

Laudatio/Preface

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Celebrating the 60th birthday of Richard Dronskowski

<https://doi.org/10.1515/znb-2021-0116>

Richard Dronskowski, Professor at the RWTH Aachen University, was born in Brilon, a town in North Rhine-Westphalia, Germany, on November 11th 1961, only few months after Germany had been physically divided into West and East. He studied chemistry and physics in Münster, where he obtained his diploma in chemistry with a thesis on the crystal chemistry of Mn_2O_7 under the supervision of Bernt Krebs and Arndt Simon in 1987. Reaching beyond the physics of valence electrons, he additionally obtained a second diploma in physics from the same institution working on the electronic structures of corner-sharing M_6X_8 clusters under the supervision of Ole Krogh Andersen and Johannes Pollmann. As a loyal fan of James Bond, he probably anticipated already at this early age that quantum chemistry delivers to the solid-state chemist much more satisfaction than only a *Quantum of*

Solace. Eventually it was the synergy of solid-state chemistry and quantum chemistry that offered him the opportunity to discover new compounds and to study its physical properties. He pursued his scientific career with PhD studies on *Condensed Clusters in Oxides and Arsenides of Molybdenum* under the supervision of Arndt Simon at the University of Stuttgart. Shortly after having completed his doctoral thesis with *summa cum laude* in 1990, he moved to Cornell University, New York, to work with Roald Hoffmann on theoretical approaches for a rational planning of chemical solid-state synthesis.

During his time in the U.S., Richard Dronskowski established a personal connection with the country and paved the way for fruitful transatlantic collaborations lasting until today. He returned to Germany to start an independent career as senior researcher at the Max-Planck-Institute for Solid-State Research, Stuttgart, in 1992. It was the time that he developed a strong interest in the chemistry of metal halides and nitrogen-based compounds, including metal nitrides and carbodiimides. He obtained his *venia legendi* with *Preparative, Crystallographic, Electron-theoretical and Magnetic Studies on Bromides of Monovalent Indium* at the University of Dortmund in 1995, where he had also been a lecturer since 1993. Soon after his habilitation, he was offered almost simultaneously a professorship at CAU Kiel and at RWTH Aachen University. He chose the latter and moved to Aachen, being the equivalent to his return to North-Rhine Westphalia, to take over the *Chair of Inorganic and Analytical Chemistry* at the Institute of Inorganic Chemistry in 1997. As a director, he subsequently led the transition to the formation of the new *Chair of Solid-State and Quantum Chemistry* in 2006. Since 2013, Richard Dronskowski is also the Director of the *ab initio* Simulation Laboratory for Chemistry and Physics of the Jülich-Aachen Research Alliance. Besides his scientific collaborations in the U.S., he is strongly involved in research on the international level in Asia. In 2004, he was a Guest Professor at Tōhoku University in Japan and since 2019 he is the Distinguished Chair Professor of the Hoffmann Institute of Advanced Materials at Shenzhen Polytechnic in China. One can say that he closed the cycle that was initiated during his postdoctoral stay with Roald Hoffmann in the U.S. back in the 1990s.

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Given his extensive exposure to physics during his undergraduate studies, his research interests today cover synthetic solid-state chemistry in combination with quantum chemistry and the corresponding structure-property relationships. His curiosity to unravel metastable phases has driven him to develop new scientific apparatuses for syntheses under extreme conditions, such as under high-pressure or ammonothermal conditions. Among his contributions to the scientific community, one has surely to mention his membership in the Committee *Research with Neutrons* (Department Infrastructure & Instrumentation) and in the Scientific Advisory Board of the European Spallation Source. An example for his persistence in the exploration of new compounds is his research on the metal carbodiimides and cyanamides, because these materials occurred only recently as promising materials for energy storage and conversion. These discoveries would not have been possible without his interest in curiosity-driven basic research. His work on the orbital origins of magnetic alloys or on the role of vacancies and local distortions in the design of new phase-change materials essentially gain by synergistic consideration of theoretical and experimental aspects and have become milestones of chemistry.

Besides his scientific achievements, Richard Dronskowski has been an inspiring academic teacher, mentor and advisor to many of his co-workers. His lectures and talks are not only scientific but also a linguistic pleasure. Former PhD students Wuping Liao (Changchun) and

Volker Deringer (Oxford) and postdoctoral researchers Kechen Wu (Fuzhou), Takahiro Yamada (Sendai), Hongping Xiang (Shanghai), and Akira Miura (Sapporo) have continued successful careers as professors themselves. Being known for his extraordinary support to young scientists, it is not surprising that several professors including Uwe Ruschewitz (Cologne), Claus Feldmann (Karlsruhe), Peter Kroll (Texas), Adam Slabon (Stockholm), and Boniface Fokwa (Riverside), started their independent academic careers and obtained their habilitation under his mentorship at the RWTH Aachen University. His keen sense of humor paired with precise argumentation have been always highly encouraging.

Richard Dronskowski has received numerous national and international awards, such as the Otto-Hahn-Medal of the Max-Planck-Society (1990), the Chemistry-Lecturer-Prize of the Chemical Industry Association (1997), the Distinguished Professorship of RWTH Aachen University (2014), the Innovation-Award of RWTH Aachen University (2015), and the Egon-Wiberg-Lecture of the LMU Munich (2017). Already starting from his undergraduate studies, he has been supported with several fellowships, e.g., German National Academic Foundation (1984), Kekulé (1987–1990), and Liebig scholarship (1991–1993).

Together with his students, collaborators, and friends, we wish him all the best on the occasion of his 60th birthday, and we would like to conclude by citing his words: "*In science, there is nothing more beautiful than new chemical compounds!*"