Advance Book Information

Forensic Science
The Science Behind the Truth

Ian Shaw University of Canterbury, New Zealand
Anna Sandiford The Forensic Science Group Ltd., New Zealand

Synopsis
Succinctly presented, this book covers all the facets of forensic science for students who are hoping to become police officers, lawyers or other members of the criminal justice system. As forensic investigations have advanced, eg in DNA profiling, computer modelling and behavioural sciences, so has the need for increased scientific knowledge. Considering the challenges this brings, the author explains complex information in an accessible and undemanding style. Using international case studies, this book brings forensic science to life and include aspects of the author's journey.

Brief Contents
- The Whittle Case – 1976
- The History of Forensic Science
- Crime Scene Investigation
- Forensic Chemistry
- Forensic Biology
- DNA
- Fingerprints
- Forensic Pathology
- Forensic Toxicology
- Forensic Psychology
- Firearms
- Forensic Document Examination
- Probability in Forensic Science
- Presenting Evidence
- Assembling the Forensic Results

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Concepts in Physical Chemistry

Peter Atkins Oxford University, UK

Synopsis

Completely revised and updated for a second edition, this reference guide is an essential summary of the key concepts in physical chemistry that are likely to be encountered by undergraduate chemistry students. This book also serves as a useful reference for all who encounter physical chemical concepts in their professional activities or research. Written by a renowned textbook author and educator, this new edition of Concepts in Physical Chemistry is a convenient, easy-to-use, and authoritative reference; the chemical terms, ideas, and equations most frequently encountered in classroom or laboratory are clearly defined and explained.

Brief Contents

- Concepts beginning with A
- Concepts beginning with B
- Concepts beginning with C
- Concepts beginning with D
- Concepts beginning with E
- Concepts beginning with F
- Concepts beginning with G
- Concepts beginning with H
- Concepts beginning with I
- Concepts beginning with J
- Concepts beginning with K
- Concepts beginning with L
- Concepts beginning with M
- Concepts beginning with N
- Concepts beginning with O
- Concepts beginning with P
- Concepts beginning with Q
- Concepts beginning with R
- Concepts beginning with S
- Concepts beginning with T
- Concepts beginning with U
- Concepts beginning with V
- Concepts beginning with W
- Concepts beginning with X, Y and Z

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Nuclear Magnetic Relaxation and Molecular Dynamics

Rainer Kimmich University of Ulm, Germany

Synopsis

Nuclear Magnetic Resonance (NMR) relaxation techniques have developed as powerful tools to study and characterise many liquids, solids, or semi-solid materials of interest in technology, biomedicine, food science and geophysics. This book provides information on applications and interpretation of relaxation experiments. It explores the principles, the theoretical background, and descriptions of typical applications. As an essential part of relaxation data, the focus will also be on the statistical features of molecular dynamics. This unique text is targeted to anyone wishing to perform NMR relaxation experiments from undergraduates to academics and those in industry.

Brief Contents

- Introduction
- Typical Experimental Methods for Studying NMR Relaxation
- Spin Systems and Spin Interactions
- Local Fields, Motional Averaging, and Relaxation Limits
- Spin Relaxation in the High-field Limit
- The Stochastic Basis of Spin Relaxation
- Intermolecular Dipolar Couplings and Field-cycling NMR Relaxometry as a Tool to Study Translational Diffusion
- Impact of Exchange on Relaxation in Heterogeneous Media
- Molecular Dynamics in Bulk Nematic Liquid Crystals
- Liquids Confined in Mesoscopic Pores
- Flow-relaxation Effect in Fluid-filled Porous Media
- Chain Dynamics in Polymer Liquids
- Elementary Processes of Molecular Dynamics in Aqueous Biopolymer Systems
- Relaxation Contrasts in Biomedical Magnetic-resonance Imaging (MRI)
- Interaction and Motional Averaging in $^{17}$O-Enriched Water
- Quadrupole Relaxation Enhancement (QRE) for $^1$H $^{14}$N and $^1$H $^2$H Dipolar Couplings
- Some Criteria and Hints for the Interpretation of Experimental NMR Relaxometry Data
- Implications of Superimposed Spin States

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