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Calibration; 3.3.1.3.1 Determination of the Spring Constant of the Cantilever
3.3.1.3.2 Nonlinearity of the Quadrant of Photodiodes
3.3.1.3.3 Scan Rate of the Cantilever; 3.3.1.3.4 Systematic Check; 3.3.2 Force-Distance Curves on Rigid Systems of Controlled Surface Chemistry; 3.3.3 Force-Distance Measurements on Polymers; 3.3.3.1 Force-Indentation Measurements on Polymers; 3.3.3.2 Force-Indentation Curves on Systems of Controlled Surface Chemistry and Controlled Mechanical Properties; 3.4 Conclusion; References; 4 Organization of PCL-b-PMMA Diblock Thin Films: Relationship to the Adsorption Substrate Chemistry; Abstract; 4.1 Introduction; 4.2 Materials and Methods
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4.2.2 Infrared Spectroscopy; 4.2.2.1 Transmission; 4.2.2.2 Polarization-Modulation Infrared Reflection-Absorption Spectroscopy (PM-IRRAS); 4.2.3 Atomic Force Microscopy (AFM); 4.3 Results and Discussion; 4.3.1 PCL-b-PMMA Bulk Characterization; 4.3.2 PCL-b-PMMA Thin Films on OH-Functionalized Gold Substrates; 4.3.3 PCL-b-PMMA Thin Films on Gold Substrates; 4.4 Conclusion; References; 5 Adhesion and Friction Properties of Elastomers at Macroscopic and Nanoscopic Scales; Abstract; 5.1 Introduction; 5.2 Materials and Methods; 5.3 Results and Discussion
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5.3.2 Macroscale Friction; 5.3.3 Nanoscale Friction and Adhesion; 5.4 Conclusion; References; 6 Chemical Structure Formation and Morphology in Ultrathin Polyurethane Films on Metals; Abstract; 6.1 Introduction; 6.2 Materials and Methods; 6.2.1 Sample Preparation; 6.2.2 Experimental Characterization; 6.2.3 IR Spectra Calculation; 6.2.4 IR Band Assignment; 6.3 Results and Discussion; 6.3.1 Curing at Room Temperature; 6.3.2 Morphology of Thin Films; 6.3.3 Chemical Structure of Cured Films; 6.4 Conclusion; Acknowledgments; References
7 Properties of the Interphase Epoxy-Amine/Metal: Influences from the Nature of the Amine and the Metal

Sommario/riassunto

Emphasizing the most recent developments this book addresses both the basic and applied aspects of adhesion. The authors present the latest results on fundamental aspects, adhesion in biology, chemistry for adhesive formulation, surface chemistry and the pretreatment of adherends, mechanical issues, non-destructive testing and the durability of adhesive joints, as well as advanced technical applications of adhesive joints. Prominent scientists review the current level of knowledge concerning the role of chemical bonds in adhesion, new resins and nanocomposites for adhesives, and about the role
