

# SYNTHESIS



Dieter Hoppe

Dear Reader,

This special issue of *Synthesis* is dedicated to Professor Dieter Hoppe on the occasion of his 65<sup>th</sup> birthday. Dieter Hoppe has served as an editor of *Synthesis* for fourteen years from 1987 to 2000. During that time, he was a vivid advocate for solid, innovative synthetic organic chemistry to be published in *Synthesis*. His legacy as editor lasts to these days and his measures for quality in scientific publishing have remained our guideline over the years. The current board of editors found it most adequate to honor him, our former colleague and long-lasting friend, by a special issue and we are happy to note that the response from the synthetic community to this issue has been overwhelmingly positive.

Dieter Hoppe was born in Berlin in the war year 1941. Shortly after the war he came to Langenhagen near Hannover where he went to school and where he obtained his high school diploma. He subsequently started his education as technician at a chemistry school, which he completed successfully in 1960, and he remained at the same school to work under the guidance of Ernst Poulsen Nautrup. The degree he obtained from these studies would today be best compared to a bachelor's degree with a strong emphasis on practical training. Indeed, the intensive experimental work Hoppe did in the years 1960–1965 strongly influenced his approach to organic chemistry and to organic synthesis. The importance of a single observation, the skill to isolate an unstable compound, the accuracy of physical data and the re-

quired use of elemental analysis to prove compound purity have remained recurring topics in discussions with his students and his colleagues. In 1965, Dieter Hoppe started to study chemistry at the renowned *Georg-August-Universität* in Göttingen. Since much of his earlier courses were accepted as part of his *Diplom*, he finished his studies early, in 1968, with an experimental thesis conducted under the guidance of Ulrich Schöllkopf. He remained in the Schöllkopf group for his Ph.D. thesis and started to step into the tradition of Georg Wittig, with whom Schöllkopf had graduated in 1956 and who is the founder of modern organolithium chemistry in Germany. Indeed, lithiation and the chemistry of lithiated organic compounds have accompanied Dieter Hoppe throughout his independent career. In his Ph.D. work Hoppe investigated very successfully the chemistry of  $\alpha$ -metalated isocyanides. Testimony to the success of this work and of subsequent studies after his Ph.D. graduation in 1970 are many papers which he published together with his mentor Ulrich Schöllkopf on this topic. He reviewed the field (*Angew. Chem.* **1974**, 86, 878) in a paper that still belongs to his most cited. His own research interests started to evolve in the years 1972–1976 with seminal papers published in the German flagship journal *Angewandte Chemie*, for example on  $\alpha$ -aminoacrylates (*Angew. Chem.* **1973**, 85, 659, 660, 909) or on the chemistry of  $\alpha$ -amino-carbanion equivalents (*Angew. Chem.* **1975**, 87, 449, 450). Remarkably, all five papers were published with Dieter Hoppe as the sole author! His independent research resulted in a successful habilitation, which was completed in 1977. Dieter Hoppe was also successful in a non-scientific area during his years in Göttingen marrying Inga Emme, a chemistry student and a Schöllkopf graduate, who remains for him a lifelong beloved companion. Inga joined Dieter after his habilitation for a post-doctoral stay at Harvard University, where they both worked under the auspices of Robert B. Woodward from 1977–1978. No wonder the names of the Hoppes also appear on the famous Woodward papers that report the total synthesis of erythromycin, and the author lists of which read as a who-is-who in organic chemistry (*J. Am. Chem. Soc.* **1981**, 103, 3210, 3213, 3215). Dieter Hoppe fondly remembers the time in the Woodward labs and the atmosphere at Harvard, which added a new perspective to his thinking about organic synthesis. After returning to Germany, Hoppe continued his work on amino acids and  $\beta$ -lactams but quickly entered the area of carbamate chemistry, which has become to some extent the trademark of his scientific work. The concept itself, in particular the use of allyloxycarbamates as equivalents for a  $d^3$ -synthon, and the high diastereoselectivity of homoaldol reactions based on metal tuning, made Hoppe's name internationally renowned. Key publications appeared in

1980 on the lithiation of allyloxycarbamates (*Angew. Chem.* **1980**, 92, 637), in 1981 on the homoaldol reaction of lithiated carbamates (*Angew. Chem.* **1981**, 93, 1106) and in 1982 on the transmetalation and the subsequent diastereoselective homoaldol reaction (*Angew. Chem.* **1982**, 94, 378, 378). 1982 was a historic year also for another reason, as the first *Synthesis* publication by Dieter Hoppe appeared (*Synthesis* **1982**, 1045). The topic was also related to the carbanion stabilizing effect of a *N,N*-dialkylcarbamoyl group, dealing with the lithiation and substitution of benzylic-type carbamates. My *Synlett* colleagues might argue that this manuscript was a communication and would have been a *Synlett* paper if *Synlett* had existed already in 1982. Be it as it may, Hoppe remained faithful both to *Synthesis* and to *Synlett* over the years. So far, 28 of his papers have been published in *Synthesis* (second only to *Angew. Chem.*) and 11 papers have appeared in *Synlett*. In 1985, Dieter Hoppe received offers to become a full professor at the universities of Kiel or Bremen. He decided to move to the very north of Germany and started in Kiel as successor of Albert Mondon. In Kiel, his carbanion chemistry was further developed. Major breakthroughs were achieved regarding the enantioselective reaction of  $\alpha$ -metalated alkyloxycarbamates and allyloxycarbamates. (–)-Sparteine became the magic ligand to facilitate an enantiotopos differentiation in the lithiation of these substrates, be it by a crystallization-induced dynamic resolution or by a direct deprotonation. The two initial communications (*Angew. Chem.* **1989**, 101, 67; *Angew. Chem.* **1990**, 102, 1457) out of this area are the most frequently cited Hoppe papers in the primary scientific literature. Along with these spectacular results came not only the fame, but also offers to other universities. In 1992, Dieter Hoppe decided to move from Kiel to the University of Münster, where he succeeded Burchard Franck. While it was certainly not easy to leave Kiel, he quickly adapted to his new environment and he enjoyed – and still does – being in Münster. You can hear the pride he takes in being part of this most successful institute of organic chemistry and of the achievements that have been reached in Münster in recent years. Nowadays, the chemistry department not only hosts a center of excellence (Sonderforschungsbereich), where Dieter Hoppe has been the Speaker since the very beginning (1997), it also features an international graduate school of chemistry, an international graduate college (together with the Holland Research School of Molecular Chemistry), and an international research training group (together with the University of Nagoya). For Dieter Hoppe, his time in Münster has been associated with many awards, including the Otto-Bayer Award in 1993, the Max-Planck Award for International Cooperation in 1999 and the *Adolf-von-Baeyer-Denkmünze* of the GDCh in 2001. With the move to Münster, the research group expanded and the number of scientifically investigated topics increased. In this respect, it is difficult to pick specific highlights out of the broad spectrum of interests. Current projects (with references to recent Thieme publications in brackets) cover the development of new methods in enantioselective synthesis (cf. *Synlett* **2000**, 1067; *Synlett* **2003**, 1969), the development and synthetic application of chiral 1-oxyallyl, 1-oxybenzyl, 1-oxyalkyl, 1-thiobenzyl, 1-thioallyl, and indenyl

anions (cf. *Synthesis* **2004**, 765), the field of asymmetric homoaldol (cf. *Synthesis* **2004**, 2303; *Synthesis* **2005**, 217), carbometalation (cf. *Synthesis* **2002**, 381), and *ortho*-metalation (cf. *Synthesis* **2006**, 1578) reactions, the synthesis of dipeptide isosteres and other potentially biologically active compounds (cf. *Synthesis* **2000**, 1391; *Synthesis* **2005**, 2507), and the use of *N*-sulfonyl-1,3-oxazolidines as chiral templates in natural product synthesis (cf. *Synlett* **2000**, 950; *Synthesis* **2000**, 743). Naturally, the chemistry of organolithium compounds has remained in Hoppe's heart, and he summarized the work done on lithium/sparteine carbanion pairs in a seminal review, which was published in 1997 (*Angew. Chem.* **1997**, 109, 2376), and in more recent contributions to the *Chemistry of Organolithium Compounds* (edited by Z. Rappoport, I. Marek, **2004**, 1058) and to the *Topics in Organometallic Chemistry* (edited by D. M. Hodgson, **2003**, 5, 61). His interest in this chemistry has allowed for many cooperations with colleagues in Münster (E.-U. Würthwein, R. Fröhlich, and S. Grimme), in Germany, most notably in Marburg (G. Boche, R. Hoffmann), and abroad (G. Fraenkel, V. Snieckus, M. Tius).

Before closing this short and in many respects incomplete dedication, I would like to add a few personal remarks. I have the great privilege to know Dieter Hoppe now for almost 15 years. I could tell stories from many personal encounters (e.g., our common start in Münster), I could go into characteristics of his work style (e.g., the piles of paper in his office), or I could comment on other habits (e.g., the ubiquitous pipe), but I do not want to, because anecdotes are to be told, not to be written. What I would like to note down, however, is that I have never met a more honest and less pretentious individual in my professional life than Dieter Hoppe. Besides being a scientific mentor he has remained a role model for me in the way he treats people and in the way he sees things in their proper perspective. He has been a person I have turned to when difficult decisions were to be made, knowing that he would never let his personal opinion be overruled by strategic thinking or by tactical considerations. For me and for many of his former co-workers he has been as close as a former boss can possibly be, while he remained human and authentic despite his scientific success. Out of this gratitude, I am most happy and honored that I was allowed to put a few words together for this editorial.

Special thanks go to Dieter Hoppe's many colleagues and friends, who have contributed research papers from all fields of synthetic organic chemistry to this issue. I would like to acknowledge my fellow editor Erick Carreira for the tremendous effort he put into making this *Synthesis* special issue possible. He has diligently collected the many papers and has processed them competently with great care.

The entire Thieme Chemistry team wishes you, dear Dieter, all the best both in your professional and your private life. We hope you enjoy this bunch of papers we and your colleagues have arranged to honor you and your scientific work.

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