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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### Preface

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## PREFACE



We are most pleased to dedicate this volume in honor of Professor Robert Wolf for his scientific achievements in main group chemistry and in particular in phosphorus chemistry. I have had the pleasure of knowing Robert Wolf over the past few decades. During most of that time we have continued a correspondence which was unique from Robert's side in that I became acquainted with his artistic nature and somewhat with his life's philosophy. I have never told him this but I have saved all of his original postcard art work that he has sent me. It is a unique collection. One time that I visited him, I found myself gathering potatoes in his garden connected with his hide-away in the Pyrénées outside of Toulouse. I sensed this was to work up an appetite for the sumptuous dinner prepared by Amparo, his late wife. There was also a surprise birthday cake for my son's 13th birthday, who accompanied my wife and me. It was a very memorable occasion as always whenever we would meet.

*Robert Holmes*

It is with great pleasure that we honor Robert Wolf with the dedication of this special issue of the journal to him, on the occasion of half a century devoted to chemistry and 25 years on the board of P, S, & Si.

Robert was born in Strasbourg, France on December 27, 1923, which means that his studies at the university were completely disturbed during the second world war and even halted for five years. Nevertheless, correspondence courses helped him to pass his baccalauréat. Probably this difficult period made a great impression on his personality. Indeed, Robert is a philosopher who continually analyzes the problems of everyday life. In 1945 he entered the Institut de Chimie de Toulouse and became an Engineer in Chemistry (1948). He was chosen as a permanent Researcher at the Centre National de la Recherche Scientifique (C.N.R.S.) where he spent his academic career (1948-1992).

Under the direction of Professor F. Gallais, his initial studies involved work on the Faraday Effect (Magnetic Rotary Power). This method was used as a tool to obtain information concerning the molecular structure of aminoxides and peroxides. On the basis of this topic, he obtained a thesis of Ingénieur Docteur in 1956. His second field of research started in the laboratory of Professor F. Mathis, an expert in infrared spectroscopy. The aim of this research area was to use I. R. to obtain structural information on the X-H bond itself and on its molecular environment (X=N, Si, Ge...). In the framework of this orientation, Robert studied the hydrogen-phosphorus bond. A useful stay in Lodz (Poland) with Professor J. Michalski, allowed him to become more familiar with the synthesis of organophosphorus compounds. On the basis of this subject he obtained the These d'Etat in 1964. The  $^{31}\text{P}$  NMR data for this study were obtained at the Monsanto Chemical Co. in Saint Louis, Missouri (working at 16.2 MHz!) with the help of Dr. Van Wazer. At that time Robert was the co-author of more than twenty publications.

Appointed "Maitre de Reserche" in 1966, Robert carried on his own research project. Rapidly, he became the leader of a productive team of half a dozen permanent colleagues (and friends) and Ph.D. students. The starting point of the research was the discovery of phosphorus compounds at the border between coordination III and V, namely the tautomerism between phosphites and phosphoranes resulting from the oxidative addition from an X-H bond carried by the phosphite on its own lone pair. This pioneering work developed rapidly throughout the world in a highly competitive fashion (I know that Robert prefers fruitful emulation). These advances were facilitated by CNRS support and the extraordinary results from  $^{31}\text{P}$  NMR spectroscopy. More than one hundred papers were published by the team in this field dealing with synthesis, stereochemistry, and optical activity of pentavalent phosphorus compounds. Moreover the discovery by Robert's team that phosphoranes were able to act as bidentate ligands

(H-P phosphoranes  $\rightleftharpoons$  aminophosphites or aminophosphonites) allowed other research groups to obtain up-to-date results in coordination chemistry (e.g. I. Tkatchenko et al. In Lyon, and J. Riess et al. In Nice). The echo of the results obtained in pentacoordination by the organophosphorus chemical community was amplified by the fact that pentacovalence was found to belong to at least half of the elements of the periodic table.

Besides his fruitful activity as a researcher, Robert also took part in the dissemination of knowledge as a lecturer at the "Ecole Nationale Supérieure de Chimie de Toulouse", (1954-1969) and still is an occasional lecturer throughout France and Europe where his talks center on various scientific subjects (his favorite topic being chemical communication and life). Looking through Robert's 170 publications, I have found several articles written in French, English of course, but also in Russian, Spanish, German and even in Romanian. I know Robert is very grateful to CNRS which allowed him to fulfill both a job and a passion.

It is always a real pleasure to speak with him during formal or informal discussions. Indeed, his knowledge is so impressive that everybody can learn fascinating things about phosphorus chemistry, philosophy, and even painting (Robert is a real artist!)

I am proud to be one of his friends.

*Jean Pierre Majoral*

The following is a chronology of Robert Wolf's career and some of his most important achievements in science.

Born: December 27, 1923 Strasbourg

Married: to Amparo Izquierdo June 12, 1954, three sons, Charles, Pierre and Vincent

Graduate Engineer (chemistry) from Ecole Nationale Supérieure de Chimie de Toulouse (1948)

Docteur ès Sciences (Ph.D.) from Faculté des Sciences de Toulouse (1964)

Researcher at the Centre National de la Recherche Scientifique (C.N.R.S.) France (1948-1992)

Directeur de recherche émérite

Head of the Equipe de recherche du C.N.R.S. "Pentacoordination du Phosphore" (1970-1984)

Awards: Silver Medal of the Centre National de la Recherche Scientifique (1976)  
Lauréat of the Académie des Sciences (1981)  
Directeur de Recherches Emerité (1992 to Sept. 1997)