Nitroxides: Applications in Chemistry, Biomedicine, and Materials Science

Covering all aspects of this field, this volume also critically discusses recent results obtained with the use of nitroxides, while providing an analysis of future developments.

Written by a group of scientists with long-term experience in investigating the chemistry, physicochemistry, biochemistry and biophysics of nitroxides, the book is not intended as an exhaustive survey of each topic, but rather a discussion of their theoretical and experimental background, as well as recent advances.

The first four chapters expound the general theoretical and experimental background and the advantages of modern ESR technique. Chapter 5 focuses on fundamentals and recent results in the preparation and basic chemical properties, while the next two chapters briefly outline principles and current results in nitroxides as spin probes, and as redox probes and spin traps. These chapters form the basis for the subsequent more detailed studies of nitroxides in physicochemistry, while the final chapters concentrate on the advantages of magnetic materials on the basis of nitroxides. Finally, the concluding chapter considers the rapidly developing field of biomedical, therapeutic and clinical applications.

With more than 1,100 references to essential literature, this volume provides fundamental knowledge of instrumentation, data interpretation, capacity and recent advantages of nitroxide applications, allowing readers to understand how nitroxides can help them in solving their own problems.

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