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German Catalysis Meeting – 50 Years and as Young as Ever

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Attendance Record at the 50th Anniversary

The 50th German Catalysis Meeting provides proof that the long-standing history of this conference reflects a good tradition for chemists and chemical engineers from Germany and other countries to come together and discuss about the current progress in catalysis. This was the case in the past and was proven and lived this year even more intensively.[1] The German Catalysis Meeting took place in the beautiful historical city of Weimar from March 15th to 17th 2017 and its overwhelmed intensity and fruitful get-together are addressed just by some facts and numbers:

In preparation of the 50th German Catalysis Meeting a *ChemCatChem* Special Issue highlighted the enormous importance of catalysis in academia, industry, and society.[2] At the meeting itself 620 registered participants enjoyed listening to six plenary lectures given by outstanding speakers. Additionally, 42 scientific lectures in two parallel sessions could be attended. Overall, the numerous posters of around 300 were shown in two poster sessions divided in two days, most of them also accessible as e-posters on screen during the whole conference. Parallel to the poster session, some scientific contributions from the broad field of the 300 poster contributions were invited to be discussed deeper in six poster workshops. In particular, young scientists have the opportunity to make first experience in presenting their work in front of an audience.

In between the three days (full of scientific input) the relaxed and casual GeCatS party took place, shifting the input to real chemicals in the form of a variety of dishes and drinks. Live music and intensive dancing rounded off the party as well as the meeting.

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Eventful History of the German Catalysis Meeting

Usually, anniversaries are also an occasion to take a look back. In the case of the German Catalysis Meeting this part was taken over by **Joachim Völter**, who has attended this conference 47 times! He told the audience about the early beginnings and the development of the Catalysis Society, in an initially divided Germany, and the chances and challenges after the reunification. Besides, his talk was filled with numerous anecdotes based on more than 50 years of experience in catalysis. For the participants it was really a special honor and they acknowledged the speaker and his lovely wife with a loud, respectful, and affectionate applause.

International Stars on Stage

For many years now, the German Catalysis Meeting is known for its outstanding speakers. However, for the 50th anniversary the organizing committee was able to even top all expectations by inviting true "stars" of the international catalysis community.

The conference immediately started with a first highlight: **Alexis Bell** from the University of California in Berkley, US gave a plenary lecture about "The Influence of Local Composition, Structure, and Confinement on the Activity and Selectivity of Catalytically Active Sites". He impressively showed how information from experiments *and* theory improve the understanding of catalyzed reactions in modern catalysis. This approach was convincingly demonstrated for thermal dehydrogenation of alkanes, ammoxidation of propane, and cracking and dehydrogenation of butane. After this outstanding lecture, the following speakers managed to maintain the high level. The last session of the day dealt with collaboration projects between industry and university and they illustrated as an excellent example how such cooperation can accelerate innovations.

Day 2 was opened with a great lecture given by **Can Li** from the Dalian Institute of Chemical Physics. He presented his prominent work on photocatalysis and photoelectrocatalysis for artificial photosynthesis—with all its frontiers and challenges. His research progress on the light-induced hydrogen pro-

duction is based on a fundamental understanding of the semiconducting materials in order to improve its light absorption efficiency, charge separation and migration, and catalytic reactivity by specific deposition of co-catalysts. The morning continued with two parallel sessions about sophisticated characterization methods and photo/electro catalysis, respectively, before **Matthias Beller** from the Leibniz Institute for Catalysis in Rostock had his conference "home game". He opened his lecture by a provocative but inspiring question to the audience; that is whether homogeneous and heterogeneous catalysis can learn from each other. And of course, after his excellent talk everyone in the audience had to admit that the answer is *YES*! One of the excellent examples showing the bridge between homogeneous and heterogeneous catalysis was the recently developed molecular-defined as well as nanostructured cobalt and iron catalysts enabling catalytic (de)hydrogenation processes with high yields and unprecedented selectivity. The afternoon continued in parallel sessions dealing with current topics, most prominent opportunities for the catalytic conversion of CO_2.

Despite the famous GeCatS party (the night before), the conference hall was filled to capacity on Friday morning and without a doubt the reason for this was the lecture given by **Robert Grubbs** from the California Institute of Technology in Pasadena. He presented his outstanding and Noble Prize awarded work on olefin metathesis—from the early fundamental beginnings to tremendous improvements and industrial application. Especially for young researchers it was an extraordinary experience to listen to the mastermind behind the discipline that became a core part of any organic chemistry curriculum. Following the talk of this year's Jochen Block Prize Winner and a session on innovative catalyst development, the conference closed as impressive as it began—with plenary lectures of the two Alwin Mittasch awardees.

Awards, Awards, Awards…

During the GeCatS party many prizes are awarded. On this special occasion, the 50th anniversary, the prestigious Alwin Mittasch Prize for extending fundamentals in catalysis and its exemplary application in industry goes to two distinguished members of the catalysis community. The awardees are **Xinhe Bao** from the Dalian Institute of Chemical Physics (Figure 1) for his contribution to the development of novel catalysis concepts for methane and syngas conversion and **David Cole-Hamilton** from the University of St. Andrews (Figure 2) for his pioneering work aimed at a better understanding of molecular catalysis and its industrial application. The plenary lectures of both awardees were an adequate completion of the conference. Xinhe Bao gave an inspiring talk about new horizons in C1 chemistry and David Cole-Hamilton linked his talk to the history of Alwin Mittasch. "On the shoulders of Alwin Mittasch" covered his research endeavors to produce amines from nitrogen by hydrogenation (and some of it in flow).

This year's Jochen Block Prize for acknowledging upcoming scientists was awarded to Maricruz Sanchez-Sanchez from TU Munich (Figure 3) for her work in catalytic conversions of

Figure 1. Alwin Mittasch awardee Xinhe Bao (Dalian Institute of Chemical Physics: second left) together with Martin Muhler (Ruhr University of Bochum; left), Klaus Harth (BASF SE; second right), and Kurt Wagemann (DECHEMA e.V.; right). The picture by courtesy of Udo Kragl (University of Rostock).

Figure 2. Alwin Mittasch laureate David Cole-Hamilton (University of St. Andrews; second left) with Martin Muhler (Ruhr University of Bochum; left), Klaus Harth (BASF SE; center), Walter Leitner (RWTH Aachen University; second right), and Kurt Wagemann (DECHEMA e.V.; right). The picture by courtesy of Udo Kragl (University of Rostock).

Figure 3. The Jochen Block Prize awardee Maricruz Sanchez-Sanchez (TU Munich; center) with Martin Muhler (Ruhr University of Bochum; left) and Gerhard Mestl (Clariant; right). The picture by courtesy of Udo Kragl (University of Rostock).

Figure 4. Anne Brennführer (representing Wiley-VCH, right) and Rebecca Engel (Cardiff Catalysis Institute, representing YounGeCatS, left) present the six young researchers with the poster workshop prizes. The awardees are (from second left to second right) Huiqing Song (Ruhr University of Bochum), Elena Willinger (Fritz Haber Institute, Berlin) Takaaki Ikuno (TU Munich), Andreas Giehr (Karlsruhe Institute of Technology), Martin Gerlach (Otto-von-Guericke-University, Magdeburg), and Simon Schönebaum (RWTH Aachen University). The picture by courtesy of Udo Kragl (University of Rostock).

short-chain hydrocarbons into valuable products. In her plenary talk, she gave interesting examples of her work including methane oxidation and butene dimerization.

These two prestigious awards were not the only prizes given away at the German Catalysis Meeting in 2017! Altogether, eight poster prizes (awarded with 300 € each in various fields of catalysis) and six winners of the YounGeCatS poster workshops were celebrated at the GeCatS party. After the good feedback in the last years, the poster workshops have been extended from two to six covering different areas of catalysis. In this year, the chosen topics were hydroformylation, dry reforming of methane, selective oxidation of hydrocarbons, photo- and electrochemical water splitting, methanol synthesis from syngas, and zeolite catalysis. In each workshop, the best presentation was identified and all six awardees received a book prize kindly provided by Wiley-VCH (Figure 4).

In the end, the award of the "Rote Löwen" (German, red lion) may not be missed. This prize goes to attendees of the German Catalysis Meeting with numerous contributions. No wonder that in this year **Joachim Völter** received a very honorable prize, the golden band, for his incredible attendance at 47 German Catalysis meetings.

Show Must Go On

Without any doubt, the 50th German Catalysis Meeting was a great success. Together with the outstanding plenary lecturers and award winners this anniversary was unique in the history of the German Catalysis meetings! In Germany we say: After the German Catalysis Meeting is before the German Catalysis Meeting! So, we all are very curious about the 51st annual meeting of the German Catalysis Society from March 14th to 16th 2018 in Weimar. Here's to the next 50 years…!

[1] a) T. Seidensticker, R. V. Engel, T. Pogrzeba, *ChemCatChem* **2016**, *8*, 1987 – 1989; b) B. Engendahl, M. Özaslan, R. Marschall, M. Rose, S. Kaluza, J. Titus, C. Sprung, *ChemCatChem* **2015**, *7*, 1794 – 1796; c) J. Titus, S. Kaluza, R. Marschall, *ChemCatChem* **2014**, *6*, 1523 – 1525; d) M. Armbrüster, M. Behrens, B. Engendahl, M. Oezaslan, M. Rose, C. Sprung, *ChemCatChem* **2013**, *5*, 1297 – 1298.

[2] Special Issue: "GeCatS—50. Jahrestreffen Deutscher Katalytiker" *ChemCatChem* **2017**, 9, 523 – 712.

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