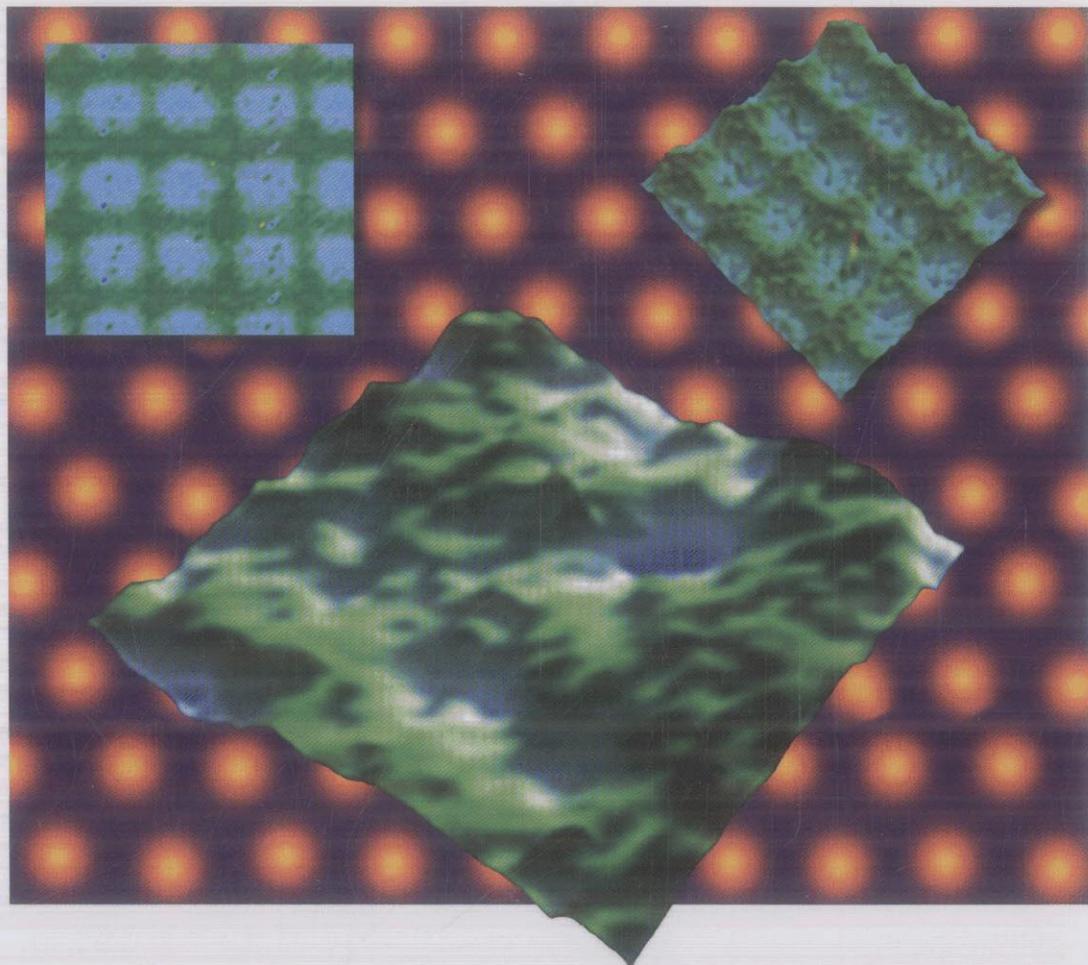


Edited by Wolfgang Knoll  
and Rigoberto C. Advincula

 WILEY-VCH

# Functional Polymer Films

Volume 2:  
Characterization and Applications



## Contents of Volume 2

### Part III Characterization 591

- 17 **Dynamics and Thermomechanics of Polymer Films** 593  
*Benoit Loppinet and George Fytas*

- 18 **Investigations of Soft Organic Films with Ellipsometry** 629  
*Diethelm Johannsmann*
- 19 **Swelling Behavior of Thin Hydrogel Coatings** 649  
*Ryan Toomey, Ajay Vidyasagar, and Ophir Ortiz*
- 20 **Scattering Techniques for Thin Polymer Films** 669  
*Gila E. Stein*
- 21 **Nanostructured Optical Waveguides for Thin-Film Characterization** 695  
*Hatice Duran, K.H. Aaron Lau, Petra J. Cameron, Antonis Gitsas, Martin Steinhart, and Wolfgang Knoll*
- 22 **Electrochemical Surface Plasmon Resonance Methods for Polymer Thin Films** 723  
*Akira Baba, Futao Kaneko, Rigoberto Advincula, and Wolfgang Knoll*
- 23 **Characterization of Molecularly Thin Polymer Layers with the Surface Forces Apparatus (SFA)** 745  
*Marina Ruths*
- 24 **Biomimetic Thin Films as a QCM-D Sensor Platform to Detect Macromolecular Interactions** 771  
*Nam-Joon Cho and Curtis W. Frank*
- 25 **Electrochemical Impedance Spectroscopy (EIS)** 791  
*Renate L.C. Naumann*
- 26 **Characterization of Responsive Polymer Brushes at Solid/Liquid Interfaces by Electrochemical Impedance Spectroscopy** 809  
*Omar Azzaroni and Claudio Gervasi*
- 27 **X-Ray Photoelectron Spectroscopy of Ultrathin Organic Films** 831  
*Xingyu Gao and Andrew T.S. Wee*
- Part IV Applications** 855
- 28 **Self-Assembled Multifunctional Polymers for Biointerfaces** 857  
*Géraldine Coullerez, Ganna Gorodyska, Erik Reimhult, Marcus Textor, and H. Michelle Grandin*
- 29 **Fabrication, Properties, and Biomedical Applications of Nanosheets** 907  
*Toshinori Fujie, Yosuke Okamura, and Shinji Takeoka*

- 30      **Hybrid Multilayer Films Containing Nano-Objects**    933  
*Yeongseon Jang, Bongjun Yeom, and Kookheon Char*
- 31      **Light-Directed Smart Responses in Azobenzene-Containing  
Liquid-Crystalline Polymer Thin Films**    961  
*Takahiro Seki*
- 32      **Thin-Film Applications of Electroactive Polymers**    983  
*Jennifer A. Irvin and Katie Winkel*
- 33      **Hybrid Nanomaterials in Ultrathin Films: the Sol-Gel Method and  
 $\Pi$ -Conjugated Polymers**    1017  
*Antonio Francesco Frau and Rigoberto C. Advincula*
- Index**    1051