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**Preface**

This textbook serves as a general introduction to surface and interface science. It focuses on basic concepts rather than specific details, on understanding rather than on learning facts. The most important techniques and methods are introduced. The book reflects that interfacial science is a diverse and interdisciplinary field of research. Several classic scientific or engineering disciplines are involved. It contains basic science and applied topics such as wetting, friction, and lubrication. Many textbooks concentrate on certain aspects of surface science without techniques involving ultrahigh vacuum or classic "wet" colloid chemistry. We tried to include all aspects because we feel that for a good understanding of surface science a comprehensive introduction is helpful.

Our manuscript is based on lectures given at the universities of Siegen and Mainz. It addresses advanced students of engineering, chemistry, physics, biology, and related subjects and scientists in academia or industry who are not yet specialists in surface science but desire solid background knowledge of the subject. The level is introductory for scientists and engineers who have a basic knowledge of the natural sciences and mathematics. Certainly an advanced level of mathematics is not required.

When looking through the pages of this book you will see a substantial number of equations. Please do not be scared! We preferred to give all transformations explicitly rather than writing "as can easily be seen" and stating the result. Chapter 3 is the only exception; to appreciate that chapter, a basic knowledge of thermodynamics is required. However, you can skip it and still be able to follow most of the rest of the book. If you do decide to skip it, please at least read and try to gain an intuitive grasp of surface excess (Section 3.2) and the Gibbs adsorption equation (Section 3.5.2).

A number of problems with solutions are included to enable for self-study. Unless noted otherwise, the temperature was assumed to be 25 °C. At the end of each chapter the most important equations, facts, and phenomena are summarized.

One of the main problems with writing a textbook is trying to limit its content. We tried hard to keep the volume within the scope of one advanced course lasting roughly 15 weeks, two days per week. Unfortunately, this meant cutting short or leaving out altogether certain topics. Statistical mechanics, heterogeneous catalysis, and polymers at surfaces are issues that could be expanded.