

Preface

Since 1986 Dresden Polymer Discussions have mirrored different topics of polymer science, uniting each time a limited number of invited researchers for presentation and intensive discussions of latest results.

The 7th Dresden Polymer Discussion, held in Meißen near Dresden from April 19 to 22, 1999, was integrated in the activities of the DFG-Sonderforschungsbereich 'Reactive polymers in inhomogeneous systems, in melts and at surfaces', and it was dedicated to the field: *Characterization of polymer sorption phenomena: From solution to the surface.*

The organizers – the Institute of Polymer Research Dresden and the Institutes of Macromolecular and Textile Chemistry and of Physical Chemistry and Electrochemistry of the Dresden University of Technology – had selected this specific topic as they had felt a particular deficit in this field.

Research in the area of modification and characterization of surfaces and interfaces of solids has been booming in the last few years, due to its enormous importance and potential for the development of novel technologies in materials research and engineering. A lot of contributions have been made to understand and influence interfacial phenomena such as adhesion, wettability, colloidal stability, friction, wear, corrosion resistance, biocompatibility of materials, membrane processes, etc. In addition, the new techniques and methods to create and characterize nanoparticles and nanostructures at surfaces have opened up the path for the nanotechnology. This has considerable effects on many industrial branches. Applications in information technology, biomedical technology, and sensor and actor technologies seem particularly promising.

However, scientists are still facing a lot of unsolved questions and phenomena to be explained in this vast field between materials science and engineering, physical and macromolecular chemistry, and colloid science. E. g., papers and discussions in the last few years have clearly shown that the sorption of species from a solution to a solid surface cannot be explained satisfactorily if the properties and structures of these species in solved state are not known and duly considered.

This was just the topic the 7th Dresden Polymer Discussion was meant to tackle with presentations and discussions of latest results to the aspects of

- characterization of the polymers in solution (dimension, solvation, association, ...)
- properties of the surface before polymer sorption (reactivity, surface energy, ...)
- the way of the polymers to solid surfaces/into the bulk (adsorption, penetration, ...)
- the state of the polymers at surfaces (thin layers, structure, ...) (homo and copolymers, polyelectrolytes, proteins, ...)

More than 30 scientists from 8 countries met with researchers from the Dresden institutes, and renowned as well as younger scientists presented almost 30 oral papers and 20 posters and enjoyed vivid and interesting discussions on them.

We hope that the meeting and the publication of this *Macromolecular Symposia* volume may contribute to further progress in the field.

We wish to thank all those who contributed to the success of the meeting. In this place our special thanks are to those who have handed in their manuscripts for publication in this volume.

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