

# **Techniques in Life Science and Biomedicine for the Non-Expert**

## **Series editor**

Alexander E. Kalyuzhny, University of Minnesota, Minneapolis, MN, USA

The goal of this series is to provide concise but thorough introductory guides to various scientific techniques, aimed at both the non-expert researcher and novice scientist. Each book will highlight the advantages and limitations of the technique being covered, identify the experiments to which the technique is best suited, and include numerous figures to help better illustrate and explain the technique to the reader. Currently, there is an abundance of books and journals offering various scientific techniques to experts, but these resources, written in technical scientific jargon, can be difficult for the non-expert, whether an experienced scientist from a different discipline or a new researcher, to understand and follow. These techniques, however, may in fact be quite useful to the non-expert due to the interdisciplinary nature of numerous disciplines, and the lack of sufficient comprehensible guides to such techniques can and does slow down research and lead to employing inadequate techniques, resulting in inaccurate data. This series sets out to fill the gap in this much needed scientific resource.

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Ashutosh Kumar Shukla

# ESR Spectroscopy for Life Science Applications: An Introduction

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*To my parents*

# Preface

It is my pleasure to present this collection with set specific goals of the series Techniques in Life Science and Biomedicine for the Non-Expert. This volume with chapter authors along with me as a co-author in each chapter is intended to present the content in a consistent style. This books talks about electron spin resonance spectroscopy and the applications of this method for different life science applications. Though the applications are in many such fields, the selected chapters here focus on healthcare and pharmaceutical science, paleontology and geochronology, and food science.

I am thankful to the expert contributors for taking time out of their busy schedules. It is only their sincere effort that enabled me to present this text before the audience. My sincere thanks are due to the series editor Dr. Alex Kalyuzhny who has indirectly contributed a lot to make this collection as per series expectations.

I sincerely thank Alison Ball, associate editor, Springer (microbiology and immunology), for giving me the opportunity to present this volume. I also thank Ms. Harithashrivarshini, project coordinator, for her support during the publication process. Though I found that it is difficult to be simple when style of presentation is concerned, I hope at the same time that you will enjoy the text and get attracted to ESR applications in different fields.

Prayagraj, India  
August 2020

Ashutosh Kumar Shukla

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