

## Virtual Issue on Catalysis Research at the Leibniz Institute for Catalysis (LIKAT)



### ■ HISTORY

Over 60 years of catalysis “know how” forms the basis of the Leibniz Institute for Catalysis at the University of Rostock (LIKAT). In 1952, the Rostock Professors Günther Rienäcker (Inorganic Chemistry) and Wolfgang Langenbeck (Organic Chemistry) founded the Research Institute for Catalysis in Rostock, the first institute in Europe devoted exclusively to catalysis research. In 1959, these two areas of catalysis research parted ways for what would be nearly 50 years. Homogeneous (i.e., organometallic) catalysis remained with Wolfgang Langenbeck in Rostock and led to the creation of the Institute for Organic Catalysis Research. Heterogeneous catalysis moved with Günther Rienäcker to Berlin and became the focus of the Institute of Inorganic Catalysis Research. Both institutes were later part of the German Academy of Sciences in Berlin (Academy of Sciences), which was dissolved in 1991 as a result of the country’s reunification. With the creation of the Center for Heterogeneous Catalysis in 1992 in Berlin, catalysis research was once again institutionalized. Two years later, this center joined with three other chemistry centers as the Institute for Applied Chemistry Berlin-Adlershof (ACA).

The Rostock Catalysis Institute became a national research institute of Mecklenburg-Western Pomerania after the closure of the Academy of Sciences. From 1992 to 1997, the Max Planck Society, through the establishment of two working groups, “Complex Catalysis” and “Asymmetric Catalysis”, contributed significantly to the stabilization and modernization of the Rostock Institute. Since mid-1998, Professor Matthias Beller has directed the Institute of Catalysis in Rostock. After a very positive evaluation of the institute’s research by the

German Council of Science and Humanities (WR - Wissenschaftsrat), its acceptance as a member of the Leibniz Association, as the Institute of Organic Catalysis Research (IfOK), was successfully completed on January 1, 2003. On December 6, 2005, with the registration of the Leibniz Institute for Catalysis at the University of Rostock (LIKAT Rostock) at the District Court of Rostock, the merger of the IfOK and the ACA (retroactively from July 1, 2005) was legally recognized. As an affiliated institute of the University of Rostock, LIKAT has the legal form of a registered association and as such includes a general membership meeting, a Board of Trustees, and a Scientific Advisory Council.

Although LIKAT has gone through many institutional changes since its founding in 1952 by Langenbeck and Rienäcker, the main objective of the two founders—to promote the transfer of relevant basic research results for use in the development of chemical products or processes—has been preserved.

### ■ RESEARCH PROFILE

Catalysis is the science of the acceleration of chemical elementary processes. By using high-performance catalysts, chemical reactions take place in a way that spares resources, increasing the yield, avoiding byproducts, and reducing the specific energy requirement. It is only possible to meet the global demand for an efficient use of all resources by making use of efficient catalysis research. Already, four out of five chemical products undergo a cycle of catalysis during their

Published: November 24, 2014

manufacture. Thus, catalysis acts as a science spanning across a range of disciplines, contributing to the process of finding solutions for the fundamental challenges of the 21st century. For this science to develop further, there is a need for an interdisciplinary collaboration between inorganic, organic, and technical chemistry; the nanosciences; physical chemistry; and process technology. To an increasing degree, applications of catalysis apart from their use in chemistry are also found in the life sciences and in the sourcing of energy, as well as in the protection of the environment.

The main objectives of LIKAT's scientific projects range from the acquisition of new knowledge in catalysis research (and its applications) to technical utilization of such new knowledge. The strategic goals of LIKAT are to define and shape the development of relevant catalysis research for areas of economic activity that hold potential for the future, and also to put into effect new catalysis-based applications in these areas.

The Leibniz Institute for Catalysis is the largest publicly funded research institute in Europe in the area of applied catalysis. Its areas of expertise are arranged both according to the various methods employed and according to the materials being studied. The following points of emphasis in the program define the institute's research activity:

- Applied sustainable processes of catalysis
- Innovative methods and technologies for catalysis
- Molecularly defined catalysts, special (metal)organic syntheses and catalysts

I am pleased to feature some of the current work of researchers at LIKAT in this Virtual Special Issue of *ACS Catalysis* (<http://pubs.acs.org/page/accacs/vi/likat.html>), demonstrating the breadth and depth of the activities that are ongoing within the institute.

**Matthias Beller**

Leibniz Institute for Catalysis

## ■ AUTHOR INFORMATION

### Notes

Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

The authors declare no competing financial interest.