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EDITORIAL



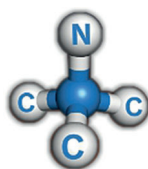
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The World of Catalysis—A Perspective from The Netherlands

Barbara L. Mojet^{*[a]} and Johannes Hendrik Bitter^{*[b]}

Over 85% of all industrial processes involve a catalyst to increase the yields of desired products and to lower waste. Typically, catalysis is subdivided into the main disciplines of heterogeneous, homogeneous, and bio-catalysis. Within each of these fields, many interactions exist and for all of them specialized conferences have been organized throughout the years.

Since the year 2000, the Dutch catalysis and chemistry communities have joined forces, resulting in the founding of The Netherlands Catalysis and Chemistry Conference (NCCC), which unites all catalysis disciplines for the exchange of ideas and scientific insights.



Even at the beginning of the 20th century, catalysis had already developed into an important field both in industry and universities, and Jan Hendrik de Boer (1899–1971) is generally recognized as its founder in the Netherlands. In the years thereafter, the different catalysis disciplines developed quickly into sound and internationally well-known research groups.

Large industries instituted their own research laboratories, which closely collaborated with university researchers.

The good relationships between the branches of catalysis can also be found in The Netherlands Institute for Catalysis Research (NIOK), of which almost all catalysis research groups at Dutch universities are members. NIOK has a strong program in teaching PhD students on a national and international level. In addition, the scientific committee of NIOK discusses possibilities and challenges of catalysis in The Netherlands. NIOK is also advised by industrial partners who are members of the advisory committee Viran.



The importance of catalysis for the Dutch industry and economy is also recognized by the Dutch government, as is reflected in the National Research School Combination—Catalysis and the recent foundation of the NIOK graduate School "Solar

Fuels Catalysis" and the NRSCC school "Solar Fuels". Finally, the Catalysis Section of the Royal Netherlands Chemical Society (KNCV) represents over 350 people active in catalysis in The Netherlands. The NCCC conference is organized under the auspices of these parties together with the Flanders science foundation (FWO, Belgium). NCCC offers a unique international forum for academic and industrial scientists working in catalysis and chemistry research and technology.



Catalysis Section

Yearly, NCCC attracts about 500 participants, including around 100 scientists from industry. The meeting comprises plenary and keynote lectures by invited speakers, and selected oral papers and posters. For PhD students working in The Netherlands this is an excellent platform to present and discuss their work with leading scientists. At the NCCC, a unique gathering is also organized for young scientists. An introductory after-dinner presentation by a senior representative visualizes the future work environment for chemists and chemical engineers. This presentation is followed by the "Company Market", during which young scientists can discuss their potential career with industry and knowledge institute representatives and recruiters.

The scientific program of NCCC combines presentations from PhD students, postdoctoral researchers, and leading (international) scientists, the latter being invited by the NCCC organization for a keynote or plenary lecture. These lectures are specially tuned to the broad scientific audience of the NCCC and give a flavor of all disciplines for the participants. This *ChemCatChem* Special Issue is an anthology of the topics addressed over the last five years. We feel that this Special Issue reflects the development of new or renewed exiting lines of catalysis research from the traditional fields of heterogeneous catalysis, homogeneous catalysis, and bio-catalysis.

Typical examples are the papers related to biomass conversion into chemicals and fuels approached from different perspectives. In addition, this issue also shows the need for and progress in fundamental understanding of the traditional topics in catalysis to advance the new and renewed fields.

The Guest Editors would like to thank all the contributors to this Special Issue, the referees, the editors, and the editorial staff of *ChemCatChem* for their assistance. With this issue we wish the reader inspiration for crossing boundaries in catalysis.



Barbara Mojet & Harry Bitter

Barbara Mojet (1969) studied chemistry at the Catholic University of Nijmegen (now Radboud University) and obtained her degree in 1993, specializing in inorganic and physical chemistry. Subsequently, she performed her PhD research at Utrecht University in the group of Prof. Diek Koningsberger. Her PhD work focused on the relation between catalytic activity and electronic structure of supported metal particles. In 1997, she received her Doctorate degree cum laude. As a research fellow she continued working in the field of heterogeneous catalysis at Eindhoven University of Technology, further specializing in zeolites and spectroscopic characterization of catalysts. Since 2001, she has been a scientific staff member at the University of Twente in the group of Catalytic Processes and Materials. Currently, she focuses on the application of new concepts in selective oxidation of short alkanes and in situ catalyst characterization in liquid-phase reactions.

Harry Bitter (1969) studied chemistry at the Catholic University of Nijmegen (now Radboud University) and obtained his degree in 1993, specializing in organic and organometallic chemistry. Subsequently, he performed his PhD research at the University of Twente in the group of Prof. Johannes Lercher. His PhD work was devoted to the development and understanding of bifunctional Pt/ZrO₂ catalysts for CO₂/CH₄ reforming to syngas. In 1997, he received his Doctorate degree. As a junior staff member he continued working in the field of heterogeneous catalysis at Utrecht University, focusing on the use of X-ray spectroscopy in catalysis. Since 1999, he has been a scientific staff member at Utrecht University in the group of Inorganic Chemistry and Catalysis. Currently, his research centers on the application of catalysis in biomass-based conversion and the use of carbon-based catalysts.

Both guest editors have actively participated in the organization of NCCC for several years. Barbara Mojet was member of this committee for seven years (2006–2012) in different positions (treasurer, secretary, and general member). Harry Bitter has been involved in the organization since 2010 as secretary and general member.

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