



Cornell University Chemistry and Chemical Biology

Faculty Research

Simon H. Bauer

Title: Professor Emeritus

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Educational Background:

PhD, University of Chicago, 1935

BS, University of Chicago, 1931

Awards:

- John Simon Guggenheim Memorial Foundation
- National Science Foundation Senior Postdoctoral Fellow
- United States Senior Scientist Award, Alexander von Humboldt Foundation
- National Science Foundation Exchange Fellow(USSR)
- Foreign Adjunct Professor, IMS, Okazaki, Japan
- American Physical Society Fellow
- American Association for the Advancement of Science Fellow



Research Description:

Professor Emeritus Simon Bauer was born in Lithuania in 1911. His family emigrated to the United States in 1921 and settled in Chicago. Professor Bauer attended the University of Chicago, where he earned his B.S. and Ph.D. degrees. There he studied with Professors T. R. Hogness, W. D. Harkins, and H. I. Schlesinger. He then spent two years as a postdoctorate fellow at the California Institute of Technology working with Professors R. M. Badger and L. Pauling. After serving two years as instructor in Fuel Technology at the Pennsylvania State University he was invited to join the faculty at Cornell University. He was made Professor in 1950.

His papers deal with molecular structure determinations by electron diffraction, EXAFS and spectroscopic techniques, measurement of the physical and thermochemical properties of the boranes, kinetics of fast reactions and spectral emissions at high temperatures, as studied in shock tubes and in chemical laser systems, and models of nucleation/condensation processes.

He was a Guggenheim Fellow (1949), an NSF Senior Postdoctorate Fellow (1962) at CNRC and the Weizmann Institute, NAS Interacademy Exchange Fellow (USSR, 1966). In 1979 he received an Alexander von Humboldt Award and spent 6 months at the Max Planck Institute in Garching-Munich.

In the Fall (1983) he held an appointment as the First Foreign Adjunct Professor at the Institute for Molecular Science in Okazaki, Japan. He is a fellow of the APS, AI Chem, and of AAAS, and member of Sigma Xi, Phi Beta Kappa, ACS, The Federation of American Scientists and the American Academy of Political and Social Science. He is on the Editorial Board of Combustion and Flame. He was an ACS lecture tour speaker (1975, 76, 77, 80, 89); Sievers Lecturer, USC (1974); Emerson Lecturer, Emory University (1989); Visiting Professor at NDSU (1974); UCIO (1978); UCR (1978). He is the author or coauthor of 374 publications. He served as consultant to the Los Alamos National Laboratory, the Argonne National Laboratory, CALSPAN, ARCO-Harvey Technical Center (1945-1985), and Lockheed California Company.

Selected Publications:

Wilcox, C. F., Jr.; Bauer, S. H. The dissociation of dimeric aliphatic acids; energetics & kinetics. *J. Chem. Phys.* **1997**, *107*, 5794.

The gas phase oxidations of B, BH, BH₂ and B_mH_n: A review of the thermochemistry and kinetics. *Chem. Rev.* **1996**, *96*, 1907.

Zhang, Y-X.; Wilcox, C.F., Jr.; Bauer, S. H. The Gas-Phase Pyrolysis of Nitrocyclobutanes: A Shock-Tube Investigation Supplemented with DFT Calculations of Their Thermochemical and Structural Parameters. *Troe Festschrift - Zeit. Physikalische Chemie* **2001**, *215*, 1165.

Bauer, S. H.; Zhang, Y-X.; Wilcox, C.F., Jr. On the Metastable Size Distribution of Molecular Clusters in Supersaturated Vapors. *J. Chem. Phys.* **2001**, *114*, 9408.

Bauer, S.H. Historiography of a Very Fast Gas Reaction. *Chem. Rev.* **2002**, *102*, 3893.

Wilcox, C. F., Jr.; Bauer, S. H. DFT Calculations of Thermochemical and Structural Parameters of Tetracyano-hydrazine and Related Tetrasubstituted Hydrazines. *Theochem* **2003**, *625*, 1.

A Chemist Contemplates Models of Intermolecular Collisions. *International J. of Chemical Kinetics* **2005**, *37*, 191-200.

The Many Measures of Molecular Dimensions Structural Chemistry ----- **2005**

A Multidimensional Quantum Mechanics Potential Energy Surface for CO₂/H₂O Complexes. C.F. Wilcox and S.H. Bauer Accepted for publication in --- *Molecular Physics* **2005**.

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