Angewandte Author Profile

Angewandte International Edition Chemie

A. Studer

The author presented on this page has published more than ***25 articles*** *since 2000 in Angewandte Chemie, most recently:* "Bis(phosphoryl)-Bridged Biphenyls by Radical Phosphanylation: Synthesis and Photophysical and Electrochemical Properties": A. Bruch, A. Fukazawa, E. Yamaguchi, S. Yamaguchi, A. Studer, *Angew. Chem.* **2011**, *123*, 12300–12304; *Angew. Chem. Int. Ed.* **2011**, *50*, 12094–12098.

Armido Studer

Date of birth:	February 24, 1967
Position:	Full Professor at the Organic Chemistry Institute, University of Münster (Germany)
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Homepage:	http://www.wwu.de/chemie.oc/studer/en/
Education:	1987–1991 Undergraduate degree at the ETH Zurich (Switzerland) 1995 PhD with Dieter Seebach, ETH Zurich 1995–1996 Postdoctoral position with Dennis P. Curran, University of Pittsburgh (USA) 2000 Habilitation, ETH Zurich
Awards:	**1999** Thieme Chemistry Journal Award; **2006** Novartis Young Investigator Award; **2007** Solvias Ligand Contest Award
Current research interests:	Development of new synthetic methods in the field of free-radical chemistry with a focus on the TEMPO radical along with other heteroatom-centered radicals; generation of new materials such as structured surfaces, immobilized catalysts, or highly ordered (nano)particles through controlled living radical polymerization and nitroxide exchange reactions; designing new reaction modes by studying the reactivity of free radicals towards other reactive intermediates
Hobbies:	Sports (in particular biking), gardening

I would have liked to have discovered … the triphenylmethyl radical.

My favorite food is … fondue.

The biggest issue that scientists face is … solving the energy problem.

What I look at first in a publication is … the graphical abstract.

My favorite part of my work is … to tell my co-workers that their work has resulted in a paper that has been accepted for publication.

If I won the lottery … I would continue living my life as I am doing right now.

The most important thing I learned from my parents is … to work hard and never give up.

I chose chemistry as a career because … I grew up near a chemistry company, and that gave me an outlook for my future.

My best investment was … to buy a neighboring area of ground to cultivate a nice garden.

My secret/not-so-secret passion is … red wine.

If I were not a scientist, I would be … a sportsman (skiing).

My greatest achievement has been … the recognition of the potential of TEMPO as a general reagent in organic synthesis.

The most exciting thing about my research is … to be faced with unexpected great results.

My biggest motivation is … to transfer my passion for chemistry to my co-workers.

The best advice I have ever been given is … to apply for a full professorship at the University of Münster (by a late colleague).

I can never resist … jelly babies.

The downside of my job is … to not have enough free time with my wife and kids.

A good work day begins with … sports and a shower.

When I'm frustrated, I … close my mouth and don't say anything.

My favorite band is … Coldplay.

Has your approach to publishing your results changed since the start of your career?

At the beginning of my career, the pressure for publications was rather high. Papers were submitted as soon as possible and all manuscripts were written by me. Now I expect my students to come up with a first draft of the paper. This is an important part of their education. Additionally, in the early stages of my career I did not publish any collaborative work. This has changed a lot. Currently around 50 % of the papers result from collaborations. Publishing collaborative work is more time-consuming and one has to go through several iterative cycles to complete a paper.

What do you think the future holds for your field of research?

Together with Chryssostomos Chatgilialoglu, I recently edited the *Encyclopedia of Radicals in Chemistry, Biology and Materials*. We believe that the four volumes convincingly cover the breadth of that living field. At this point, I would like to refer to the perspectives paragraphs of the individual chapters of the encyclopedia to get an idea about the future of that—in my opinion—fascinating field. However, I will try to focus my view on two examples, the first referring to the future of radical chemistry in organic synthesis: I believe that the merger of radical with transition-metal chemistry is not intensively investigated to date and I can foresee exciting results in that area. Secondly, nature uses radical chemistry at the highest level. Radical enzymes catalyze amazing transformations. It is obvious that we have to learn more about such processes and to try to add such reactions in the field of biomimetic radical chemistry to the portfolio of the synthetic organic chemist.

My 5 top papers:

1. “NHC Catalyzed Oxidations of Aldehydes to Esters: Chemoselective Acylation of Alcohols in Presence of Amines”: S. De Sarkar, S. Grimme, A. Studer, *J. Am. Chem. Soc.* **2010**, *132*, 1190 – 1191.
   Chemoselective reaction at the intrinsically less reactive position or function in a molecule is generally only achieved by using a protecting-group strategy. We showed that direct acylation of alcohols in the presence of amines can be obtained. Protecting-group-free chemistry is very challenging and currently heavily investigated by various research groups.
2. “Stereoselective Palladium-Catalyzed Carboaminoxylations of Indoles with Arylboronic Acids and TEMPO”: S. Kirchberg, R. Fröhlich, A. Studer, *Angew. Chem.* **2009**, *121*, 4299 – 4302; *Angew. Chem. Int. Ed.* **2009**, *48*, 4235 – 4238.
   A formal carbometalation followed by oxidation of the intermediate organometallic compound allows formation of a carbon – carbon bond along with a carbon – heteroatom bond. Compared to the intensively investigated direct arylation of olefins (Heck reaction) or arenes (C–H activation), the oxidative arylation of a π system is synthetically more valuable. The intermolecular version of such processes is not well-investigated to date.
3. “Biomimetic Carbene-Catalyzed Oxidations of Aldehydes by Using TEMPO as an Oxidant”: J. Guin, S. De Sarkar, S. Grimme, A. Studer, *Angew. Chem.* **2008**, *120*, 8855 – 8858; *Angew. Chem. Int. Ed.* **2008**, *47*, 8727 – 8730.
   We found that oxidative carbene catalysis using mild organic oxidants works very efficiently. This is part of our program towards the development of biomimetic radical chemistry, which in our opinion has a lot of potential.
4. “The Persistent Radical Effect in Organic Synthesis”: A. Studer, *Chem. Eur. J.* **2001**, *7*, 1159 – 1164.
   The concept of the “persistent radical effect” (PRE) and its potential for organic synthesis is discussed in this paper. I believe that many reactions are controlled by the PRE (in many cases not recognized). In particular, chemistry using metalloradicals may obey the principle of the PRE, as will be shown in the future for many examples.
5. “Fluorous Synthesis: A Fluorous-Phase Strategy for Improving Separation Efficiency in Organic Synthesis”: A. Studer, S. Hadida, R. Ferritto, S.-Y. Kim, P. Jeger, P. Wipf, D. P. Curran, *Science* **1997**, *275*, 823 – 826.
   This paper, together with two other contributions, can be considered as the germ of “fluorous chemistry”, which has since become an intensively investigated research area.

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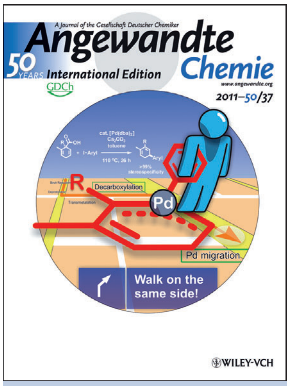

The work of A. Studer has been featured on the back cover of Angewandte Chemie:
“Stereospecific Palladium-Catalyzed Decarboxylative $C(sp^3)-C(sp^2)$ Coupling of 2,5-Cyclohexadiene-1-carboxylic Acid Derivatives with Aryl Iodides”: C.-M. Chou, I. Chatterjee, A. Studer, *Angew. Chem.* **2011**, *123*, 8773 – 8776; *Angew. Chem. Int. Ed.* **2011**, *50*, 8614 – 8617.