High-Throughput Screening in Chemical Catalysis – Technologies, Strategies and Applications; edited by A. Hagemeyer, P. Strasser, and A. F. Volpe Jr.; Wiley-VCH: Weinheim, **2004**, hardcover, 319 pp, € 139, ISBN 3-527-30814-8

In the last decade, high-throughput experimentation techniques and combinatorial methods have led to a paradigm change in those research areas which are of such a complex nature that rational design cannot be implemented yet. Heterogeneous catalysis is such an area in which the balanced combination of many parameters determines the performance of a catalyst. Since the days of Alwin Mittasch at the turn of the 20th century, scientists have prepared collections of catalysts and investigated their performance in screening campaigns. With the advent of combinatorial chemistry and lab automation, this strategy has been lifted to new heights with tremendous potential.

The editors – who work for Symyx, an industrial leader in catalysis research – have gathered the world-leading experts in high-throughput experimentation in catalysis to write this book, in which the current state of this field is described. Contributions from academia are balanced with reports from industrial groups, which is of importance, since some of the most impressive work in this field has been carried out by those groups and is now reported for the first time in the scientific literature.

Major topics covered in the book involve the parallel or combinatorial synthesis of heterogeneous and homogeneous catalysts, the high-throughput characterisation of these new materials, and their highly parallel evaluation for catalytic activity by a broad range of analytical techniques, such as infrared thermography, scanning mass spectrometry, or array cyclovoltammetry. Typically, the authors of a chapter describe how all these aspects are integrated in their own research and highlight them in case studies from their own lab. The scope of such case studies ranges from the classical 'dream reactions' in heterogeneous catalysis (ethane to acetic acid oxidation, propane to acrylonitrile ammonoxidation), over the preparation of CO-resistant fuel cell electrocatalysts, to single-site olefin polymerization catalysts. The reader gets a good impression of the most relevant areas of modern research in catalysis. Two chapters deal with the application of genetic algorithms and neuronal networks in experimental design, which is becoming increasingly important.

As is common in multi-author books, the quality of the chapters varies and several chapters overlap in their contents. This latter aspect is of minor significance since it allows looking at several important issues from different point of views. The book is not free from errors, the most disturbing one is a scheme on page 117 in which almost every structure is incorrect.

For whom is this book of interest? For anyone who wants to get a timely overview about the most fascinating approaches addressing the most relevant issues in modern catalysis, written by the leading experts in the field! These readers will not be disappointed and will enjoy reading this well-written book!

Rolf Breinbauer, University of Leipzig

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