

Obituary

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Karol Heinz Jankowski (1937–2025)

Karol Jankowski, a distinguished Polish physicist, quantum chemist, and professor of theoretical physics, was born on November 30, 1937, in Olsztyn, Poland (then Allenstein, East Prussia), to a family of Polish autochthons.

After completing primary school, he worked for three years as a warehouse clerk in a transport company while attending the high school for working adults in Olsztyn. Karol was very proud of this period of his life and always appreciated people who performed simple jobs with commitment and competence. In recognition of his excellent performance at secondary school and in his final exams, he was granted admission to any university in Poland without having to take an entrance exam. He chose the university in Toruń, the closest city to his hometown, which had a strong science faculty. He enrolled at Nicolaus Copernicus University (NCU) in Toruń, where he studied physics (completed in 1961) and mathematics (1962).

His marriage to Maria in 1963 became a lifelong partnership. They had two children: Piotr (b. 1964), now a professor of theoretical chemistry, and Ewa (b. 1973), now a professor of economics.

Karol earned a master's degree in both theoretical physics and mathematics. In 1966, he defended his doctoral dissertation under the supervision of Professor Aleksander Jabłoński, and in 1971, he obtained his habilitation from the same faculty at NCU.

In 1961, Karol Jankowski joined the Department of Experimental Physics at Nicolaus Copernicus University. He served successively as an assistant, senior assistant, and assistant professor. Later, he moved to the Department of Chemical Physics, where he became an associate professor (1982–1990) and then a full professor (from 1990 onward). His career included numerous research fellowships in Germany, Canada, and the United States. He developed collaborations with leading scientists of the time, including Reinhart Ahlrichs, Bogumił Jeziorski, Jacek Komasa, Gulzari Mali, Josef Paldus, Jacek Rychlewski, Andrzej Sadlej, Peter Scharf, and others.

In 1963, following the arrival of Toruń Wiesław Woźnicki, an informal quantum chemistry group began to take shape within the Institute of Physics at NCU. Karol became its first member and soon recruited one of the present authors (JK) and several others. I recall our seminars, our immersion in a field entirely new to us, and our spirited social life as one of

the happiest periods of my professional life. Together, we discovered a new scientific world: traveling abroad for fellowships and conferences, and forging collaborations with scholars whom we had previously known only from their publications.

Although the group's early work concerned semiempirical quantum-chemical methods – an area Karol viewed with some reserve – his own interests soon shifted decisively toward rigorous theoretical studies of electron correlation. Having also studied mathematics, he was naturally drawn to the mathematical formalism of many-body theory. Electron correlation problems remained the central theme of his scientific work throughout his life.

Around 1974, Karol conceived a way to transcend the political barriers that isolated scientists from the Eastern Bloc. By then, we had established strong connections with prominent researchers in Western Europe and North America. Drawing on these connections, between 1976 and 1989, he organized six Schools of Quantum Chemistry at the NCU recreation center in Bachotek, in the Brodnica Lake District. Lecturers came from around the world, while the students were PhD candidates and young researchers from Eastern Bloc countries.

The initiative proved extraordinarily successful. Approximately 130 participants attended these Schools; the lecturers paid their own expenses and accepted no honoraria. Among the attendees were individuals who later rose to leading positions in science and public life: the Chancellor of Germany, a professor at the Free University of Berlin and husband of the Chancellor, a President of the Czech Academy of Sciences, and a President of the Lithuanian Academy of Sciences. The memory of these Schools endures to this day.

Karol's research made fundamental contributions to quantum chemistry, particularly to the theory and description of electron correlation in many-electron systems. His work advanced coupled-cluster theory, perturbation methods for quasi-degenerate states, and the development of a new class of basis sets for quantum-chemical calculations – now known worldwide as the correlation-consistent Dunning basis sets.

He authored or co-authored more than 120 scientific publications, which have been cited over 3,000 times, and is widely regarded as one of the most influential Polish quantum chemists of his generation. He supervised more than a dozen doctoral students, including one of the present authors (IG). For many years, he headed the Department of the Theory of Many-Electron Systems at the NCU Institute of Physics.

Karol also served as Vice-Dean of the Faculty of Mathematics, Physics, and Chemistry, and as a Senator of Nicolaus Copernicus University. It was through his initiative that the NCU Alumni Association in Toruń was established.

Professor Jankowski pursued science for its own sake and drew deep satisfaction from it. He was never afraid to tackle complex or unconventional problems and guided his students, doctoral candidates, and colleagues into new research directions. He excelled in his work – meticulous, tirelessly hard-working, and endowed with exceptional intuition for interpreting results, spotting anomalies, and recognizing the key aspects of the problems he studied.

Despite his accomplishments, Karol remained a modest man who disliked publicity and avoided it whenever possible. He was principled and deeply committed to his values. We will remember Professor Karol Jankowski as a brilliant scientist, a demanding but inspiring mentor, a gifted storyteller, and often the life of the party. His passing leaves a profound void in our academic community and in the lives of those who worked with him.