Advance Book Information

Adhesion Science
John Comyn

Synopsis
The use of adhesives is widespread and growing, and there are few modern artefacts, from the simple cereal packet, to the jumbo jet, that are without this means of joining. Adhesion Science 2nd edition is fully updated and revised to provide an illuminating account of the science underlying the use of adhesives, a branch of chemical technology that is fundamental to the science of coatings and composite materials and to the performance of all types of bonded structures. This concise and yet detailed book is an ideal guide to students, from the essential basic polymer science to the chemistry of adhesives in use, it is the primary resource for any reader interested in adhesion science and the applications of adhesives.

Brief Contents

- Introduction to Adhesion and Adhesives
- Surface Treatment for Adhesion and for Abhesion
- Primers and Coupling Agents
- Chemistry of Adhesives which Harden by Chemical Reaction
- Chemistry of Adhesives which Harden Without Chemical Reaction
- Pressure-sensitive Adhesives
- Surface Analysis
- Contact Angles in the Study of Adhesion
- Testing of Adhesive Joints
- Adhesive Joints and the Environment

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Amino Acids, Peptides and Proteins

Volume 44

Maxim Ryadnov National Physical Laboratory, UK
Ferenc Hudecz Eötvös Loránd University, Hungary

Synopsis
Amino Acids, Peptides and Proteins comprises a comprehensive and critical review of significant developments at the biology/chemistry interface. Compiled by leading researchers in their subject, this volume incorporates current trends and emerging areas. Appealing broadly to researchers in academia and industry, it will be of great benefit to any researcher wanting a succinct reference in the field.

Brief Contents
- Enzymatic Halogenation: Enzyme Mining, Mechanisms, and Implementation in Reaction Cascades
- Non-Canonical (unusual) Amino Acids as a toolbox for Antimicrobial and Anticancer Peptide Synthesis
- Intrinsic Structural Disorder of Proteins: from Prediction to Experimental Identification
- Membrane Disrupting Peptides: Mechanistic Elucidation of Antimicrobial Activity
- Detection of Protein Posttranslational Modifications by Mass Spectrometry

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Carbon Nanostructures for Biomedical Applications

Tatiana Da Ros Trieste University, Italy
Nazario Martin Universidad Complutense Madrid, Spain
Jean-Francois Nierengarten University of Strasbourg, France

Synopsis
Edited by renowned experts in the subject, this book collects and delineates the most notable advances within the growing field surrounding carbon nanostructures for biomedical purposes. Exploration ranges from fundamentals around classifications to toxicity, biocompatibility and the immune response. Emerging classes of materials, such as carbon dots and nanohorns are discussed, with chapters devoted to applications across imaging, drug delivery and tissue scaffolding.

Brief Contents
- Carbon Nanostructures: Drug Delivery and Beyond
- Carbon Nanomaterials as Carriers of Anti-Inflammatory Drugs
- Multivalent Glycosylated Carbon Nanostructures: Efficient Inhibitors of Emergent Viruses Infection
- Carbon Nanostructures and Polysaccharides for Biomedical Materials
- Biological Applications of Magnetically Empowered Carbon Nanotubes
- Carbon Nanomaterials for Neuronal Tissue Engineering
- Carbon Nanotubes for Cardiac Applications
- Nanodiamonds and their Biological Applications
- Carbon Nanomaterials for the Development of Biosensors for Microbe Detection and Diagnosis

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Nuclear Magnetic Resonance
Volume 46
Paul Hodgkinson Durham University, UK

Synopsis
Nuclear magnetic resonance has proved a uniquely versatile and powerful spectroscopic technique, with applications across chemistry, physics and medicine. The success of NMR and its constant redevelopment means that the literature is vast and wide-ranging. Each chapter in this volume is a distillation of the key recent literature in different areas covering the spectrum of NMR theory and practice, and including solution-state, solid-state and in-vivo NMR. These reports will be invaluable both for new researchers wishing to engage with literature for the first time, and for seasoned practitioners, particularly service managers, wishing to keep in touch with the ever-expanding ways in which NMR is used.

Brief Contents
- Theory and Computation of Nuclear Shielding
- Theoretical and Practical Aspects of Indirect Spin-Spin Couplings
- Nuclear Spin Relaxation
- Solid-State NMR Spectroscopy
- Recent Development and Applications of NMR in Industry
- NMR of Soft Matter Systems
- NMR of Proteins and Nucleic Acids
- NMR in Living Systems

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Good Chemistry
Methodological, Ethical, and Social Dimensions

Jan Mehlich  Feng Chia University, Taiwan

Synopsis
Practicing chemists face a number of ethical considerations, from issues of attribution of authorship through the potential environmental impact of a new process to the decision to work on chemicals that could be weaponised. This textbook provides an accessible resource to help chemists recognise the ethical and social dimensions of their own work and act appropriately. Divided into three parts, Methodological aspects, research ethics, and social and environmental implications, it is a valuable reference for students and researchers alike.

Brief Contents
- Science Theory
- The Scientific Method(s)
- Scientific Reasoning
- The Virtues of Science
- Scientific Misconduct
- Scientific Publishing
- Chemistry as a Network Activity
- Animal Experiments
- Science and Values
- Sustainability

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Surface Chemistry of Colloidal Nanocrystals

Ana Luísa Daniel-da-Silva  University of Aveiro, Portugal
Tito Trindade  University of Aveiro, Portugal

Synopsis
The chemistry of nanomaterials has developed considerably in the past two decades. This book provides insights on the chemistry of inorganic nanoparticles of colloidal nature, with fundamentals on the topic for a broad audience as well as information on the chemical modification of surfaces of several different nanocrystal systems. Written by prestigious scientists, it will be a useful resource for students and researchers working in surface science, nanoscience and materials science as well as those interested in the applications of the nanomaterials.

Brief Contents
- Inorganic nanocrystals and surfaces: an overview
- Water compatible colloidal nanocrystals
- Colloidal nanocrystals with surface organic ligands
- Polymer-inorganic colloidal nanocomposites
- Inorganic Nanocrystals and Biointerfaces
- Applications of colloidal nanocrystals

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Thermal Energy Storage
Materials, Devices, Systems and Applications

Yulong Ding University of Birmingham, UK

Synopsis
Thermal energy storage refers to a collection of technologies that store energy in the forms of heat, cold or their combination, which currently accounts for approximately 55% of global non-pumped hydro installations. The potential market for thermal energy storage on future low-carbon energy systems and associated social and economic impacts are enormous, with significant progress having been made in recent years. Edited by an expert in the field, this title is suitable for graduate students and researchers in energy, energy storage, materials engineering, chemical and process engineering, mechanical engineering and manufacture technologies.

Brief Contents
- Thermodynamics of thermal energy storage
- Transport phenomena in thermal energy storage
- Sensible heat storage materials
- Latent heat storage materials
- Adsorption, absorption based thermochemical storage materials
- Reversible reaction based thermochemical energy storage materials
- Manufacture of thermal energy storage materials
- Modelling at thermal energy storage material scale
- Sensible heat storage devices
- Latent heat storage devices