Professor Rainer Beckert

A Tribute

Dedicated to Professor Rainer Beckert on the occasion of his 60th birthday

Rainer Beckert was born in Dresden on August 26th 1952. During his seventh year at a polytechnic secondary school in that city, he had already developed an avid interest in chemistry, which was decisively encouraged by his chemistry teacher, Erika Dumke. As a result, he was active in the "Chemistry" work group at his school. Moreover, he even set up his own chemical laboratory at his parents' home. He completed his schooling with the *abitur* at the "Romain Rolland" Gymnasium in Dresden in 1971. He is very much indebted to his parents, who generously supported his private laboratory with the acquisition of books such as the *Organikum* as well as the necessary chemicals. Especially amazing, however, is the fact that he was already performing elaborate inorganic and organic syntheses during this phase of his life. In the autumn of 1972, Rainer Beckert began a four-year course in chemistry at the Technical University of Dresden, where he successfully completed his *Diplom* requirements in 1976. He soon realised that his major interest was in the field of preparative organic chemistry with its highly diversified challenges. In the course of these studies, Rainer Beckert was decisively inspired by university professors who pursued humanistic goals in addition to the strictly scientific objectives, rather than simply following the prevailing trends. Among his many colleagues, Gisbert Großmann, Achim Mehlhorn, Jürgen Fabian, Günther Domschke, and especially his *doktorvater* and mentor during his *habilitation*, Prof. Dr. Roland Mayer should receive special mention. During his four-year assistantship, he developed and consolidated his wish to teach chemistry to young people in a comprehensible and realistic way as a university professor. In 1980 he defended his doctoral dissertation entitled "Contributions to the Chemistry of N-Sulphinyl Amines" ("*Beiträge zur Chemie der N-Sulfinylamine"*). He then began work in a laboratory of the *Chemisches Kombinat*

Bitterfeld at the Technical University of Dresden with the objectives of developing chemiluminescent systems and optimising dyes for the textile industry. Furthermore, he devoted additional time to experimental activities for his *habilitation*. Within a period of six years, he investigated N-containing derivatives of oxalic acid as building blocks for the synthesis of numerous new compounds, especially heterocyclic compounds. He also performed research in the former Czechoslovakia and attended conferences in Poland and Hungary. However, contact and exchange of information with scientists in the Western Hemisphere were not possible at the time.

While working on his inaugural dissertation (*habilitation*), he also made his first important scientific contribution in the form of a co-authorship in the standard work for preparative organic chemistry, Houben-Weyl. In the summer of 1987, he successfully defended his thesis for qualification as a university lecturer, and the search for appropriate employment then began. Since a professorship or a position as lecturer (*Dozentur)*) was reserved for very few, usually system-conforming scientists in the former GDR, Rainer Beckert applied to the Friedrich Schiller University in Jena, where he accepted a position as head assistant (*Oberassistent*) as of March 1988. He also acquired the *Venia Legendi*, which allowed him to hold lectures there. During this period, he gained his initial experience and obtained his first results in the field of steroid chemistry, which was a well-established discipline in Jena. In the course of this activity, he received valuable help and support from recognised experts such as Schönecker, Ponsold, and Schwarz. As a result of the political transition and the associated changes, all scientists were faced with many novel questions and problems. For instance, university lecturers immediately had to assume their own responsibility for teaching and research. In this context, the support provided by West German universities and institutions proved to be especially helpful, particularly during the initial stage. Thus, Rainer Beckert received financial support from the *Otto-Röhm-Gedächtnisstiftung* and from the German chemical industry, as well as gifts of chemicals and equipment from several industrial enterprises. Research projects in Erlangen and a guest professorship in Würzburg were only two of the stations of his career at research institutions after Germany was reunited. During his stay in Würzburg, he became acquainted with renowned chemists such as S. Hünig, W. Adam, M. Christl und H. Quast and became thoroughly familiar with the teaching and research practice at a German University. After an evaluation of the scientists in East German universities, such as that in Jena, Rainer Beckert was appointed to a professorship in organic chemistry in 1993. Since he had already established contact with Czech colleagues at an early stage, he had a great desire to help these colleagues under the rapidly changing political conditions. Thus, close contacts have been maintained with the *Karls-Universität* Hradec Kralove since the 1980's. For his engagement here, Rainer Beckert was awarded the medal of honour by the Pharmaceutical Faculty in 1994. From 1997 to 2006, Beckert served as managing director of SFB 436, "Metal-Mediated Reactions in Analogy with Natural Prototypes" (*Metallvermittelte Reaktionen nach dem Vorbild der Natur*), one of the few research associations which have become established in the new German federal states (*Bundesländer*). From 2002 to 2008, he made numerous contributions to the education of

German pharmacy students as a member of the Expert Commission on Pharmacy at the Institute for Medical and Pharmaceutical Testing in Mainz.

Rainer Beckert is a member of the editorial board of the "Journal of Sulfur Chemistry" and the "Journal of Heterocyclic Chemistry", as well as reviewer for numerous leading international journals. His scientific accomplishments currently include more than 170 original articles, patents with industrial partners, as well as an authorship in one of the world's most prominent laboratory practical books, the "*Organikum*". From 1993 to 1995 and from 2003 to 2005, Beckert served as managing director of the Institute for Organic and Macromolecular Chemistry at the University of Jena. His research interests are concentrated on the synthesis of multifunctional heterocyclic compounds. Within this field, cascade reactions for the development of new chromophores and fluorophores, organic redox systems, as well as ligands for catalytic processes are the objects of special emphasis among his research activities. His former students will never forget his lively lectures, for instance on the fascinating subject of heterocyclic chemistry, as well as his humorous and paternal manner of introducing young people to the field of research. Hence, all of us are eager to experience many further years of highly diversified and fascinating chemistry with Rainer Beckert.

Prof. Andreas Schmidt
Clausthal University of Technology
Institute of Organic Chemistry
Clausthal-Zellerfeld, Germany
E-mail: schmidt@ioc.tu-clausthal.de

Selected publications of Prof. Rainer Beckert

1. Beckert, R.; Fabian, J. Tetramethinverbrückte oxalsäurederivate - eine neue klasse farbiger pigmente indigoider struktur. *J. Prakt. Chem.* **1986**, *328*, 805.
2. Beckert, R.; Bauer, W. Tieffarbige systeme mit oxalsäuresubstruktur - eine strukturkorrektur. *J. Prakt. Chem.* **1991**, *333*, 555.
3. Schmidt, A.; Beckert, R.; Weiß, D. Simple procedure for reductive coupling of steroids with a cross conjugated dienone system. *Tetrahedron Lett.* **1992**, 4299.
4. Weiß, D.; Gaudig, U.; Beckert, R. Eine neue methode zur herstellung von gekreuzt-konjugierten thioxosteroiden. *Synthesis* **1992**, 751.
5. Möller, S.; Weiß , D.; Beckert, R. Zur umlagerung von 3-thioxosteroiden - ein neuer zugang zu steroidalen thiolen. *Liebigs Ann.Chem.* **1995**, 1397.
6. Wagner, K.; Weiss, D.; Beckert, R. New luminescent materials based on a steroid molecule. *Eur. J. Org. Chem.* **2000**, 3001.

7. Wenzel, M.; Lindauer, D.; Beckert, R.; Boese, R.; Anders, E. The reduction of oxalic amidines with metallic lithium: preparation of lithiated bisamides and their use as intermediates in a novel synthesis of tetraaminoethenes. *Chem. Ber*. **1996**, *128*, 39.
8. Atzrodt, J.; Beckert, R.; Nordhoff, K.; Bräuer, M.; Anders, E.; Görls, H. The stabilization of lithiated organic compounds by water as ligand - synthesis of a new lithium-imidazole-complex and its reactivity towards electrophiles. *Eur. J. Org. Chem.* **1998**, 2557.
9. Käpplinger, C.; Beckert, R.; Günther, W.; Görls, H. 1,4,5,8-Tetraazafulvalenes - a convienent one-pot synthesis and their conversion to fused ring systems. *Liebigs Ann./Recueil* **1997**, 617.
10. Billert, T.; Beckert, R.; Fehling, P.; Döring, M.; Görls, H. A new synthetic entry to fused azaquinones by a cycloaddition/ring transformation sequence starting from pyrido[1,2-a]pyrazines. *Tetrahedron* **1997**, *53*, 5455.
11. Fabian, J.; Görls, H.; Beckert, R.; Atzrodt, J. Fünfring-cycloamidine - neue farbige heterocyclen mit ungewöhnlichen eigenschaften, teil 2. Molekül- und elektronenstruktur. *J. Prakt. Chem. / Chemiker-Ztg*. **1997**, *339*, 735.
12. Gebauer, T.; Beckert, R.; Weiß, D.; Knop, K.; Käpplinger, C.; Görls, H. Mesoionic bora-tetraazapentalenes – fully reversible two step redox systems. *Chem. Commun*. **2004**, 1860.
13. Buehrdel, G.; Beckert, R.; Birckner, E.; Grummt, U.-W.; Beyer, B.; Weston, J.; Goerls, H. A simple one-pot synthesis of solvatofluorescent push-pull thiophenes. *Eur. J. Org. Chem*. **2007**, 5404.
14. Stöckner, F.; Käpplinger, C.; Beckert, R.; Görls, H. Dyotropic rearrangements of tetraazafulvalenes – a new approach to aminosubstituted 1,4,5,8-tetraazanaphthalenes. *Synlett* **2005**, 643.
15. Stöckner, F.; Beckert, R.; Gleich, D.; Birckner, E.; Günther, W.; Görls, H.; Vaughan, G. Polyaza-acenes - on the way to stable, fluorescent and redox-active derivatives. *Eur. J. Org. Chem.* **2007**, 1237.
16. Fleischhauer, J.; Beckert, R.; Jüttke, Y.; Hornig, D.; Günther, W.; Birckner, E.; Grummt, U.-W.; Görls, H. From by-products to efficient fluorophores: a novel route for the synthesis of fluorubines. *Chem. Eur. J*. **2009**, 12799.

