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This Brief documents the life, discoveries and inventions of the chemist Carl Auer von Welsbach. Particular attention is given to his pioneering work on the rare earth elements, including the discovery of four new elements, which allowed him to develop new materials, to invent new useful devices and to establish major industries. [...] 2018. IX, 140 p. 20 illus., 10 illus. in color. (SpringerBriefs in Molecular Science) Softcover € 54,99 | £ 49,99
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T. Guo

X-ray Nanochemistry

Concepts and Development

This book describes the latest developments in the new research discipline of X-ray nanochemistry, which uses nanomaterials to enhance the effectiveness of X-ray irradiation. Nanomaterials now can be synthesized in such a way as to meet the demand for complex functions that enhance the X-ray effect. [...] 

2018. XXI, 513 p. 257 illus., 186 illus. in color. (Nanotechnology Science and Technology) Hardcover 
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ISBN 978-3-319-78002-3 

I. E. Uflyand, G. I. Dzhardimalieva (Eds)

Label-Free Biosensing

Advanced Materials, Devices and Applications

This volume summarizes the state-of-the-art technologies, key advances and future trends in the field of label-free biosensing. It provides detailed insights into the different types of solid-state, label-free biosensors, their underlying transducer principles, advanced materials utilized, device-fabrication techniques and various applications. [...] 

2018. XII, 480 p. 200 illus., 149 illus. in color. (Springer Series on Chemical Sensors and Biosensors, Volume 16) Hardcover 
€ 249,99 | £ 219,99 
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ISBN 978-3-319-75219-8 

K. Okitsu, F. Cavalieri

Sonochemical Production of Nanomaterials

This book discusses the ultrasonic synthesis, characterization and application of various nanoparticles, as well as the ultrasonic synthesis of metal and inorganic nanoparticles such as noble metals, transition metals, semiconductors, nanocomposites, alloys and catalysts. In addition, it describes the engineering of micro- and nanosystems using ultrasound-responsive biomolecules. [...] 

2018. VI, 62 p. 35 illus., 23 illus. in color. (SpringerBriefs in Molecular Science) Softcover 
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ISBN 978-3-319-96733-2 

S. F. Tan

Molecular Electronic Control Over Tunneling Charge Transfer Plasmons Modes

This thesis describes the controlled immobilization of molecules between two cuboidal metal nanoparticles by means of a self-assembly method to control the quantum plasmon resonances. It demonstrates that quantum-plasmonics is possible at length scales that are useful for real applications. [...] 

2018. XXXIV, 115 p. 55 illus., 46 illus. in color. (Springer Theses) Hardcover 
€ 109,99 | £ 99,99 
€ (D) 117,69 | € (A) 120,99 | *CHF 121.00 

S. Shirakawa (Ed)

Designed Molecular Space in Material Science and Catalysis

This book focuses on molecular space chemistry, which is recognized as an important concept for the design of novel functional materials and catalysts. A wide variety of topics and ideas included in this book are based on that concept. The book showcases recent representative examples of molecular space design to create functional materials and catalysts possessing unique properties. [...] 

2018. VIII, 262 p. 301 illus., 109 illus. in color. Hardcover 
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ISBN 978-3-319-981-13-1255-7 

I. E. Uflyand, G. I. Dzhardimalieva

Nanomaterials Preparation by Thermolysis of Metal Chelates

The book focuses on the thermal transformations of various types of metal chelates, e.g. low molecular weight and polymeric metal chelates, coordination polymers and metal-organic frameworks. [...] 

2018. XVIII, 549 p. 484 illus., 211 illus. in color. (Springer Series on Polymer and Composite Materials) Hardcover 
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ISBN 978-3-319-93404-4
K. L. Hudson

Carbohydrate-Based Interactions at the Molecular and the Cellular Level

This book offers a clearly written and highly accessible account of two different aspects of carbohydrate chemistry. Carbohydrates are an essential component of life and have many important biological functions, but the details of how carbohydrates interact with other biomolecules to mediate biological signaling remain unclear. [...]
In this book, the molecular recognition of DNA using small molecules is discussed, with a study of the photochemistry of BrU-labeled DNA. The purposes of the study were to develop small molecules for regenerative medicine, to develop a method to detect the recognition site of small molecules, and to detect the most important biological phenomena using the photochemistry of BrU-la...
N. Alonso-Vante
Chalcogenide Materials
for Energy Conversion
Pathways to Oxygen and Hydrogen Reactions
This book addresses electrocatalysis based on chalcogenides, particularly in the nanoscale domain. Special attention is paid to the hydrogen evolution reaction (HER) and the oxygen reduction reaction (ORR). [...]
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(Nanostructure Science and Technology) Hardcover
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ISBN 978-3-319-89610-6

X. Wu, M. Beller (Eds)
Chemical Transformations of Carbon Dioxide
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Y. Landais (Ed)
Free-Radical Synthesis and Functionalization of Heterocycles
This volume describes the recent developments in the free-radical mediated synthesis and elaboration of heterocycles. The first chapter, dealing with radical cascade processes illustrates the power and the beauty of radical chemistry with some striking examples of total synthesis of complex natural heterocycles. [...]
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(Topics in Heterocyclic Chemistry, Volume 54) Hardcover
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ISBN 978-3-319-94327-5

M. Solioz
Copper and Bacteria
Evolution, Homeostasis and Toxicity
In the past two decades, great progress has been made in the understanding of copper as a bioelement. The book summarizes the current knowledge of copper toxicity, homeostasis and resistance in bacteria, in which proteins like copper ATPases, copper chaperones and copper-responsive regulators of gene expression play major roles. The author also discusses the metallation of cuproenzymes. [...] 2018. Xll, 88 p. 28 illus. (SpringerBriefs in Molecular Science) Softcover
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ISBN 978-3-319-94438-8

U. K. Sharma, E. V. Van der Eycken (Eds)
Flow Chemistry for the Synthesis of Heterocycles
This volume provides an overview of recent developments and scope in the use of flow chemistry in relevance to heterocyclic synthesis. [...] 2018. VII, 397 p. 200 illus., 179 illus. in color.
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€ 219,99 | £ 199,99
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B. Kirchner, E. Perlt (Eds)
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F. J. Rodríguez-Varela, T. Napporn (Eds)

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T. Lee

Formation of KNbO3 Thin Films for Self-Powered ReRAM Devices and Artificial Synapses

This thesis describes an investigation into homogeneous KN crystalline films grown on Pt/Ti/SiO2/Si substrates, amorphous KN films grown on TiN/Si substrates using the RF-sputtering method, and the ferroelectric and piezoelectric properties of these KN films. [...] 2018. XXI, 98 p. 63 illus., 60 illus. in color. (Springer Theses) Hardcover € 119,99 | £ 109,99 € (D) 128,39 | € (A) 131,99 | *CHF 132.00 ISBN 978-981-13-2534-2

M. Bračič, S. Strnad, L. Fras Zemljič

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This book examines the electronic structure of earth-abundant and environmentally friendly materials for use as absorber layers within photovoltaic cells. The corroborations between high-quality photoemission measurements and density of states calculations yield valuable insights into why these materials have demonstrated poor device efficiencies in the vast literature cited. [...] 2018. XXVIII, 362 p. 164 illus., 82 illus. in color. (Springer Theses) Hardcover € 139,99 | £ 119,99 € (D) 149,79 | € (A) 153,99 | *CHF 154.00 ISBN 978-3-319-91664-4

S. S. Muthu (Ed)

Green Composites

Processing, Characterisation and Applications for Textiles

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Sustainable Fashion: Consumer Awareness and Education

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This first of its kind text enables today’s students to understand current and future energy challenges, to acquire skills for selecting and using materials and manufacturing processes in the design of energy systems, and to develop a cross-functional approach to materials, mechanics, electronics and processes of energy production. [...] 2018. XLIV, 829 p. 239 illus., 234 illus. in color. Hardcover € 129,99 | £ 109,99 € (D) 139,09 | € (A) 142,99 | *CHF 143.00 ISBN 978-3-319-98001-0

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H. Ehrlich

Marine Biological Materials of Invertebrates Origin

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T. Shimoda

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M. Koui, F. Zezza (Eds)

10th International Symposium on the Conservation of Monuments in the Mediterranean Basin

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This book addresses physical, chemical, and biological methods for the preservation of ancient artifacts. Advanced materials are required to preserve the Mediterranean belt’s historic, artistic and archaeological relics against weathering, pollution, natural risks and anthropogenic hazards. [...] 2018. VIII, 945 p. 627 illus., 518 illus. in color. Hardcover €219.99 | £199.99 €(D) 235.39 | €(A) 241.99 | *CHF 242.00 ISBN 978-3-319-78092-4

F. Cardarelli

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H. Warlimont, W. Martienssen (Eds)

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The second edition of this well-received handbook is the most concise yet comprehensive compilation of materials data. The chapters provide succinct descriptions and summarize essential and reliable data for various types of materials. [...] 2nd ed. 2018. XX, 1140 p. 1110 illus. in color. (Springer Handbooks) Hardcover €279.99 | £249.99 €(D) 299.59 | €(A) 307.99 | *CHF 308.00 ISBN 978-3-319-69741-3

E. A. Olevsky, D. V. Dudina

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Science and Applications

This book represents the first ever scientific monograph including an in-depth analysis of all major field-assisted sintering techniques. [...] 2018. XIV, 425 p. 316 illus., 161 illus. in color. Hardcover €139.99 | £119.99 €(D) 149.79 | €(A) 153.99 | *CHF 154.00 ISBN 978-3-319-76031-5

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This book focuses on the damage, fracture and fatigue of ceramic-matrix composites. It investigates tensile damage and fracture, fatigue hysteresis, and the properties of interfaces subjected to cyclic fatigue loading.

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