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Book Review

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Molecular heterogeneous catalysis: a conceptual and computational approach

Wiley-VCH, 2006,
488 pp; price £70.00/€105.00
ISBN 3-527-29662-X (paperback)

This book aims to provide the reader with a detailed picture of the events that take place during catalytic processes, mostly focussing on those events occurring on the surface of solid catalysts. This molecular level treatment draws on modern computational studies as well as experimental work. In doing this, the authors cover a very wide range of catalysis, and later chapters extend the concepts into biocatalysis, homogeneous catalysis, electrocatalysis and the self-assembly of catalytic materials. This is an unusually broad coverage and it is commendable that the authors have brought so many disparate elements together in one work.

The coverage of the topics is very good and accessible and the chapters, and indeed the book itself, have been structured sensibly. The basics covered early on are built upon to give a detailed theoretical treatment of complex systems and illustrate how many detailed features of catalytic systems can be approached from a theoretical direction. The outcomes of the computational approach are then compared with experimental methods to give a fuller picture of the system as a whole. Many key catalytic processes are dealt with in detail, and important insights are indicated clearly. Clear and helpful illustrations are provided through the text.

While the book is well conceived and written, with a considerable amount of detail and information presented well, there are a number of typographical errors which detract somewhat from the flow in places. Apart from this minor criticism, this is a valuable book and augments the range of books on catalysis quite successfully. The success of the authors in incorporating so many different areas of catalysis, often dealt with as separate specialisms, is one of the key factors that recommends this book.

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