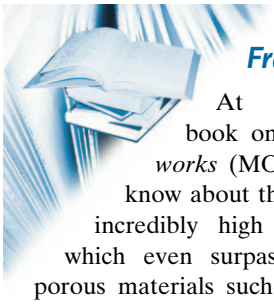

Metal–Organic Frameworks

At last—the long-awaited book on *Metal–Organic Frameworks* (MOFs)! Who does not yet know about these?—MOFs, with their incredibly high specific surface areas, which even surpass those of established porous materials such as activated carbon or zeolites. In recent years, MOFs have experienced a real boom. That is partly due to the strongly interdisciplinary nature of the subject, since MOFs are porous systems consisting of inorganic multinuclear complexes with organic linkers, which allows a lot of scope for investigating different organic systems with complex properties such as chirality or photoreactivity. Additionally, inorganic clusters can have catalytic activity or exciting magnetic and optical properties.

Wiley has now recognized this development by publishing a book on MOFs, consisting of 11 chapters by established international experts such as S. Batten, M. Fujita, S. Kitagawa, and several others, who have, along with O. Yaghi and G. Ferey, helped to establish the field. The book is strongly focused on the structural chemistry of MOFs and on "porous coordination polymers" (PCPs), a term favored by Kitagawa.

The book starts with a historical introduction by Fujita, with several examples from the chemistry of bipyridyl networks and related systems with N-donor ligands. In the following chapter, Eddaoudi describes carboxylate-based systems, with a focus on his own ZMOFs. Although several reviews describing the "benchmark MOFs" of Yaghi and Ferey, such as MIL-101 und MOF-177, are available, a more detailed description of the structure and properties of these systems would have been useful, especially since they are currently being intensively studied as model systems for separation, gas storage, and catalysis.

S. Batten gives a very useful introduction to the topology of networks and their systematic analysis, and in the following chapter M. Schröder illustrates this theme using numerous examples. Rational design and specific functionalization is described by Kitagawa, one of the pioneers in the field of PCPs. In his contribution he describes the possibilities opened up by using different metal clusters and by functionalization of the linkers (post-functionalization, chirality, hydrophobicity, acidity, basicity, metalloligands), with examples of current research. The design of chiral MOFs is addressed in detail by W. Lin, who also describes nonlinear optical properties.

Certainly, a book on such an internationally highly active field of research cannot provide more than a snapshot reflecting the state of the art. In Germany more than 30 groups are working in the priority program on MOFs (SPP 1362) funded by the Deutsche Forschungsgemeinschaft (DFG), and the DECHEMA international conference on MOFs held in Marseilles in 2010 again attracted an increased number of participants.

With regard to the state of the art on adsorptive properties of MOFs, the book can only give a representative sample of current research. Thus, the section on selective adsorption and gas storage is relatively short. The monograph is completed by a contribution on theory and molecular modeling by R. Snurr, who is certainly the most respected theoretician in this still new area of research.

To summarize, the book is focused more on the education of young academics than on applications-related topics. The latter aspects will be addressed in a second book to be published by Wiley in 2011. While some of the chapters in the book cover fundamental aspects and give a good introduction to the field, there are also others in which the expert will find valuable ideas for further work, and also data. Thus, the book is well suited for the beginner as well as for the expert, and it is an essential addition to every bookshelf.

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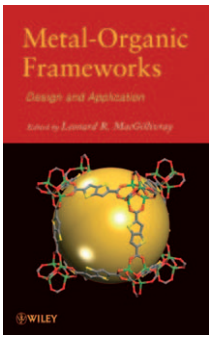

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