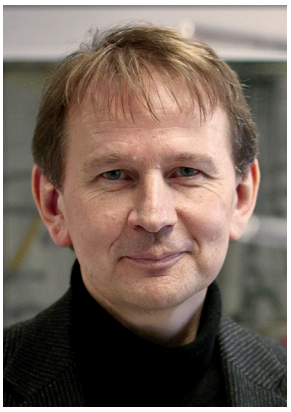
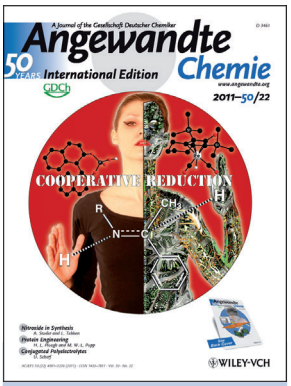


M. Beller

*The author presented on this page has recently published his **60th article** since 2000 in Angewandte Chemie:* "Efficient Copper(II)-Catalyzed Transamidation of Nonactivated Primary Carboxamides and Ureas with Amines": M. Zhang, S. Imm, S. Bähn, L. Neubert, H. Neumann, M. Beller, *Angew. Chem.* **2012**, *124*, 3971–3975; *Angew. Chem. Int. Ed.* **2012**, *51*, 3905–3909.



The work of M. Beller has been featured on the cover of Angewandte Chemie: "Cooperative Transition-Metal and Chiral Brønsted Acid Catalysis: Enantioselective Hydrogenation of Imines To Form Amines": S. Zhou, S. Fleischer, K. Junge, M. Beller, *Angew. Chem.* **2011**, *123*, 5226–5230; *Angew. Chem. Int. Ed.* **2011**, *50*, 5120–5124.

Matthias Beller

Date of birth:	April 11, 1962
Position:	Director of the Leibniz Institute for Catalysis at the University of Rostock (Germany)
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Education:	1987 Undergraduate degree, University of Göttingen (Germany) 1989 PhD with L.-F. Tietze, University of Göttingen 1990 Liebig Scholar with K. B. Sharpless, Massachusetts Institute of Technology
Awards:	**2003** Novartis Chemistry Lecturer; **2006** Gottfried Wilhelm Leibniz Prize of the DFG; Cross of the Order of Merit of the Federal Republic of Germany; **2010** Paul Rylander Award of the Organic Reactions Catalysis Society (USA); **2011** European Sustainable Chemistry Award, American Chemical Society GCI Pharmaceutical Roundtable Lecturer; **2012** Prix Gay-Lussac Humboldt
Current research interests:	Development of new sustainable catalysts for practical applications, namely coupling and carbonylation reactions, selective redox processes, development of iron catalysts, and the application of catalysis to more benign energy technologies
Hobbies:	Reading, running, tennis, and skiing (in winter)

When I was eighteen I wanted to be … a biology and chemistry teacher.

The biggest challenge facing scientists is … the development of technologies and methods to secure a sustainable future for our children.

Chemistry is fun because … it combines curiosity, creativity, and craft. Every day you can discover something unique.

Young people should study chemistry because … chemistry makes physics applicable and opens new avenues for biology, pharmacology, and medicine.

Last time I went to the pub … when was that?

My favorite drinks are … tea during the day and diet coke at night.

The most significant historic event of the past 100 years was … the further development and implementation of democracy.

The most important future applications of my research are … catalysts that will be used in "real" life on an industrial scale.

If I were a car I would be … driving on hydrogen.

My first experiment was … to mix bicarbonate and acetic acid.

In a spare hour, I … am completing e-mails (I apologize to all those whom I have not answered).

My favorite quote is … "What are you working on?" Mr. K. was asked. Mr. K. replied: "I'm having a hard time, I'm preparing my next mistake."(Bertolt Brecht; English language translation © 2001 by Martin Chalmers; reprinted by permission of City Lights Books.)

My favorite way to spend a holiday is … to travel with my wife and our two boys or to stay together at the Baltic Sea and relax.

My favorite molecule is … H_2O.

My science "heroes" are … Leonardo da Vinci and Gottfried Wilhelm Leibniz.

If I had one year of paid leave I would … stay at home and write childrens books.

My favorite painter is … Salvador Dalí.

My favorite band is … The Beatles.

My favorite book is … "The Lord of the Rings".

The natural talent I would like to be gifted with … is playing a musical instrument (guitar) really well.

How has your approach to chemistry research changed since the start of your career?

After my move from industry back to academia in 1996, the research of my (small) group was largely question-driven: How can we realize anti-Markovnikov amination, how can we activate aryl chlorides, etc. We tried to tackle these problems mainly with empirical approaches. Nowadays, our work is much more based on a certain "know-how" (in industry you would say on technology platforms), which we apply to a variety of problems. In addition, our work is much more interdisciplinary, using tools from organic and organometallic chemistry, homogeneous and heterogeneous catalysis, as well as material sciences. However, one thing remains constant: our interest in providing practically applicable catalysts and methods.

How do you think your field of research will evolve over the next 10 years?

Catalysis in all its facets will continue to be a major source for innovation in organic chemistry and a key tool for sustainable synthesis. Novel catalysts will be the basis for the improved industrial production of chemicals on bulk scale. In addition, catalysis will become more important for the conversion of renewables and also energy technologies.

My 5 top papers:

1. "Palladacycles as Efficient Catalysts for Aryl Coupling Reactions": M. Beller, H. Fischer, W. A. Herrmann, K. Öfele, C. Brossmer, *Angew. Chem.* **1995**, *107*, 1992–1993; *Angew. Chem. Int. Ed. Engl.* **1995**, *34*, 1848–1849.
   This work presented the first highly productive catalysts for Suzuki reactions. The catalysts were developed in cooperation with Wolfgang A. Herrmann's group in Munich and inspired numerous groups worldwide to develop cyclometalated catalysts for all kinds of coupling reactions.
2. "A New Highly Efficient Catalyst for the Telomerization of 1,3-Dienes with Alcohols: First Synthesis of a Monocarbenepalladium(0)–Olefin Complex": R. Jackstell, M. Gomez Andreu, A. Frisch, H. Klein, K. Selvakumar, A. Zapf, A. Spannenberg, D. Röttger, O. Briel, R. Karch, M. Beller, *Angew. Chem.* **2002**, *114*, 1028–1031; *Angew. Chem. Int. Ed.* **2002**, *41*, 986–989.
   We introduced palladium carbene complexes as highly efficient catalysts for telomerization reactions. Two pilot plant units were built in Marl in Germany to use this chemistry and produce telomers in a continuous mode. To the best of my knowledge, it still constitutes one of largest applications of carbene complexes in industry.
3. "Internal Olefins to Linear Amines": A. Seayad, M. Ahmed, H. Klein, R. Jackstell, T. Gross, M. Beller, *Science* **2002**, *297*, 1676–1678.
   Based on an industrial cooperation with Oxeno Olefinchemie (now Evonik), we realized the importance for the selective functionalization of mixtures. Normally, as organic chemists, we make mixtures from pure products. Herein, we demonstrated that it is possible to make pure products from mixtures.
4. "A General and Efficient Method for the Formylation of Aryl and Heteroaryl Bromides": S. Klaus, H. Neumann, A. Zapf, D. Strübing, S. Hübner, J. Almena, T. Riermeier, P. Groß, M. Sarich, W.-R. Krahnert, K. Rossen, M. Beller, *Angew. Chem.* **2006**, *118*, 161–165; *Angew. Chem. Int. Ed.* **2006**, *45*, 154–158.
   The palladium catalyst presented in this paper has been used on an industrial scale for the production of pharmaceuticals since 2006 and is still used today. To the best of our knowledge, it represents the first industrial reductive carbonylations of aryl halides.
5. "Efficient Dehydrogenation of Formic Acid Using an Iron Catalyst": A. Boddien, D. Mellmann, F. Gärtner, R. Jackstell, H. Junge, P. J. Dyson, G. Laurenczy, R. Ludwig, M. Beller, *Science* **2011**, *333*, 1733–1736.
   Herein, we demonstrated that molecular-defined catalysts based on iron complexes can be used for the benign production of hydrogen.

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