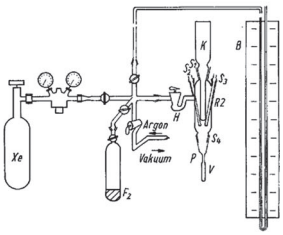
R. Hoppe

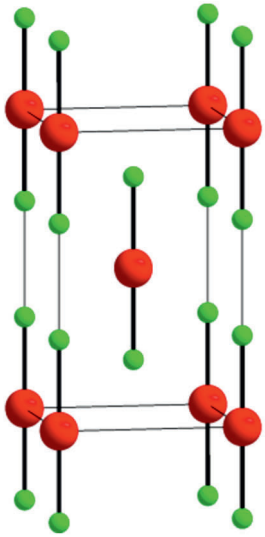
Rudolf Hoppe (1922–2014)

Rudolf Hoppe, emeritus professor at the University of Gießen, passed away on November 24, 2014, just a few weeks after his 92nd birthday. With his passing, the inorganic solid-state chemistry community has lost one of its most famous personalities, whose works, interests, and talents stretched far over the boundaries of his own field.

Hoppe was born on October 29, 1922 in Wittenberge, Mark Brandenburg, where he successfully completed his high school education in 1941. He was immediately conscripted and could only start studying for his chemistry degree at the University of Kiel in 1945, after he returned from captivity as a prisoner of war. A decisive factor for his career was an encounter with Wilhelm Klemm, who had just taken the Chair of Inorganic Chemistry at Kiel, and subsequently supervised Hoppe's diploma thesis. Hoppe self-confidently came up with his own research topic, the bold idea of synthesizing "real" noble-gas compounds, namely xenon fluorides. Here one recognizes as one of Hoppe's scientific maxims to need to question paradigms, even when they appear irrefutable, and to accept no intellectual barriers but rather to check their stability, and, when necessary, pull them down. To start with, however, his mentor, who he always admired, suggested a project that was a bit more down-to-earth: the preparation of complex silver and gold fluorides. After completing his diploma thesis in 1951, he followed Wilhelm Klemm to the University of Münster. In the same year, he married Karin Saborowski, and their sons Jens Reimar and Klaus-Dieter followed in due course. He completed his doctorate in 1954, and completed his hablilitation in inorganic chemistry four years later.



$$Xe + F_2 \rightarrow XeF_2$$



Hoppe's scientific achievements soon brought him attention, and he was offered several attractive positions over a short time. In 1962, he joined the faculty in Münster, and in 1964, he took up a newly created position as Professor of Inorganic Chemistry. From subsequent offers in Düsseldorf, Bochum, and Gießen, he took the Chair of Inorganic and Analytical Chemistry at the University of Gießen in 1965, and remained loyal to this institution until his retirement, despite offers from the Universities of Hannover and Stuttgart.

Hoppe's scientific work is closely connected to modern solid-state chemistry, the knowledge of which is an important requirement for all the developments that are taken for granted today, not least in the area of high technology. His early work already outlined a wide-reaching and ingeniously realized research program. He was passionate about preparative solid-state chemistry, and reported hundreds of new oxides and fluorides. Practically no elements in the periodic table were left unexplored by his systematic studies. His work contains many highlights that in the meantime have made their way into standard textbooks. For example, his research group succeeded in realizing uncommon valence states, some of which were not thought to be possible, including transition metals in uncommonly high oxidation states such as tetravalent copper (Cs_2CuF_6), cobalt (K_2CoO_3), and nickel (K_2NiF_6), as well as novel low-valent states, such as monovalent iron, cobalt, and nickel (e.g., K_3FeO_2).

In 1962, Hoppe revisited his ideas on the synthesis of noble-gas compounds. Convinced by his own estimation that xenon fluorides should be thermodynamically stable, Hoppe succeeded in reacting xenon and fluorine in a spectacularly simple fashion. Independently and almost simultaneously, two American research groups also prepared xenon compounds, however special credit should be given to Hoppe as it is exclusively his early deliberation and reasoning that allowed the then dogmatic and strictly valid limits of valence theory to be overcome.

A particular feature of Hoppe's research style was that the experimental results were accompanied and supported from the outset by conceptual approaches that targeted structuring, classification, and a detailed understanding of the experimental findings.

Hoppe's impressive and sometimes spectacular results were quite rightly highly recognized, and his scientific career was accompanied by numerous prestigious honors, including the Alfred Stock Memorial Prize from the Gesellschaft Deutscher Chemiker (GDCh; German Chemical Society), the prestigious Otto Hahn Prize for Chemistry and Physics, and the Lavoisier Medal from the Société Chimique de France.

Hoppe was not only an unusually creative and successful researcher, he was also an inspiring and gifted teacher. His students could count themselves lucky that they were swept along with his enthusiasm for chemistry, experiencing all its beauty and depth under his guidance. Rudolf Hoppe will never be forgotten by all who adored him as an academic teacher or were connected to him on a personal level.

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