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## Preface

The rapid and impressive development which occurred and still occurs in all parts of science would not have been possible without interdisciplinary research. In order to help the scientists to cross the boundaries of their own field and to collaborate with research groups of neighboring disciplines, the Deutsche Forschungsgemeinschaft (DFG) initiated interdisciplinary research units (Sonderforschungsbereiche) already in the 1960s. This program has been very successful and nowadays it is one of the big wheels to spur first-class research at German universities.

The Sonderforschungsbereich (SFB) 347 was established at the University of Würzburg in 1990. It is entitled "Selective Reactions of Metal-activated Molecules" and should promote efficient cooperation between the departments of inorganic, organic and physical chemistry, nutrition chemistry and experimental physics. Organometallic chemistry in all its different facets provides the frame of the project and the metal and its influence on interacting molecules stands in its center. The following important roles played by the metal are considered:

- *activation* of relatively unreactive molecules (e.g. oxygen, hydrocarbons, CO etc.);
- *stabilization* of short-lived reaction intermediates (oxenes, nitrenes, carbenes, sulfenes etc.);
- *coordination* of substrates in highly-ordered templates (e.g. prochiral biaryllactones);
- *modification* of reactive substrates (e.g. peroxides or phosphorus ylides) with concomitant achievement of chemo-, regio- and stereoselectivity.

Catalysis in general and by metalloenzymes in particular also became an important part of the program. This aspect as well as spectroscopical and theoretical studies on metal–ligand interactions have been taken into account in several contributions to this volume.

The Sonderforschungsbereich 347 existed for 12 years and I had the privilege and the duty to be the chairman

for the whole period of time. Since it was intended from the very beginning that not only established research groups but also young scientists at the start of their academic career should be included in the program, the SFB became an open system indeed. Ten colleagues who joined the faculty of Chemistry and Physics between 1990 and 2001 were accepted as members of the SFB and during the same period also 10 members of the SFB left Würzburg to take up a professorial position at another university. It can be considered as a characteristic of the SFB 347 that in most cases the collaborations between the established research groups and the young scientists who left are still continuing.

The successful work carried out between 1990 and 2001, documented in ca. 180 Ph.D. thesis and ca. 1200 publications, would not have been possible without the continuing and generous financial support by the Deutsche Forschungsgemeinschaft, the Freistaat Bayern and the University of Würzburg. We are most grateful for this support which spurred both the progress of fundamental science and the careers of numerous young chemists and physicists. Moreover, the work done within the frame of the SFB also initiated a variety of contacts and collaborations with research groups in Germany and abroad which led to a widening of the scientific horizon on both sides. We are extremely grateful to all the people who contributed to these activities and thus made the work done in the SFB a real success. The short reviews collected in this volume present a timely (admittedly selected) survey over the topics and concepts covered by the SFB 347 in recent years. They will hopefully stimulate further investigations in this promising area of modern chemistry.

Helmut Werner

*Institut für Anorganische Chemie, Universität Würzburg,  
Am Hubland, Würzburg 97074, Germany*  
E-mail: [helmut.werner@mail.uni-wuerzburg.de](mailto:helmut.werner@mail.uni-wuerzburg.de)