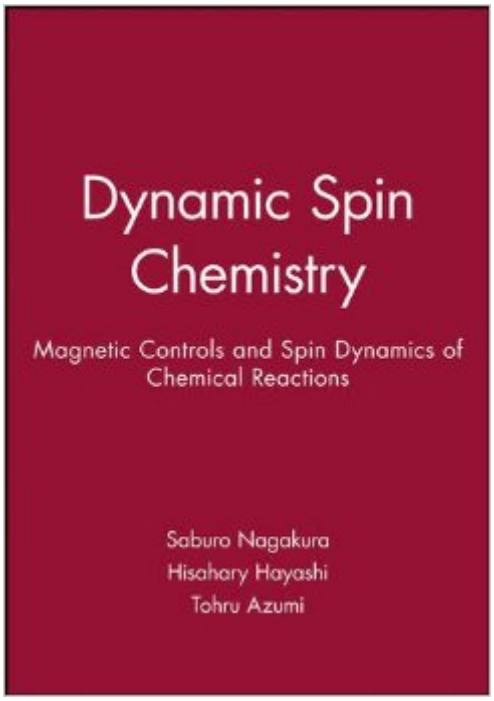
Dynamic Spin Chemistry: Magnetic Controls And Spin Dynamics Of Chemical Reactions



Synopsis

Dynamic Spin Chemistry Edited by Saburo Nagakura, Hisaharu Hayashi and Tohru Azumi Because of increasing concerns over the effects of electromagnetic radiation on the human body, it has become essential to understand how chemical and biological reactions are affected by magnetic fields. Dynamic Spin Chemistry focuses on theoretical and experimental research showing the great influence on the dynamic behavior of molecules due to external magnetic fields, such as magnetic quenching of gaseous fluorescence, effects on chemical reaction rates and chemically induced dynamic nuclear and electron polarization. This book discusses both the theoretical and experimental foundations of dynamic spin chemistry, as well as its future trends. After the introductory chapter, the next three chapters discuss magnetic field effects and magnetic isotope effects on chemical reactions in solution and on the dynamic behavior of excited molecules in the gas phase. Subsequent chapters deal with the effects on chemical equilibria under large fields; spin spectroscopy; chemically induced dynamic electron polarization (CIDEP) studies and reaction yield-detected ESR. This book will be of interest to researchers and graduate students in pure and applied chemistry, physics or biology having an interest in photochemistry, photophysics or photobiology.

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