R. Schlögl

*The author presented on this page has recently published his **35th article** since 2000 in Angewandte Chemie:* "The Role of the Oxide Component in the Development of Copper Composite Catalysts for Methanol Synthesis": S. Zander, E. L. Kunkes, M. E. Schuster, J. Schumann, G. Weinberg, D. Teschner, N. Jacobsen, R. Schlögl, M. Behrens, *Angew. Chem.* **2013**, *125*, 6664 – 6669; *Angew. Chem. Int. Ed.* **2013**, *52*, 6536 – 6540.

Robert Schlögl

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Education:	1973–1978 Undergraduate degree, Ludwig-Maximilians-Universität (LMU) Munich 1978–1981 PhD with P. Boehm, LMU 1981–1983 Postdoctoral position with J. M. Thomas, University of Cambridge 1984–1986 Postdoctoral position with H.-J. Güntherodt, University of Basel 1986–1989 Habilitation with G. Ertl, FHI Berlin
Current research interests:	Heterogeneous catalysis with small molecules, chemical energy conversion, in situ observation and functional analysis of catalytic processes, method development for in situ analysis, nanoanalytics, controlled synthesis of inorganic functional materials, chemistry of carbon
Hobbies:	Hiking, cooking, music, photography

My favorite time of day is … the sunset.

In a spare hour, I … observe how people interact with their environment.

My favorite quote is … "Dem Anwenden muss das Erkennen vorausgehen" ("Before you can apply something you have to understand it"; Max Planck).

If I could be any age I would be … my current age.

My biggest inspiration is … informal discussions with my co-workers.

I admire … those who remember that in whatever we do, we remain human beings.

I advise my students to … work systematically and keep on asking "why?".

My favorite way to spend a holiday is … hiking.

The secret of being a successful scientist is … to carefully set out for a challenging target and constantly move towards it, no matter what obstacles and external influences may occur.

My favorite solid is … carbon.

My science "heroes" are … G. Ertl, J. M. Thomas, and G. Somorjai.

The most important thing I learned from my students is … to be patient.

My favorite musician is … Eric Clapton, my favorite composer is Ludwig van Beethoven.

When I was eighteen I wanted to be … a forester.

Chemistry is fun because … I can design concepts and verify them by myself.

Young people should study chemistry because … they can directly contribute to their own future.

Looking back over my career, I … would do it all over again.

My favorite drink is … Hugo.

The most important future application of my research is … the evolution of a genuine rational design concept for catalysis.

My first experiment was … a powder diffraction experiment with a film camera.

The greatest scientific advance of the last decade was … the evolution of informatics and communication.

How is chemistry research different now than at the beginning of your career?

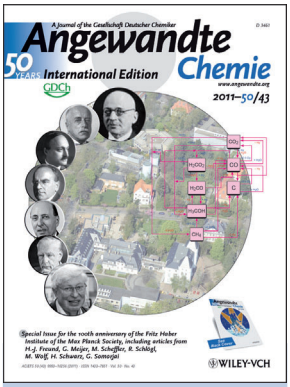
Today we command a powerful toolbox for studying interfacial processes. We can study systems of formerly prohibitive complexity, and have learned to tailor models and theory according to real challenges. Our curiosity for the concepts of heterogeneous reactions is unchanged, even if we now know about their complexity. We can create concepts of atomic resolution and verify structures and processes at multiple scales of space and time. Mastering the interdisciplinarity in my work has changed me from an individual fighter to a team player who capitalizes on the expertise both in the institute and in the region. This allows for deeper insights than conceivable at the beginning of my career. Bridging between different individuals opens up the possibility to project their own understanding onto the knowledge of colleagues, and thus effectively develop novel approaches to the work in a much more detailed way than previously possible with more formal interactions.

What is the secret to publishing so many high-quality papers?

In our research field, it is the formation of a creative team. The co-workers are given room to evolve in terms of their own personalities. This gives motivation channeled by the director acting as a conductor rather than as an active musician. He constantly asks co-workers to uncover the origins of phenomenological observations and defines the level of quality. The stories behind observations and discoveries are developed in teams, and we only publish if the understanding of a project is further advanced than the content of the publication in question. Internal consistency and detailed experimentation provide a solid database for reasoning. This is made possible through the excellent working conditions provided by the Max Planck Society, which allows us to carry out challenging work free from adverse non-scientific influences.

My 5 top papers:

1. "CO Oxidation as a Prototypical Reaction for Heterogeneous Processes": H.-J. Freund, G. Meijer, M. Scheffler, R. Schlögl, M. Wolf, *Angew. Chem.* **2011**, *123*, 10242 – 10275; *Angew. Chem. Int. Ed.* **2011**, *50*, 10064 – 10094
   An extensive report about the width and depth to which we can study a heterogeneous reaction today. Despite quite different approaches, a rich cohesive picture about the CO oxidation reaction evolved with a strong set of common conclusions. Our group uses this insight in applying the reaction as a probe for surface chemical properties, thus complementing spectroscopic interrogation.
2. "Understanding Palladium Hydrogenation Catalysts: When the Nature of the Reactive Molecule Controls the Nature of the Catalyst Active Phase": D. Teschner, Z. Révay, J. Borsodi, M. Hävecker, A. Knop-Gericke, R. Schlögl, D. Milroy, S. D. Jackson, D. Torres, P. Sautet, *Angew. Chem.* **2008**, *120*, 9414 – 9418; *Angew. Chem. Int. Ed.* **2008**, *47*, 9274 – 9278.
   An example of the power of a combined theoretical and experimental approach. We mutually designed experiments and models during the work to target critical aspects. The results are of relevance for a class of reactions practiced by many.
3. "Role of Lattice Strain and Defects in Copper Particles on the Activity of $Cu/ZnO/Al_2O_3$ Catalysts for Methanol Synthesis": I. Kasatkin, P. Kurr, B. Kniep, A. Trunschke, R. Schlögl, *Angew. Chem.* **2007**, *119*, 7465 – 7468; *Angew. Chem. Int. Ed.* **2007**, *46*, 7324 – 7327.
   A concise account of putting substances into "nano-effect" in catalysis. It is not size, but rather the actual structure, which is determined by the synthetic conditions chosen to achieve a desired size, that is crucial for catalytic function. The dimensions of the active phase are a proxy to describe the complex influence of the synthesis kinetics on the structure of the catalyst.
4. "Carbon Nanofilaments in Heterogeneous Catalysis: An Industrial Application for New Carbon Materials?" G. Mestl, N. I. Maksimova, N. Keller, V. V. Roddatis, R. Schlögl, *Angew. Chem.* **2001**, *113*, 2122 – 2125; *Angew. Chem. Int. Ed.* **2001**, *40*, 2066 – 2068.
   We frequently encounter deactivation of heterogeneous catalysts by the formation of carbonaceous deposits. This work shows that such deposits with the right structure can be beneficial, and led, with the insights from earlier work by others, to the design of a novel catalyst. The paper is an early account of metal-free heterogeneous catalysis by a rational approach, and inspired several activities by us and others in this direction.
5. "Emission of Microparticles from Automotive Sources—X-ray Photoelectron Spectroscopy in Environmental Analysis": R. Schlögl, G. Indlekofer, P. Oelhafen, *Angew. Chem.* **1987**, *99*, 312 – 322; *Angew. Chem. Int. Ed. Engl.* **1987**, *26*, 309 – 319.
   A challenging analytical task at the time. The paper clearly shows that novel technologies should be tested with advanced analytical tools for their possible side-effects. The intended effect is clearly beneficial and has helped preserve the environment. Multiple consecutive experiments seem to indicate that the unintended phenomena are confined locally and will not negatively affect ecosystems.



The following Review was featured on the cover of Angewandte Chemie: "CO Oxidation as a Prototypical Reaction for Heterogeneous Processes": H.-J. Freund, G. Meijer, M. Scheffler, R. Schlögl, M. Wolf, *Angew. Chem.* **2011**, *123*, 10242 – 10275; *Angew. Chem. Int. Ed.* **2011**, *50*, 10064 – 10094.

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