

Review of “Introduction to Surface Chemistry and Catalysis, Second Edition—2010” by Gabor A. Somorjai and Yimin Li

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Students around the world will welcome this text with its encyclopedic coverage of modern surface chemistry. The spirit of employing modern physical methods for the study of the details of surface chemistry, mainly on well-defined single crystal substrates, is retained from the first edition. The book contains many tables of data organized for detailed comparisons from system to system and serves as a source of original data for use by the research worker; as well the text builds fundamental concepts for the reader.

Surface chemistry has branched out from its classical bounds in the last ~ 20 years, and now connects strongly to more complex surfaces such as those found for example on polymers and at biological interfaces and in lubricant films. As an illustration of this expansion beyond conventional boundaries, in chapter 7, *Mechanical Properties of Surfaces*, one finds an entirely new treatment than in the first edition, where for example modern work with the atomic force microscope has now been featured. For a more complete coverage of this topic from a surface chemistry point of view, one must therefore use *both* the first and second editions, an historical separation which actually represents a useful pedagogical advantage to the community of students in the field. This classic book has been enhanced from the first edition (1994) with the

addition of a new chapter entitled *Polymer Surfaces and Biointerfaces*. Featured in this chapter are numerous examples of the use of sum frequency generation (SFG) vibrational spectroscopy to yield structural and interactional information about molecules located at the vacuum-polymer interface, where much of the action occurs.

An expansion of about 20 % in the length of the text has resulted from the revision. In the center of the volume is a set of beautiful glossy color plates related to issues throughout the text which helps to make the book even more a visual pleasure to use. While the second edition does not give answers to the problems, the student is referred to the research papers which relate to the problem at hand, a very useful teaching method employed also in the first edition.

The text is heavily referenced, although in one of the primary chapters sampled (chapter 2, *The Structure of Surfaces*) the massive list of references extends primarily through the late 1980s only.

I strongly recommend this book to anyone wishing to experience the beauty and joy of the dynamic field of surface chemistry. Behold the wide vistas as well as the occasional canyons in the ever changing landscape of modern surface chemistry!

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