



Photograph: I. Lommatzsch

Jaroslav Koutecký

Jaroslav Koutecký was born on October 14, 1922, in Kroměříž, Moravia. His father was a lawyer and his mother a linguist who translated French and German literature into Czech. He studied at Charles University in Prague between 1945 and 1948. From 1954 to 1969 he pursued research and supervised graduate students at the Institute for Physical Chemistry of the Czechoslovak Academy of Sciences in Prague, from 1960 as head of the quantum chemistry group and from 1962 as a corresponding member of the Czechoslovak Academy of Sciences. He was a visiting Professor at Johns Hopkins University from 1965 to 1967. In 1969 he was elected a member of the International Academy of Quantum Molecular Sciences. In 1970 he became Professor of Chemistry at the Belfer Graduate School of Yeshiva University in New York and, since 1973, he has been Professor at the Freie Universität in Berlin. He possesses honorary Ph.D's from the University of Waterloo, Ontario, and the University of Reims, France.

Jaroslav Koutecký began his scientific work in the area of quantum field theory under the supervision of Professors Trkal and Votruba, but he soon joined Professor Brdička in his studies of kinetic polarographic currents. In their first theory of 1947 they solved the differential equations describing the diffusion and the chemical reaction, but the results disagreed with the experimental observations. In 1952, Koutecký recognized the need for taking into account the hydrodynamic consequences of the mercury dropping electrode and this problem was then solved in a series of papers which satisfactorily explained all experimental data. For this work, Brdička and Koutecký received the Czechoslovak State Prize in 1954.

In subsequent years, Koutecký's interests shifted to quantum chemistry. Under the influence of the considerable experimental work by his close colleagues in the area of chemisorption and heterogeneous catalysis, he pioneered quantum chemical methods for surface phenomena. Combining the resolvent method with the theory of analytic functions, the obtained exact solutions for simple models, he provided an interpretation of Shockley waves in terms of dangling bonds, and he studied the interactions of chemisorbed molecules through the metal. Then, turning to the quantum chemistry of molecules, he created a vigorous research group in Prague, which contributed numerous investigations ranging from small molecules to polymers. He studied the stability, the electronic spectra, and the dynamical reactivities of organic π -electron systems. He developed several methods to handle the correlation problem for electronic spectra and thereby predicted the existence of low-lying doubly excited states, whose study has since become a fruitful field for two-photon absorption spectroscopy. His contributions to fundamental quantum chemical methods include analyses of the properties of the Hartree-Fock equations, the second quantization formulation of the PPP Hamiltonian and the generalized theory of alternant symmetry.

Much of his current research is carried out in cooperation with his present wife, Vlasta Bonačič, also a Professor at the Freie Universität, whom he met while visiting at Johns Hopkins University in 1969. The international research group they have built up in the supportive Berlin environment is well known for its work in chemical dynamics, chemical reactivity, photochemistry and quantum chemical methods. It has culminated in fundamental contributions to the understanding of metal clusters.

Jaroslav Koutecký's life has been marked by adversities. During the war, 1941–45, he escaped labor in the Third Reich only by working in the Bata shoe factory laboratories. In 1948 he was barred from university studies by the new regime. In 1953, Professor Brdička's insistence on Koutecký's sharing the prize with him paved the way for the beginning of his work in the Institute of Physical Chemistry at the Czechoslovak Academy of Sciences, although he was not allowed to travel abroad until after 1963. In 1969, after the end of the Prague Spring, he felt that he had to leave his home country, where upon he lost his membership in the Academy. In 1967, he was involved in a serious car accident, in which his first wife lost her life. It took him more than a year to recover from his near-fatal injuries.

We admire our former teacher for never losing his vigor and zest in the pursuit of science and for the enthusiasm he has been able to kindle in his numerous students and coworkers. We congratulate Jaroslav Koutecký for his great achievements and wish him and his devoted wife and partner Vlasta many more years of fruitful productivity.

Jiří Čížek, Josef Paldus
Waterloo, Ontario, Canada