IUPAP Commission on Biological Physics (C6)

Report on Activities from October 2018 to October 2019

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1. Joint EBSA-IUPAP ICBP2019 in Madrid, Spain

The 10th IUPAP International Conference on Biological Physics (ICBP2019) was held jointly with the European Biophysical Societies Association (EBSA) during 20-24th July 2019 in Madrid, Spain. More than 1000 participants from all over the world and working a diverse range of topics related to biophysics attended the meeting. Professor Juan Manuel Rodríguez Parrondo from Universidad Complutense in Madrid, who is member of C6, was co-chair of the ICBP2019 conference together with the EBSA Vice President Prof. Jesus Perez-Gil. There were three satellite meetings organized in Ljubljana, Madrid, and Lausanne. Senior members of both communities put together 14 symposia that were very well attended. This ensured a good synergy between the two organizations. This was a very exciting development as it was the first time that two historically separated communities that represent different parts of the spectrum of this interdisciplinary field joined up forces to have an active participation in bridging the barriers amongst them. The conference was balanced well in terms of invited speakers, symposia chairs, and members of the scientific advisory board.

2. The IUPAP C6 Young Scientist Prize in Biological Physics 2018 & 2019

Two winners were selected for the prizes of 2018 and 2019, which was collectively presented at the 10th international conference in biological physics (ICBP), held in Madrid, Spain, during July 20 – 24, 2019.

2019: Dr. Knut Drescher, Max Planck Institute for Terrestrial Microbiology, Germany
"For his significant contributions to imaging and understanding the spatiotemporal development and function of bacterial multicellular behaviors, ranging from collective motion to bacterial biofilm communities." Knut Drescher is currently both a professor of biophysics at the Philipps-Universitaet Marburg and a Max Planck Research Group Leader at the Max Planck Institute for Terrestrial Microbiology in Marburg, Germany. Knut received his undergraduate education in physics at the University of Oxford from 2003-2007, before

completing a PhD in biophysics at the University of Cambridge in 2011, where he pioneered measurements of flow fields around microorganisms and their hydrodynamic interactions. He became interested in bacterial multicellular behaviors and molecular biology during his postdoctoral fellowship at Princeton University, in the Department of Molecular Biology from 2011-2014. In 2014, Knut Drescher moved to Marburg, Germany, to take up his current positions. Knut's work focuses on understanding the morphogenesis of bacterial communities, and the evolutionary fitness consequences of life within bacterial communities. His work combines genetics, biochemistry, and biophysical techniques to explore molecular, physical, and evolutionary mechanisms underlying bacterial behaviors within communities. Most recently, he has developed live-cell imaging techniques for biofilms and swarms that simultaneously capture the single-cell dynamics and community dynamics, thereby facilitating major new insights into bacterial collective behaviors.

2018: Dr. Nikta Fakhri, MIT, USA
"For her significant contributions to applying fundamental principles of thermodynamics to experimental nonequilibrium biological systems, and advancing our understanding of how molecular-scale non-equilibrium processes are manifest in the system dynamics at larger scales." Nikta Fakhri is Thomas D. and Virginia W. Cabot Career Development Assistant Professor of Physics at MIT (Cambridge, MA, USA). She completed her undergraduate degree at Sharif University of Technology, Tehran, Iran and her PhD at Rice University (Houston, TX, USA) in 2011. She was a Human Frontier Science Program postdoctoral fellow at Georg-August-Universistät in Göttingen, Germany where she pioneered the use and development of fluorescent single-walled carbon nanotubes as probes in soft matter and biophysics. At MIT, her lab focuses on identifying underlying principles of collective dynamics and complex spatiotemporal patterns in far from equilibrium biological systems.

3. ICBP2022

We have decided to hold the next ICBP conference at the Seoul National University, Seoul during the week of July 18 – 22, 2022. We are currently in discussion with the C3 commission to connect this conference to STATPHYS that is planned for the week after in Yokohama.

4. Proposal for a C6 Senior Award

We have decided to establish a senior award for C6. This will help the process of community building for those who work at the interface between physics and biology with a strong emphasis on answering physical questions about biological systems and life in general. We have named the prize as the *Schrödinger Medal in Biological Physics* from C6 IUPAP.