

## To Professor Hubert Schmidbaur on the Occasion of his 75<sup>th</sup> Birthday



Hubert Schmidbaur, professor emeritus of the Technische Universität München, will celebrate his 75<sup>th</sup> birthday on December 31, 2009.

Hubert Schmidbaur was born in Landsberg am Lech, Bavaria, in 1934. He enrolled in chemistry at the Ludwigs-Maximilians-Universität Munich in November 1953, where he obtained his diploma degree in 1957 and a doctors degree in 1960 with the then young Professor Max Schmidt. In 1962 Hubert Schmidbaur followed his academic teacher to Marburg, where he completed his habilitation in 1964. The year 1965 saw him appointed as associate professor at the Julius-Maximilians-Universität Würzburg, soon to be followed by an appointment as full professor, after having declined an offer from the Technische Universität Berlin. At this time Hubert Schmidbaur was the youngest full professor of chemistry ever having been appointed in Germany, a distinction only very few have earned at a similarly young age since.

Instead of postdoctoral work abroad, Hubert Schmidbaur spent a much enjoyed sabbatical year in Edinburgh in 1970 with his colleague and friend E. A. V. Ebsworth. In 1973, he accepted an offer from the Technische Universität München for the Chair of Inorganic and Analytical Chemistry. Labs were first set up in the old chemistry building of the TU München

at Arcisstraße in downtown Munich, but construction of new facilities in Garching was already imminent, and the chemistry department moved there in autumn 1977. Soon thereafter, Hubert Schmidbaur declined an offer from the University of Münster, and has remained faithful to Garching ever since.

Hubert Schmidbaur has contributed immensely to inorganic, organometallic and bioinorganic chemistry covering a wide range of chemical elements, with special emphasis on silicon, phosphorus and gold. Rather than enumerating all the elements he worked with, it is indeed easier to name those he did not. A “periodic table according to Hubert Schmidbaur” is sketched on the front cover of this issue. In addition, Hubert Schmidbaur was a pioneer in the early application of heteronuclear NMR and, subsequently, Mößbauer spectroscopy to organometallic chemistry. While much of his work is truly fundamental science, applications targeted by Hubert Schmidbaur extend far, including gas-phase deposition and even pharmaceutical chemistry. The far-reaching and often ground-breaking scientific achievements of Hubert Schmidbaur have been amply documented by his close friend Herbert Schumann in *Inorganica Chimica Acta (Inorg. Chim. Acta)* **2005**, 358, 4107) and by Norbert Mitzel in this journal (*Z. Naturforsch.* **2004**, 59b, 1181).

More than 900 scientific papers document the results obtained by more than 150 graduate students and postdoctoral associates. It should be explicitly stated that all but a tiny few of these papers have been written by Hubert Schmidbaur himself, a lot of which in the pre-digital age by hand at an astonishing speed with a soft pencil, as they were and are used by professional shorthand writers. At regular intervals, the results were summarized in highly cited and even reprinted review articles, as well as in book chapters, many of which became standard texts. Hubert Schmidbaur also served as an author and editor of reference books on diverse topics of chemistry, even on entire elements like the Gmelin handbooks on organogold and beryllium chemistry. The book "Gold: Progress in Chemistry, Biochemistry and Technology" edited by Hubert Schmidbaur united renowned authors including himself, and impressed by its far-reaching scope. For nearly three decades, he was among the five most cited German chemists.

Hubert Schmidbaur always has been an avid and highly disciplined academic teacher capable of passing on his enthusiasm to entire student generations. His lectures were augmented only by writing the essence of his points with chalk on the blackboard. As only little was erased to gain additional space, the blackboard contained the entire chapter after the lecture. On some occasions the board was even photographed by students as a textbook replacement. In teaching evaluations, Hubert Schmidbaur always ranked highest and one student aptly called his blackboard writings a *Gesamtkunstwerk*.

Hubert Schmidbaur has been awarded numerous prestigious national and international prizes, a few of which are collected here: the Chemie-Preis of the Verband der Chemischen Industrie (1965), the F. S. Kipping Award of the American Chemical Society (1974), the Alfred Stock-Medaille of the German Chemical Society (1982), the G. W. Leibniz-Preis of the Deutsche Forschungsgemeinschaft (1986), the Dwyer Memorial Medal of the University of New South Wales in Sydney (1986), the J. C. Bailar Medal of the University of Illinois at Urbana-Champaign (1987), the Ludwig Mond Medal of the Royal Society of Chemistry (1994), the Wacker Silicon Preis (1996), the Bonner Chemiepreis of the Pinguin Foundation (1998) and the Birch Medal of the Australian National University at Canberra (1999). A particular hallmark amongst all these distinguished awards is the First Class Cross of

Merit of the Federal Republic of Germany in 1991, honoring his outstanding general service to science and academia.

In 2005 the Department of Chemistry and Pharmacy of the Westfälische-Wilhelms-Universität Münster awarded Hubert Schmidbaur the honorary doctorate, the Dr. rer. nat. h. c. degree. Only the recent Nobel laureate Gerhard Ertl before him and afterwards Tenzin Gyatso, better known as His Holiness the 14<sup>th</sup> Dalai Lama, have been awarded with this distinct degree.

Hubert Schmidbaur is a member of several prestigious learned societies, including the Göttinger Akademie der Wissenschaften, the Deutsche Akademie der Naturforscher Leopoldina, Halle, the Bayerische Akademie der Wissenschaften, München, and the Societas Scientiarum Fennica, Helsinki. He has propelled science and academia in many further functions. He was dean of the faculty and chairman of the chemistry referee board of the Deutsche Forschungsgemeinschaft, as well as a member of the senate of this most important German research funding organization. In addition, his expertise has been sought by several governmental and industrial boards, commissions and even courts.

Hubert Schmidbaur is also on the board of a large number of leading international chemistry journals. Since many years he is editor of the *Zeitschrift für Naturforschung B: Chemical Sciences*. During this time literally thousands of manuscripts went over his desk. They all were refereed in meticulous detail, whilst again, at an astonishing rate.

Hubert Schmidbaur enjoys travelling. One actually has the impression that he relaxes best aboard intercontinental flights. As he was invited frequently to prestigious lectureships abroad, as visiting fellow or as guest professor, e. g. by the Australian National University at Canberra or the University of Stellenbosch, he could, and still can, ideally combine many of his favorites: chemistry, meeting good friends, and simply travelling the world. In geographical terms, his extremes have probably been Patagonia and Tierra del Fuego to the south, as well as Franz Josef Land to the north. Among his favorite pastime activities are skiing and mountaineering in the Alps, to which he used to invite his students on a regular basis, as well as extensive hikes in National Parks around the world.

On the occasion of Hubert Schmidbaur's 75<sup>th</sup> birthday, this double issue of *Zeitschrift für Naturforschung B: Chemical Sciences* collects 51 scientific papers

which friends, former students and colleagues have dedicated to him to mark this special occasion and to express their appreciation and gratitude. Most of the authors had the privilege and pleasure to have been directly associated with Hubert Schmidbaur, be it as graduate students, postdoctoral fellows, research associates or guest professors. Many are from foreign countries and continents and have been Hubert Schmidbaur's long-term friends. They all responded enthusiastically when invited to contribute to this special issue.

In addition, we have asked the international contributors to this special issue for personal statements to emphasize their special relation with Hubert Schmidbaur, thereby highlighting his far-reaching and long-lasting international contacts. These following statements express better than any laudatio the great personal and scientific esteem Hubert Schmidbaur enjoys all around the world.

*On the occasion of Hubert Schmidbaur's 75<sup>th</sup> birthday, marked by this special issue of Zeitschrift für Naturforschung, my colleagues in Canberra and I send our best wishes for a long and happy retirement, together with our thanks for his many contributions to chemistry, especially that of the main-group elements. To mention just one aspect, his publications and reviews have surely been the most significant influence in lifting the chemistry of gold from its long period in the doldrums to its present status as a focus of exciting topical research. I remember with pleasure his continual encouragement of my early efforts in the field and particularly his visit to Canberra to deliver the A. J. Birch Lecture on the subject of gold chemistry. Hubert has always been a convivial companion and a generous host. I recall a visit to Garching some years ago during which he gave me a tourist drive in the environs of Munich in his old Mercedes-Benz and spent half-an-hour on a narrow, cobbled lane behind a slow-moving haycart, which he could not overtake. He explained that he was showing me all aspects of the German economy. I hope that retirement will provide him with more opportunities to visit Australia; he will always be welcome.*

Martin Bennett, Australian National University

*In the summer of 1970, I began my academic career as a lecturer in chemistry at the University of Liverpool. I had looked through the chemical literature for an underdeveloped but promising field to begin*

*my independent research and had decided to begin in organogold chemistry. There were only a few active researchers in organogold chemistry at that time, but they were an impressive group. Hubert Schmidbaur had already published several of his distinguished series of papers on organogold chemistry and his first review on the topic was published later in 1970. Soon he began to publish his beautiful chemistry of gold with phosphine ylides and, for the next 40 years, he continued to set the standard for research in organogold chemistry. He is undoubtedly the grand master of the field, which has grown enormously since those pioneering days, and he is also a true scholar who writes English better than most Englishmen. It has been a pleasure to work in his shadow. Happy 75<sup>th</sup> and best wishes for many more birthdays to come.*

Dick Puddephatt, University of Western Ontario

*I would like to take this opportunity to express my sincere gratitude to Hubert Schmidbaur who had a profound influence on the path that I have followed since leaving his group in 1998. Hubert introduced me to many areas of chemistry, including that of heavy main group elements and their fascinating bonding characteristics. He also most generously sponsored me for a Habilitation that I carried out in his Lehrstuhl with complete scientific freedom and without any administrative constraint. The work that I was able to complete under his guidance provided me with an irreplaceable foundation for what I have done since then. On a more personal level, I have also learned from Hubert the importance of reason in academic research and in life! With this, I wish Hubert Schmidbaur the very best for his 75<sup>th</sup> birthday.*

François P. Gabbaï, Texas A&M University

*Hubert Schmidbaur's presentation at the 1977 ICOM in Kyoto has been one of the highlights of the conference and since then I respect him as an exceptional and visionary chemist. I have always appreciated his direct but sympathetic interaction with undergraduate students as well as co-workers during his many appearances at the Rand Afrikaans University in Johannesburg and the University of Stellenbosch, and at the Technical University of Munich. Now, I also treasure his humanity, loyalty and friendship.*

Helgard G. Raubenheimer, Universiteit van Stellenbosch

*We know Professor Hubert Schmidbaur from the earlier beginnings of our scientific carriers. His works and particularly his reviews, with his unquenchable critical spirit, convinced us to work in the chemistry of the ‘Sleeping Beauty’, as he defined the chemistry of gold in one of his reviews. He is, without doubt, a scientific leader who has fulfilled a vital role in the development of the Chemistry of Gold. It is an honor and a pleasure for us to contribute to this special issue dedicated to Hubert Schmidbaur, and we would like to congratulate him for the success he has enjoyed throughout his career and by thanking him for teaching us, giving us his help at any time, and for being a good friend.*

*Antonio and Conchita*

*M. Concepcion Gimeno and Antonio Laguna,  
Universidad de Zaragoza*

*It is a great honor for me to state my thanks to Professor Hubert Schmidbaur on his 75<sup>th</sup> birthday. He introduced Japanese scientists to “Gold Chemistry” in 1990, and I had an opportunity to work on gold-sulfur complexes in his laboratory. Since then, he has always encouraged me to push my way for gold chemistry and nanoparticle chemistry. So, I would like to show my appreciation by dedicating our paper on Au nanoparticles in the special issue to him.*

*Masami Nakamoto, Osaka Municipal Technical Research Institute*

*It is an honor and a pleasure to acknowledge Professor Schmidbaur’s outstanding contributions to inorganic and organometallic chemistry and to express my gratitude for the invaluable scientific collaborations that I have enjoyed with him over several decades, including three research visits in Munich. These experiences were further enriched by a lasting friendship between us and our families. Professor Schmidbaur’s several visits to New Zealand during his career were much appreciated by his colleagues here and resulted in several new research directions.*

*Graham Bowmaker, University of Auckland*

*We have known each other for many years, although we meet only infrequently, we are, I think, good friends. I remember well that you visited us at Hiroshima University as a guest Professor of the Japan Society for the Promotion of Science, and we had very exciting discussion about our chemistry. Your pioneering work in sili-*

*con chemistry and organometallic chemistry has had a big impact on the field of chemistry. Indeed, your contributions to chemistry have been substantial and significant and have much advanced our knowledge. I would like to send you, my dear friend, and also your charming wife my very best wishes for your future happiness, and I hope you will enjoy chemistry for the future.*

*Mitsuo Ishikawa, Hiroshima University*

*Having just completed my Ph.D., I joined Hubert Schmidbaur’s research group as a Humboldt Fellow in 1994. As a young, and inexperienced, scientist newly arrived in a foreign land, I recall feeling a tad nervous. My worries were for naught, as Professor Schmidbaur provided the perfect guidance to integrate me into the group and to make both my wife and I feel at home in a new land. Looking back on that time, two gifts Professor Schmidbaur gave us standout. The first was the complete scientific freedom he gave me, which ultimately launched the truly satisfying career I have enjoyed for the last 15 years. The second was the suggestion he gave me to take the time to explore his homeland during my time there. My wife and I took this suggestion to heart and over the next year Germany became adopted second home. We made life-long friendships and always look forward to opportunities to return to Germany, which unfortunately do not happen as often as we would like. While I can never truly repay the gifts Professor Schmidbaur gave me all those years ago, it gives me great pleasure to provide an article on science he launched in honor of his birthday.*

*Robert E. Bachman, The University of the South, Sewanee*

*I remember my fruitful stay at TUM in Garching, where I did my postdoctoral research with Professor Schmidbaur from 1991 to 1992. Throughout this stay, I learned about really exciting and very beautiful chemistry of his group, including the synthesis of new gold complexes and polysilylated compounds, low-coordinate gallium complexes, etc., that looked like works of art. What I had learned in Garching has worked well in our chemistry in Hiroshima, and I am always grateful for his continuous encouragement since that time. I wish him the best for his health and happiness in the future.*

*Joji Ohshita, Hiroshima University*

*Our stay at Professor Schmidbaur's laboratory changed our way of seeing and living chemistry, he taught us to find what makes each compound special and how to show it to the scientific community, what has been very useful for us in our professional life. Undoubtedly, he is characterized by a great enthusiasm for the chemistry. On a personal level, we should say that during one year working in his research group, we felt one more in the team and left good friends in Germany. We are very proud to have contributed to his brilliant professional career. Ein herzliches Dankeschön, Herr Professor.*

*José M<sup>a</sup> López de Luzuriaga, M. Elena Olmos,  
Universidad de la Rioja*

*Many people live in the world of science, but only a few stand high like him. Professor Schmidbaur is an outstanding chemist, teacher and one of the most kind persons, I ever met.*

*Suresh K. Bhargava, RMIT University*

*While impressing with excellence in science and his interest in and mentorship of younger academics Professor Hubert Schmidbaur also qualifies as a really decent human being.*

*Stephanie Cronje, Universiteit van Stellenbosch*

*Congratulations Hubert on joining the 75 plus crowd. Although I had little knowledge of who you were during our early careers because of different chemical interests, I am grateful that gold chemistry in*

*the 80's brought us together. It was our mutual friend, Alan Cowley, who first convinced me of the high quality of your chemistry and introduced us. It became a privilege to be able to compete with you a bit in the early days of our gold chemistry. I am very proud that we have published some well received work together. Of course, I recognize with special thanks the role you played in my receipt of the 1992 Manchot Prize, giving me an excuse to step out of administrative work. Over the years most of us develop many professional friends, but you and your family have meant more to me than most professional friends ever become. May God continue to give you and Rosemary good health!*

*John P. Fackler, Texas A&M University*

We, the editors, publishers, and the editorial team would like to join all the contributors to this special issue and express their sincere gratitude to Hubert Schmidbaur for his achievements in chemistry and his outstanding position in the national and international scientific community. We are especially grateful for his special service to *Zeitschrift für Naturforschung B: Chemical Sciences* over many years.

We wish Hubert Schmidbaur many more exciting undertakings, in both the fields of science and geography, and would like to extend our wishes for good health and happiness to him for many years to come.

*Norbert Mitzel, Rainer Pöttgen, Gerhard Maas,  
Thomas Lindel, Annette Schier, Gerhard Müller,  
and Tamina Greifeld*