

Appendix A: Workshop Organization

This report summarizes the findings of an NSF-supported workshop held during May 16-18, 2004, in Tempe, Arizona. This workshop brought together a group of 53 theoretical researchers, and representatives from NSF and NIH, and Physics Today. Some of the researchers were already heavily involved in biological-physics research, while others were beginning their involvement, and so gave a good representation of the community. The workshop participants were charged with providing answers to the questions raised above in the Executive Summary. In order to assure broadly based participation in the workshop, it was advertised to American Physical Society subgroups, and announcements were sent to the chairs of all research physics departments in the United States. Outstanding international theorists were also notified. This produced a list of over 100 applicants for the workshop. An opportunity was given for all applicants to post their views on the subject online, which were used as additional input. The participants were selected from this list using several criteria, including extent of involvement in this area, the representation of a broad range of research fields, and geographical diversity. To facilitate the discussions, the field was divided into four subfields: biomolecules, supramolecular assemblies, systems biology, and education/infrastructure. A discussion leader for each subfield was chosen. The supramolecular assemblies subfield had originally been divided into two categories for simple and complex structures, with these divisions reflected in the schedule. However, this division was deemed to be artificial, and the two subfields were combined. The leaders of both the “simple” and “complex” categories led the supramolecular assemblies study. Not all areas of biological physics fit naturally into one of these subfields, so the boundaries were of necessity somewhat diffuse. The workshop participants were divided into teams corresponding to the subfields, but were also encouraged to work in teams other than their own.

Because of the breadth of biophysics, it was impossible to give an exhaustive survey of either past successes or future research areas. Thus we aimed to select some examples of past successes and possible future research directions in each subfield. The workshop began with plenary talks by group leaders for the subfields. Subsequently, the teams met separately to look in detail at specific examples of “success stories” and of areas where theory can make valuable contributions. The whole group then reconvened to share findings and the process of team meetings and reporting back to the whole group was repeated. Subsequently, an audio link to the 91st Statistical Mechanics Conference was established in order to obtain input from statistical physics researchers, involved in biological physics, who were attending that meeting. The last part of the workshop was devoted to writing a draft of this report. The following Appendices give the Workshop schedule and the list of participants and team leaders.