



Editorial: Special issue of *Biophysical Reviews* dedicated to the joint 10th Asian Biophysics Association Symposium and 42nd Australian Society for Biophysics Meeting, Melbourne, Australia, December 2–6, 2018

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A brief history of the ABA and ASB

The Asian Biophysics Association (ABA) represents biophysical societies from Australia (Hill 2019), China (Xu 2019), Hong Kong (Zhu 2019), India (Jagannathan 2019), Japan (Kandori 2019), Korea (Lim et al. 2019) and Taiwan (Lyu 2019), and aims to strengthen and promote biophysics in the Asia-Pacific region. The ABA was founded at the 5th East Asian Biophysics Symposium (EABS) held in Okinawa in 2006 as an Asian academic association. At that time, the

incorporation of Australia and India was approved by five original members (China-Beijing, China-Taipei, Hong Kong, Japan, and Korea) resulting in the seven-country association. The 6th ABA Symposium, that inherited the spirit and numbering of EASB, was held in Hong Kong in 2009. The past president of ABA (2015–2018) was Professor Xiyun Yan from the Institute of Biophysics, Chinese Academy of Sciences, Beijing. The current president of ABA is Associate Professor Danny Hatters from The University of Melbourne. The Australian Society for Biophysics (ASB) was formed in 1975, the first annual general meeting being held at the University of New England, Armidale, in 1976, with annual conferences held for the 42 years since. The current President of the Society was Dr. Adam Hill from the Victor Chang Cardiac Research Institute, Sydney.

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This special issue of *Biophysical Reviews* is based on the proceedings of the first joint meeting between the ABA and the ASB. The meeting was held at RMIT University, Melbourne, Australia, from the 2nd to the 6th of December 2018. It represents the 10th ABA Symposium and the 42nd Annual Conference of the ASB.

Conference proceedings and features

The conference was co-chaired by Professor Renae Ryan (The University of Sydney) and Associate Professor Danny Hatters (The University of Melbourne), who are now the secretary and president, respectively, of the ABA. Renae and Danny and their team did a superb job of organising an exciting and well-attended meeting. The conference consisted of a total of 16 scientific sessions (run in two parallel streams) consisting of nine themes: Bioinformatics, Biophysics and Medicine, Membrane Biophysics, MRI and PET, Nanobiophysics, Neuroscience, Omics, Structural Biology, and Super-

Resolution Microscopy. Table 1 gives a breakdown of these sessions, the speakers, and chairs. A total of 87 speakers presented, including 46 invited speakers, of whom three presented plenary talks. Thirty individuals chaired the sessions. A total of 120 poster presentations completed the scientific proceedings. Table 1 also includes a reference to both review articles and summaries of several session themes submitted to *Biophysical Reviews*, with these reviews categorised into their respective themes.

A social highlight of the conference for the international visitors to the conference was both the Tuesday afternoon visit to the Healesville Sanctuary, where attendees were able to see several Australian animals such as koalas, platypuses, kangaroos, echidnas, and emus. The conference dinner, held at the Sea Life aquarium, was a further highlight.

Plenary sessions and ASB McAulay-Hope prize

Professor Zihe Rao from Tsinghua University, Beijing, China, was the first plenary speaker, discussing the type 2 B-Caspid and C-Caspid structures of the herpes simplex virus. The second plenary lecture was delivered by Professor Satyajit Mayor from the National Centre for Biological Sciences, Bangalore,

India. He discussed plasma membrane dynamics and mechano-chemical control of membrane composition in living cells. The third plenary, presented by Professor Jackie Ying from the NanoBio Lab, Singapore, described her work on using nanotechnology as a diagnostic tool for infectious disease detection, cancer diagnosis, genotyping assays, and food testing. Professor Ying was the recipient of a Georgina Sweet travel award supporting the attendance of a female keynote speaker at an Australian Conference. The ASB's highest award, the McAulay-Hope prize for original biophysics, was awarded to Professor Mibel Aguilar from Monash University for her work in developing new methods to study model cell membranes (Aguilar 2019).

Overall remarks

This was the first joint meeting held between the ASB and the ABA, and the editors would like to make note of the excellent scientific sessions, from the plenary sessions to the posters, representing a wide range of scientific viewpoints. In particular, the mix of scientists from the Asia-Pacific region and beyond, coupled with the relatively small size of the conference (239 delegates), meant that attendees were able to mingle

Table 1 Session themes held at the ASB/ABA joint meeting, RMIT, Melbourne, Australia December 2–6, 2018

Session title	Session chair(s)
Bioinformatics	Megan O'Mara Toby Allen
Omics	David Stroud (Stroud 2019)
Structural Biology (Judy and Kishore 2019; Sato and Ikeguchi 2019; Shanmugam et al. 2019; Yamauchi et al. 2019)	Ray Norton Marc Kvensakul (Kvensakul 2019) Shannon Mostyn Takayuki Nishizaka Marc-Antoine Sani (Sani and Nishizaka 2019)
Biophysics and Medicine (Chen et al. 2019; Kidoaki 2019; Ravichandran et al. 2019)	Matt Baker (Baker 2019) Andrew Battle Jamie Vandenberg
Nanobiophysics (Hayashi et al. 2019; Khafaji et al. 2019; Passam and Chiu 2019)	Boris Martinac Xiyun Yan
Membrane Biophysics (Aoki and Ikeguchi 2019; Deplazes et al. 2019; Du and Su 2019; Hasan et al. 2019; Hossain and Clarke 2019; Kato 2019; Nakayama et al. 2019; Ueda et al. 2019; Yanagi et al. 2019)	Frances Separovic Pingsheng Liu (Liu and Separovic 2019) Charles Cranfield (Cranfield 2019)
Super-resolution microscopy	Till Bocking Tao Xu Donna Whelan Liz Hinde
MRI and PET	Caroline Rae
Neuroscience (liu et al. 2019)	Tiemin Liu Danny Hatters

collegially in an environment conducive to initiating new collaborative efforts among attendees both locally and internationally. The editors look forward to both the next ABA Symposium to be held in Taiwan and the next ASB conference and are excited at the prospects of increasingly productive relationships among biophysicists in the Asia-Pacific region.

References

- Aguilar M (2019) A Comment by Prof. Mibel Aguilar - 2018 Recipient of the Australian Society for Biophysics' McAulay-Hope Prize for Original Biophysics. *Biophys Rev*
- Aoki E, Ikeguchi M (2019) In vitro assembly of *Haemophilus influenzae* adhesin transmembrane domain and studies on the electrostatic repulsion at the interface. *Biophys Rev*
- Baker MA (2019) ASB/ABA Biophysics and Medicine Session 2018. *Biophys Rev*
- Chen Y, Li Z, Ju LA (2019) Tensile and compressive force regulation on cell mechanosensing. *Biophys Rev*
- Cranfield CG (2019) ABA/ASB Membrane Biophysics Session 2018. *Biophys Rev*
- Deplazes E, White J, Murphy C, Cranfield CG, Garcia A (2019) Competing for the same space – protons and alkali ions at the interface of phospholipid bilayers. *Biophys Rev*
- Du W, Su QP (2019) Single-molecule in vitro reconstitution assay for Kinesin-1 driven membrane dynamics. *Biophys Rev*
- Hasan M, Moghal MR, Saha SK, Yamazaki M (2019) The role of membrane tension on the action of antimicrobial peptides and cell-penetrating peptides in biomembranes. *Biophys Rev*
- Hayashi K, Matsumoto S, Miyamoto MG, Niwa S (2019) The physical parameters of neuronal cargo transport regulated by autoinhibition of kinesin UNC-104. *Biophys Rev*
- Hill A (2019) Introduction to the Australian Society for Biophysics. *Biophys Rev*
- Hossain KR, Clarke RJ (2019) General and specific interactions of the phospholipid bilayer with P-type ATPases. *Biophys Rev*
- Jagannathan NR (2019) An introduction to the Indian Biophysical Society. *Biophys Rev*
- Judy E, Kishore N (2019) A look back at the molten globule state of proteins: thermodynamic aspects. *Biophys Rev*
- Kandori H (2019) The Japanese Biophysical Society. *Biophys Rev*
- Kato N (2019) Optical second harmonic generation microscopy: application to the sensitive detection of cell membrane damage. *Biophys Rev*
- Khafaji M, Zamani M, Golizadeh M, Bavi O (2019) Inorganic nanomaterials for chemo/photothermal therapy, a promising horizon on effective cancer treatment. *Biophys Rev*
- Kidoaki S (2019) Frustrated differentiation of mesenchymal stem cells. *Biophys Rev*
- Kvansakul M (2019) ABA/ASB Structural Biology Session II 2018. *Biophys Rev*
- Lim H, Kim KK, Park C (2019) Introduction to the Korean Biophysical Society (KBPS). *Biophys Rev*
- Liu P, Separovic F (2019) Membrane biophysics session. *Biophys Rev*
- liu C et al (2019) G-quadruplex structures formed by human telomeric DNA and C9orf72 hexanucleotide repeats. *Biophys Rev*
- Lyu P (2019) Introduction to the Taiwan Biophysical Society. *Biophys Rev*
- Nakayama Y, Hashimoto K, Kawasaki H, Martinac B (2019) “Force-From-Lipids” mechanosensation in *Corynebacterium glutamicum*. *Biophys Rev*
- Passam FJ, Chiu J (2019) Allosteric disulphide bonds as reversible mechano-sensitive switches that control protein functions in the vasculature. *Biophys Rev*
- Ravichandran S, Subramani VK, Kim KK (2019) Z-DNA in the genome: from structure to disease. *Biophys Rev*
- Sani M, Nishizaka T (2019) Structural biology, ASB/ABA meeting, Melbourne. *Biophys Rev*
- Sato D, Ikeguchi M (2019) Mechanisms of ferritin assembly studied by time-resolved small-angle X-ray scattering. *Biophys Rev*
- Shanmugam N, Baker MODG, Ball SR, Steain M, Pham CLL, Sunde M (2019) Microbial functional amyloids serve diverse purposes for structure, adhesion and defence. *Biophys Rev*
- Stroud DA (2019) ABA/ASB Omics 2018. *Biophys Rev*
- Ueda T, Kofuku Y, Okude J, Imai S, Shiraishi Y, Shimada I (2019) Function-related conformational dynamics of G protein-coupled receptors revealed by NMR. *Biophys Rev*
- Xu T (2019) The Biophysical Society of China strengthens international academic exchanges and collaborations. *Biophys Rev*
- Yamauchi M, Mori Y, Okumura H (2019) Molecular simulations by generalized-ensemble algorithms in isothermal-isobaric ensemble. *Biophys Rev*
- Yanagi T, Takagi T, Takahashi H, Kikukawa T, Amii H, Sonoyama M (2019) Comparison of two different partially fluorinated phosphatidylcholines with perfluorobutyl group on thermotropic properties of bilayer membrane and reconstituted bacteriorhodopsin. *Biophys Rev*
- Zhu G (2019) The Biophysical Society of Hong Kong (BPHK): past, present and future. *Biophys Rev*

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