Advances in Polyelectrolyte Research

ARTICLE *in* THE JOURNAL OF PHYSICAL CHEMISTRY B · JULY 2007

Impact Factor: 3.3 · DOI: 10.1021/jp079524c

THE JOURNAL OF PHYSICAL CHEMISTRY B

 VOLUME 111, NUMBER 29, JULY 26, 2007

Advances in Polyelectrolyte Research

Polyelectrolytes strongly affect surface properties and interactions. Research on polyelectrolytes in recent years has provided important physical insights in surface and interface science as well as materials engineering. These systems have widespread applications in surface modification, water treatment, and controlled drug release. The behavior of naturally charged macromolecules such as proteins and DNA is determined by the same interactions. In that area, synthetic polyelectrolytes act as model systems for the understanding of the often far more complex behavior of the natural molecules. Research from recent years contributes to the fields of physics and physical chemistry and helps to understand the interplay between electrostatic and hydrodynamic interaction and the behavior of macromolecules in solution, in complexes, and at solid interfaces. One dominating topic has been counterion condensation and its impact on structure, assembly, and complex formation. The most recent results are summarized in the present special issue dedicated to polyelectrolytes. The special issue summarizes updated progress in research on polyelectrolytes covering the following fields:

- Polyelectrolytes in solution
- Formation and properties of complexes and nanoparticles
- Polyelectrolytes at solid interfaces
- Polyelectrolyte multilayers
- Hydrogels
- Advanced analysis
- Natural polyelectrolytes

Few international conferences have been solely focused on the topic of polyelectrolytes. Most papers in this special issue are based upon the 6th International Symposium on Polyelectrolytes, the most recent in a series of symposia that began in 1995 in Potsdam, Germany. The scientific program consisted of 8 invited lectures and 51 contributed talks selected from the abstracts submitted. Other contributions were presented in two poster sessions at prominent spots in the meeting. Discussion and exchange of ideas among the 180 participants were an important feature of the meeting.

The next meeting, Polyelectrolytes 2008, will take place in June 2008 in Coimbra, Portugal.

We hope that the International Symposia on Polyelectrolytes and the present special issue will demonstrate the significance of research on polyelectrolytes and we expect that the field of polyelectrolyte science will continue to grow and influence other fields.

Ulrich Scheler
Simona Schwarz
Martin Müller
Ray Farinato
Paul Dubin

Guest Editors

10.1021/jp079524c CCC: $37.00
Published on Web 07/19/2007