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ORGANIC CHEMISTRY: THEORY, REACTIVITY, MECHANISMS IN MODERN SYNTHESIS

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Modern synthesis including asymmetric synthesis, have made fantastic progress during the last 40 years, especially by developing and applying new catalytic reactions. This contributes to render modern technologies more and more sustainable. Synthetic chemists, biochemists and chemical engineers must be able to predict whether a given equilibrium under given conditions will be exergonic or not. For that, thermochemical calculations and statistical thermodynamics are extremely simple, accurate and valuable tools to answer this question. In the same time one needs to be able to predict the rate of the reactions that will lead to the above equilibrium. Knowledge of reaction mechanisms (how nature transforms matter) and theories of reactivity are the most useful tools to help the molecular scientists. The Vogel-Houk textbook has been written to help engineers of molecules to approach satisfying answers to the above questions and help scientists to understand the dynamics of molecules. It complements other textbooks of organic chemistry and physical organic chemistry. It also gives a lot of data the molecular scientists will find useful for

the invention of new reactions and processes. It presents the most important concepts of the reactivity of organic and organometallic compounds. The book present 8 chapters that are: equilibria and thermochemistry; additivity rules for thermodynamic parameters and deviations; the rates of chemical reactions; molecular orbital theories; pericyclic reactions; organic photochemistry; catalytic reactions and; transition metal-catalyzed C-C bond forming reactions. A companion workbook gives the literature references and answers to problems.

Biography

Pierre Vogel, PhD degree from the University of Lausanne, 1969 (Prof. H. Prinzbach). After post-doctoral stays at Yale University, New Haven, USA (Prof. Martin Saunders) and at Syntex, Mexico-City (Prof. Pierre Crabbé) he return to Lausanne and become Full Professor of chemistry in 1977, first at the University of Lausanne, then (2001) at the EPFL. He has authored and co-authored more than 525 scientific publications and collected more than 12'100 citations.

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