royal Society, Milton Keynes – Barbara Ciani) – the committee has agreed to provide a poster prize.*

*July: BBS Biennial Meeting. Looking for a volunteer and location to organise it.*

- 11 Newsletter/Publicity Officer** (Syma Khalid/John Sanderson)  
A newsletter is being prepared.  
**Action:** John Sanderson
- 12 Website** (Mark Wallace)  
The committee page has been updated.  
**Action:** Svetlana to send material about meeting
- 13 Membership** (Ehmke Pohl)  
Has circulated an updated membership list to Tharin and John Sanderson.
- 14 Irish Sub-section** (Peter Crowley)  
Peter Crowley is the new Irish representative.  
**Action:** Tony to welcome him to the committee  
  
The committee discussed the possibility of the Irish Tour to consist of Belfast, Dublin and Galway (previously, it has been Belfast, Dublin, and either Limerick or Cork).
- 18 AOB**  
There was no other business.
- 19 Date of Next Meeting**  
The next committee meeting will be in January, in London, on a date to be confirmed.

# New horizons and emerging biomedical challenges for Biophysics

## BBS 2016, 6-8 July 2016, University of Liverpool

Over 180 researches from 14 countries, including Australia, Brazil, Canada, France, Germany, Japan, Jordan, Sweden, UK and USA came to Liverpool to participate in the British Biophysical Society biennial meeting on 6-8 July 2016; more than half of them were young investigators and PhD students. The meeting brought together PhD students, PDRAs and many international leaders in the field of structural biology, synchrotron radiation, drug discovery, cell biology, enzymology, synthetic biology, computational biology and medicine to share their views and promote discussion on '*New horizons and emerging biomedical challenges for Biophysics*', which helped to create an outstanding agenda.

The conference started with a plenary lecture from Richard Henderson showing recent advances and remaining barriers in single particle Electron Microscopy (EM). The sessions were then divided into two parallel streams. In the Cryo EM and X-ray Lasers stream, Sriram Subramaniam (NIH, USA) described the extension of EM applications to tomography and near-atomic resolution structures of macromolecules and how these are being used for drug discovery, followed by an insightful presentation by Shawn Rawson, a PhD student from Leeds, on the use of cryo-EM platform for drug design. Applications of XFEL and microfocus beamlines at the Japanese SACLA X-ray laser facility and the Spring-8 synchrotron were covered by Masaki Yamamoto (RIKEN, Japan); Helen Ginn, a PhD student from Oxford, gave an overview of some X-ray free electron laser applications as well as some sophisticated data processing approaches. In the parallel stream called NMR of Proteins and Cells, the leading NMR expert and Director of one of the INSTRUMENT centres, Lucia Banci (Florence, Italy) described exciting experiments using in-cell NMR to probe the movement and use of metal ions in living cells. Sheena Radford (Leeds) showed us how she has applied unfolding techniques to find intermediates in important amyloid formation pathways.

After the coffee break, delegates were provided with two highly attractive streams; one on Ion Channels and Transporters and the other on Molecular Recognition. Streams were run in synchrony thanks to the efficient chairs of the sessions so that delegates could switch between the streams. The Channels and Transporters stream was opened by an excellent talk by Sir Munir Pirmohamed (Liverpool) on drug toxicity and the importance of knowing transporters variability in patients in order to prevent drug's adverse reactions. The stream on Molecular Recognition was opened with an equally nice talk by Chris Schofield. Both streams gave opportunities for established speakers, Liz Carpenter (Oxford) and Richard Garratt (Brazil) and young scientists, Lorna Smith (Oxford) and Jianshu Dong (Liverpool) to present their latest work. The scientific session of the day concluded with a flash poster presentation from five poster presenters, each of seven minutes duration. This was highly successful. Delegates were then able to mix late in the evening over a hot buffet dinner and drinks while taking the time to look at the sixty two posters that were on display throughout the meeting.

The second day was opened with a plenary lecture delivered by Toshihide Yamashita (Osaka). Prof. Yamashita presented an overview of clinical and biochemical investigations in "*Targetting a cure for paralysis*", which examined the recovery of the nervous system from injury and his latest research findings, which focus on molecular mechanism of neuronal rewiring regulation under neuronal injuries and neurodegenerative disorders. He provided evidence of how the injured nervous system could be helped to restore. His talk had direct implications for a number of neurodegenerative diseases. There followed parallel sessions on Neurodegeneration and Ageing and Advances in Computational Biophysics. In the first stream Liverpool's Malcolm Jackson showed us how neuromuscular junctions change in his models of the ageing process, and Gareth Wright showed a faulty interaction between SOD1 and its copper chaperone may be partly responsible for motor neuron disease. The Computational Biophysics stream featured Richard Strange (Essex), Lynn Kamerlin (Uppsala) among others. After the coffee break the delegates were offered two parallel streams, one on Single Cell Biophysics, and the other on Biophysics in Human Diseases. Violaine See (Liverpool) and Mike White (Manchester) provided the latest advances and some beautiful examples of imaging applications to complex important systems. In the second stream Stefan Marklund (Umeå, Sweden) explained how one protein aggregates in different ways in motor neuron disease and Jose

Mato (Spain) showed how MAT enzymes were involved in liver disease function and highlighted some of the unanswered questions in view of the recent high resolution structure of the MAT enzyme complexes.

In the afternoon, the plenary lecture was given by Jim Haseloff (Cambridge) on "*Engineering of physico-genetic living systems*", followed by parallel streams on Metals in Biology, and Enzymes and Organism: synthetic biology, and later streams on Biological Soft Matter and Catalysis. Nigel Robinson's talk was a clear highlight of the Metals in Biology stream where we learnt how many toxic metals are handled by biology, ensuring that all of the essential metals are utilized efficiently.

The second day closed with the highly-enjoyable gala dinner, served in The Crypt Hall of the Metropolitan Cathedral. Sir Tom Blundell welcomed the delegates to the Gala dinner and highlighted some of the excitement of the conference as well as the central importance of these Biennial Biophysics conference which provide a clear focus to the community. The Guest of Honour was Louise Ellman, MP for the local constituency of Liverpool, Riverside and Chair of the Parliamentary Select Committee for Transport. She noted the importance of regional, national and international cooperation in scientific advances. She spoke to us about the importance of communicating the importance of our scientific work to the general public. Anthony Watts (Oxford), Chair of the British Biophysical Society, also spoke to thank the organisers and announced the winner of the BBS 2016 Young Investigator's Medal. Sir Tom Blundell, as an honorary member of the BBS presented the medal to Adam Perriman (Bristol).



Anthony Watts, Richard Henderson and Sir Tom Blundell with BBS 2016 Young Investigator's Medal winner Adam Perriman.

With more than 50 excellent posters to choose from, competition for poster prizes was stiff. The IUCr awarded prizes to Ewan Ramsay (Manchester) for the poster "*The Structure of the Human Retinal Protein Retinoschisin and Analysis of Disease-causing Mutations*" and Nordine Helassa (Liverpool) for the poster "*Dystonia-causing mutations in hippocalcin show oligimerisation defect and translocation impairment*" and book prizes, kindly donated by the CSC Press, were awarded to Liyana Binti Azmi for her poster "*The Mystery of AdhE*". BBS poster prizes went to Florian Stroel (Cambridge) for the poster "*dSTORM superresolution imaging to study the role of endogenous alpha-synuclein*" and Didi He (Edinburgh) for "*How*

*do bacterial nanocompartments store iron?" and Juan Francisco Bada Juarez (Oxford) for his poster "Lipodisk™: a new tool for structural biology and drug discovery".*



Florian Stroehl

receiving a BBS poster prize from Anthony Watts



Anthony Watts

awards a BBS poster prize to Didi He



Ewan Ramsay

receives a poster prize from Jonathan Agbenyega of the IUCr

This being Liverpool, the Beatles had to feature somehow, so the dinner was followed by lively dancing to the music of the Mersey Beatles (an accomplished Beatles look-alike and sound-alike band).

The third and final day featured the themes of Drug Discovery and Membrane Proteins and Complexes with three outstanding plenary lectures. Sir Tom Blundell (Cambridge) opened the day with his talk "*Fighting Drug Resistance in Cancer and Infectious Diseases: how Biophysics can contribute*". This was followed by two parallel streams. Drug Discovery featured Paul O'Neil and Ben Bax among others while the Membrane Proteins and Complexes stream had highlights from James Naismith and Yvonne Jones. The conference closed with two plenary talks. Adam Perriman, the young scientist BBS award winner gave a talk on "*A life less aquatic – structure, function and dynamics in solvent-free liquid proteins*". The final plenary talk was given by Gregory Petsko (Weill Cornell Medical College) in characteristic highly communicative style. He talked on "*New Therapeutics for Alzheimer's and Parkinson's Diseases Using Structure-Guided Approaches*" and kept the audience captive for the whole hour.

We are very grateful to our sponsors and exhibitors: Astex Therapeutics, the Biochemical Society, Bruker, Dectris, FEI, the International Union of Crystallography, Molecular Dimensions, NanoTemper Technologies, Oxford Cryosystems, Oxford NanoImaging and Rigaku, for helping to make the meeting a memorable event.