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Macromolecular Systems: Microscopic Interactions and Macroscopic Properties

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Final report of the collaborative research centre 213, "Topospezifische Chemie und Toposelektive Spektroskopie von Makromolekülsystemen: Mikroskopische Wechselwirkung und Makroskopische Funktion", 1984 – 1995

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Collaborative Research Centres

WILEY-VCH

DFG

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Internet: http://www.dfg.de

Library of Congress Card No.: applied for

A catalogue record for this book is available from the British Library.

Die Deutsche Bibliothek – CIP Cataloguing-in-Publication Data
A catalogue record for this publication is available from Die Deutsche Bibliothek

ISBN 3-527-27726-9

Printed on acid-free and chlorine-free paper

Cover Design and Typography: Dieter Hüsken
Composition: ProSatz Unger, D-69469 Weinheim
Printing: betz-druck gmbh, D-64291 Darmstadt
Bookbindung: J. Schäffer GmbH & Co. KG, D-67269 Grünstadt

Printed in the Federal Republic of Germany

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Preface

At the end of 1983, about eight years after the inauguration of the University of Bayreuth the Deutsche Forschungsgemeinschaft (DFG) agreed to establish the Collaborative Research Centre 213, TOPOMAC, for the promotion of basic research in chemistry and physics of macromolecular systems. The title of TOPOMAC in its full length, "Topospezifische Chemie und Toposelektive Spektroskopie von Makromolekülsystemen: Mikroskopische Wechselwirkung und Makroskopische Funktion" expessed the intention of the original applicants: a productive cooperation between physicists, chemists and biochemists across the mutual borders of their original research fields. Until the end of 1995 TOPOMAC was supported by the Deutsche Forschungsgemeinschaft with 28 MDM.

The present book documents the achievements of TOPOMAC. It is not a minute addition of all the results which have been published in periodical journals but rather a survey of important research fields of members of TOPOMAC. The articles have been written towards or after the end of the support period as both, review and original publications.

The book covers the fields of:

- Electronic, photoelectric, thermal, dielectric, optical and magnetic properties of macromolecular solids (polymers and polymer crystals),
- Micellar structures, J-aggregates, liquid crystals, μ-gels, ferrocene-containing polymers and topospecific chemistry at surfaces and in single crystals, and
- Biopolymers and surfactant systems as studied by site directed spectroscopy and site directed chemistry and also by the theory of energy transport.

During the period of its support TOPOMAC had 30 members (Teilprojektleiter). Only ten of them have been members for the entire period, mainly because twenty times a call from other universities or research institutions reached one of the members of the Collaborative Research Centre 213. Fourteen of them followed this call and left the Collaborative Research Centre 213. Less than two years after the end of the period of support some of the remaining former members of Collaborative Research Centre 213 together with young and new faculty members began to continue the formal cooperation between chemists and physicists in the field of macromolecular research. Their actual cooperation in the meantime never had been terminated.

The editors would like to express the sincere thanks of the members of TOPOMAC to the foreign guests of TOPOMAC, to the Deutsche Forschungsgemeinschaft, to the University

of Bayreuth and also to the Freistaat Bayern. Our foreign guests stayed for long or short periods between one year and one day. They have contributed in an essential and special manner to the success on our research fields. They also strongly intensified the national and international scientific relations of both, the members and the research students of TOPOMAC. The cooperation of the speakers of TOPOMAC with Dr. Funk from the Deutsche Forschungsgemeinschaft office throughout the entire period of support was excellent. The help of the former president of the university, Dr. K. D. Wolff and his chancellor, W. P. Hentschel as well as the continuous support by the late Ministerialrat G. Grote and by J. Großkreutz from the Bayerisches Staatsministerium für Unterricht, Kultus, Wissenschaft und Kunst has been an essential stimulus for the scientific members of TOPOMAC. Last but not least we thank Doris Buntkowski for her faithful and reliable work as our secretary.

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