

Preface

Biophysical chemistry is a relatively new branch of physical chemistry. Wikipedia—the free encyclopedia describes it with the following sentences (http://en.wikipedia.org/wiki/Biophysical_chemistry, cited on November 2, 2014): “Biophysical chemistry is a physical science that uses the concepts of physics and physical chemistry for the study of biological systems. ... The most common feature of the research in this subject is to seek explanation of the various phenomena in biological systems in terms of either the molecules that make up the system or the supra-molecular structure of these systems.” During the early development, two most prominent events were the establishment of the “Max Planck Institute for Biophysical Chemistry” in Göttingen in 1971 and the publication of the first issue of the journal of *Biophysical Chemistry* in 1973. In order to address the significance of biophysical chemistry, the Division I of the International Union of Pure and Applied Chemistry (IUPAC) changed its name from the “Physical Chemistry Division, IUPAC” to the “Physical and Biophysical Chemistry Division, IUPAC” in 2000. The rapid development and great achievement of biophysical chemistry were well reflected in the most recent Nobel Prizes in Chemistry: to Martin Karplus, Michael Levitt and Arieh Warshel “for the development of multiscale models for complex chemical systems” in 2013 and to Eric Betzig, Stefan W. Hell and William E. Moerner “for the development of super-resolved fluorescence microscopy” in 2014.

The milestone of biophysical chemistry in China was the inclusion of biophysical chemistry as a sub-discipline of physical chemistry in the Category in the *Guide Book for Funding Application* by the National Natural Science Foundation of China in 2008. Since then, biophysical chemistry has blossomed nationwide. In July 2010, the First National Conference on Biophysical Chemistry (NCBPC1) was held in Beijing. In January 2012, the Chinese Chemical Society endorsed the establishment of the Biophysical

Chemistry Division. In October 2012, NCBPC2 was held in Wuhan, where participants reached about 220, almost doubling the scale of NCBPC1.

In July 2014, we witnessed the great success of NCBPC3 in Qingdao. About 380 participants got together to exchange their research results, ideas and views. To celebrate and to record the historical moment, *Science China Chemistry* asked us to edit a special topic on biophysical chemistry, which ended up with current collection of the papers presented herein. The papers are written by experts in biophysical chemistry who attended NCBPC3. They have illustrated broad spectra of the current status of biophysical chemistry. We hope that the readers together with us enjoy reading these articles. We have every reason to believe that the prosperity of biophysical chemistry in China is ahead of us. We wish to thank all authors and reviewers for their great work. We also wish to express our appreciation to Dr. Junjian Xu for his cooperation in whole project. It is their effort and work that make this special topic possible.



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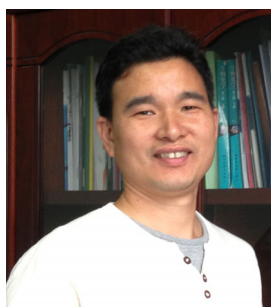
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XinSheng Zhao: Cheung Kong Professor; Chairman of the Department of Chemical Biology, College of Chemistry and Molecular Engineering, and Principle Investigator in Biodynamic Optical Imaging Center (BIOPIC), Peking University; Associate Member of the Physical and Biophysical Chemistry Division, International Union of Pure and Applied Chemistry; Director of the Biophysical Chemistry Division, Chinese Chemical Society. BS, Peking University (1982); MS, Peking University (1984); PhD, UC Berkeley (1988); Postdoc, MIT (1989–1990). His primary research interests are the dynamic mechanisms of biomolecular reactions studied via single molecule detection. Special focus is on nucleic acid modification and protection and quality control of biogenesis of outer membrane proteins.



Shu Wang: He got his BS at Hebei University (1994), PhD at Peking University (1999). He performed postdoctoral research at Institute of Chemistry, Chinese Academy of Sciences (1999–2001) and University of California, Santa Barbara (2001–2004). In 2004 he became a professor of Institute of Chemistry, Chinese Academy of Sciences. His current research interests are design, synthesis and properties of conjugated polymer materials for biological applications. Now he is Associate Editor of *ACS Applied Materials & Interfaces*, and Editorial Board members of *Langmuir* (2011–2013), *Acta Chimica Sinica*, *Science China Chemistry*, *Scientific Reports* and *Materials Horizons*.



Fang Huang: Professor at the Center of Bioengineering and Biotechnology and the Vice Dean of the College of Chemical Engineering, China University of Petroleum. He graduated from Shandong University with both BS (1995) and MS (2000) and received PhD from University of Basel, Switzerland (2004). Following his Postdoc with Sir Alan Fersht at University of Cambridge (2004–2008) he was appointed as an Investigator Scientist at the MRC Centre for Protein Engineering, Cambridge. In 2009 he joined the China University of Petroleum as a professor. His research interests are protein folding and functions studied via protein engineering and single-molecule fluorescence techniques.