

Materials Science

Solid State Physics & Engineering

2015/II

Binders, Materials and Technologies in Modern Construction

Eds. Karel Dvořák, Dominik Gazdič, Vít Petránek, Iveta Hájková and Radek Magrla

Advanced Materials Research Vol. 1100

Collection of selected, peer reviewed papers from the 12th Conference Silicate Binders 2014 (ICBM 2014), December 4, 2014, Brno, Czech Republic. The 44 papers are grouped as follows: Chapter 1: Cement and Binders Based on Cement; Chapter 2: Inorganic Binders; Chapter 3: Silicate Materials; Chapter 4: Research and Assessment Properties of Building Materials.

978-3-03835-452-9 (paperback), 230 pages, 2015, US\$125.00/€115.00, also available on CD (978-3-03859-229-7) and eBook (978-3-03826-913-7) at same price.

Corrosion and Surface Engineering

Eds. Joanna Michalska and Maciej Sowa

Solid State Phenomena Vol. 227

Collection of selected, peer reviewed papers from the International Scientific Conference Corrosion 2014, November 18-21, 2014, Gliwice, Poland. The 136 papers are grouped as follows: Chapter 1: Corrosion and Surface Engineering, Corrosion Protection; Chapter 2: Concrete Corrosion; Chapter 3: Corrosion and Surface Engineering in Industry; Chapter 4: Atmospheric Corrosion, Tribocorrosion, Erosion, Hydrogen Degradation and Diffusion; Chapter 5: Microbiological Corrosion; Chapter 6: High-Temperature Corrosion and Surface Strength, Thermal Coating; Chapter 7: Corrosion of Biomaterials; Chapter 8: Testing Methods.

978-3-03835-391-1 (paperback), 590 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-094-1) and eBook (978-3-03826-777-5) at same price.

Formation of Silicon Nitride from the 19th to the 21st Century

2nd Edition

Eds. Raymond C. Sangster and David J. Fisher

Materials Science Foundations Vols. 84-85

The elements: Si, N, O, C and H, have strong chemical affinities for one another. Under the correct conditions, Si-N bonding will occur in almost any Si-N-(O/C/H), and many related, reaction systems; although Si-O and Si-C are formidable competitors to Si-N. The most favored Si-N compound is stoichiometric Si₃N₄. It comes in three common varieties. How they interrelate, how one finds them and (above all) how one makes them - and how sometimes they just happen to form - are the subjects of this book, with due attention being paid to closely related matters. This revised second edition summarizes and integrates what is recorded in the world literature from 1857 through 2014 as being known about the formation of silicon nitride - Si₃N₄ - and its close relatives. The book is the key to all that has been learned, over the past 150 years, about how silicon nitride comes to exist: in nature, in the laboratory or in the factory and in many reaction systems; together with how it is used in ceramics, electronic films, optical coatings and many other ways (including an introduction to closely related substances). It will aid the researcher in designing new projects, the supervisor in briefing new employees, the salesman in working with new customers, the patent attorney in assessing patents and the professor in designing graduate course assignments.

978-3-03835-994-4 (paperback), 1016 pages, 2015, US\$300.00/€280.00, also available on CD (978-3-03859-218-1) and eBook (978-3-03826-901-4) at same price.

Light Metals and their Alloys IV

Technology, Microstructure and Properties

Eds. Anna J. Dolata and Maciej Dyzia

Solid State Phenomena Vol. 229

Special topic volume with invited peer reviewed papers only. The 18 papers are grouped as follows: Chapter 1: Aluminium and Aluminium Alloys; Chapter 2: Magnesium and Magnesium Alloys; Chapter 3: Titanium and Titanium Alloys.

978-3-03835-447-5 (paperback), 158 pages, 2015, US\$105.00/€95.00, also available on CD (978-3-03859-222-8) and eBook (978-3-03826-905-2) at same price.

Luminescent Materials and their Applications

Ed. Hardev Singh Virk

Defect and Diffusion Forum Vol. 361

It is pertinent to note that Luminescence phenomenon has once again occupied a central stage with the announcement of Nobel Prize in October 2014 to three Japanese scientists. The discovery of Gallium Nitride proved to be a revolutionary step forward in creation of Blue LEDs. With the advent of LED lamps we now have more long-lasting and more efficient alternatives to older light sources. The Volume under reference consists of 9 Chapters, written by experts in the area of Luminescent Materials. First 5 Chapters are contributed as Review Papers and the last 4 are based on Research Papers.

978-3-03835-399-7 (paperback), 256 pages, 2015, US\$135.00/€125.00, also available on CD (978-3-03859-102-3) and eBook (978-3-03826-785-0) at same price.

Non-Stoichiometric Oxides of 3d-Metals

Andrzej Stokłosa

Materials Science Foundations Vol. 79

In the present work, in Part I, new elements widening the bases of the defects theory are shown; particularly, this work discusses the mechanism of the formation of defects as a result of elementary processes; the work also presents a description of the equilibrium state by one equation, taking into account the concentrations of defects and their changes during the process of reaching the equilibrium. The equation relates the concentrations of defects, dependent on the standard Gibbs energies of their formation, with the equilibrium pressure of oxygen. The obtained relations and the discussion have led to the development of a method for determination of complete diagrams of concentrations of the point defects, which allows taking into account the minority defects. Part II presents the results of the calculations of the diagrams of point defects' concentrations for a series of pure and doped oxides of transition metals 3d, with different composition (M/O ratio), crystallographic structure and point defects' structure. A critical analysis of the results of the studies of the deviation from the stoichiometry and the electrical conductivity, obtained (so far) by most research groups has been also performed. A new interpretation of these results, concerning concentrations and types of ionic defects present has been performed and the mobility of electronic defects and its dependence on the temperature and oxygen pressure have been determined.

978-3-03835-997-5 (paperback), 590 pages, 2015, US\$250.00/€230.00, also available on CD (978-3-03795-996-1) and eBook (978-3-03826-608-2) at same price.

Point Defect Energies

Ed. D.J. Fisher

Defect and Diffusion Forum Vol. 360

The point defect is just one of the menagerie of defects (comprising dislocations, disvections, discommensurations, stacking-faults, antiphase boundaries, etc.) which affect the mechanical and other properties of all materials. The class of point defect can be further divided into interstitial, substitutional and antisite. Various combinations of these defects lead to pairings such as those of Frenkel and Shottky type. The present volume comprises a compilation of selected data concerning point defects in metals, semiconductors, carbon and carbides, nitrides, halides, oxides and miscellaneous materials including solid inert gases.

978-3-03835-397-3 (paperback), 228 pages, 2015, US\$140.00/€125.00, also available on CD (978-3-03859-100-9) and eBook (978-3-03826-783-6) at same price.

Sustainable Construction Materials

Eds. José Aguiar, Aires Camões, Raul Figueiro, Rute Eires et al.

Key Engineering Materials Vol. 634

The special topic volume includes selected and extended papers from the Luso-Brazilian Conference of Sustainable Construction Materials. This book contains extended papers selected and reviewed by the Scientific Committee, in areas such as Materials and Energy, Materials and Residues, Natural Materials and Materials and Repair.

978-3-03835-351-5 (paperback), 580 pages, 2015, US\$248.00/€180.00, also available on CD (978-3-03859-053-8) and eBook (978-3-03826-736-2) at same price.

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Advanced Functional Materials

Eds. Yafang Han, Zhongwei Gu and Qiang Fu
Materials Science Forum Vol. 815

Collection of selected, peer reviewed papers from the Chinese Materials Congress 2014 (CMC 2014), July 4-7, 2014, Chengdu, China. The 127 papers are grouped as follows: Symposium E: Materials in Microelectronic and Optoelectronic Industry; Symposium G: Multiferroic Materials; Symposium H: Smart Materials; Symposium I: Vanadium-Titanium And Rare Earth Functional Materials; Symposium J: Biomedical Materials; Symposium K: High Performance And Functional Polymer and Composite Materials.

978-3-03835-394-2 (paperback), 780 pages, 2015, US\$355.00/€325.00, also available on CD (978-3-03859-097-2) and eBook (978-3-03826-780-5) at same price.

Advanced Manufacturing Technology and Materials

Eds. Seung-Bok Choi and Yun-Hae Kim
Advanced Materials Research Vol. 1089

Collection of selected, peer reviewed papers from the 2014 International Conference on Advanced Manufacturing Technology and Materials (ICAMTM 2014), November 25-26, 2014, Zhuhai, China. The 75 papers are grouped as follows: Chapter 1: Composite Materials, Polymer Materials and Fabric Materials; Chapter 2: Metals, Alloys and Metallurgical Technology; Chapter 3: Chemical Materials and Technologies; Chapter 4: Biomaterials and Biotechnologies; Chapter 5: Films and Surface Engineering; Chapter 6: Building Materials and Construction Techniques; Chapter 7: Materials Processing Technology.

978-3-03835-408-6 (paperback), 398 pages, 2015, US\$135.00/€125.00, also available on CD (978-3-03859-111-5) and eBook (978-3-03826-793-5) at same price.

Advanced Materials Engineering and Technology III

Eds. Mohd Mustafa Al Bakri Abdullah, Zarina Yahya, Liyana Jamaludin, Alida Abdullah and Rafiza Abd Razak
Applied Mechanics and Materials Vols. 754-755

Collection of selected, peer reviewed papers from the 3rd International Conference on Advanced Material Engineering & Technology (ICAMET 2014), December 4-5, 2014, Ho Chi Minh City, Vietnam. The 224 papers are grouped as follows: Chapter 1: Composites and Polymer Materials; Chapter 2: Building Materials; Chapter 3: Semiconductor and Microelectronic Materials; Chapter 4: Materials Science and Processing, Materials Characterisation - Applied Materials; Chapter 5: Testing, Analysis and Evaluation of Materials, Improvement of Materials Properties; Chapter 6: Biomedical Materials and Biotechnology; Chapter 7: Thin Films and Nanoengineering; Chapter 8: Energy, Solar and Optical Materials.

978-3-03835-434-5 (paperback), 1270 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-207-5) and eBook (978-3-03826-890-1) at same price.

Advances in Materials and Materials Processing V

Eds. Zhengyi Jiang and Xianghua Liu
Advanced Materials Research Vol. 1095

Collection of selected, peer reviewed papers from the 2014 5th International Conference on Advances in Materials and Manufacturing (ICAMMP 2014), December 20-21, 2014, Fuzhou, China. The 192 papers are grouped as follows: Chapter 1: Composites; Chapter 2: Low-dimensional and Nano-Materials; Chapter 3: Metal-based Materials and Alloys; Chapter 4: Building and Construction Materials; Chapter 5: Biomaterials and Technologies; Chapter 6: Chemical Materials and Technologies; Chapter 7: Material Testing, Characterization and Applications; Chapter 8: Surface Engineering and Coating Technology; Chapter 9: Materials Processing Technology and Applied Research.

978-3-03835-431-4 (paperback), 1000 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-134-4) and eBook (978-3-03826-817-8) at same price.

Advances in Materials Science

Ed. Zou Jianxin
Advanced Materials Research Vol. 1088

Collection of selected, peer reviewed papers from the International Conference on Advances in Materials (ICAM 2014), December 13-14, 2014, Shanghai, China. The 167 papers are grouped as follows: Chapter 1: Nanomaterials and Nanotechnologies; Chapter 2: Thin Films; Chapter 3: Metal-Based Materials, Alloys and Metallurgical Technology; Chapter 4: Crystallography, Chemical and Cathode Materials; Chapter 5: Polymers and Composite Materials; Chapter 6: Biomaterials and Biotechnologies; Chapter 7: Materials and Technologies in Environmental Engineering; Chapter 8: Building Materials and Technologies; Chapter 9: Research in Area of Applied Materials; Chapter 10: Processing Technologies and Computational Methods in Area of Materials Science.

978-3-03835-402-4 (paperback), 894 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-105-4) and eBook (978-3-03826-788-1) at same price.

Basic Research of Materials

Eds. Yafang Han, Xuefeng Liu and Ying Wu
Materials Science Forum Vol. 817

Collection of selected, peer reviewed papers from the Chinese Materials Congress 2014 (CMC 2014), July 4-7, 2014, Chengdu, China. The 118 papers are grouped as follows: Symposium S: Materials for Mechanical Engineering and Processing Technology.

978-3-03835-396-6 (paperback), 772 pages, 2015, US\$355.00/€325.00, also available on CD (978-3-03859-099-6) and eBook (978-3-03826-782-9) at same price.

Current Material Research Using X-Rays & Related Techniques

Eds. Hasan Zuhudi Abdullah, Rosniza Hussin et. al.
Advanced Materials Research Vol. 1087

As we have known, X-ray and related techniques are mainly used for quality control and materials characterization study. Most of the equipment used in these activities has contributed a lot to the advancement of materials science, solid state physics, chemistry, medical and other fields. In recent years, there have been a lot of improvements that includes the introduction of an array of software including instrument control, data interpretation and standard data that may provide quick results with enhanced efficiency. IXCRI 2014 aims to exchange and share experiences and research findings in all aspects of X-rays and related techniques among academics, researchers and the industry. Not only that, IXCRI 2014 includes a workshop session, which allows participants to gain a hands-on experience in learning fundamental understanding on X-ray applications.

978-3-03835-409-3 (paperback), 540 pages, 2015, US\$210.00/€190.00, also available on CD (978-3-03859-112-2) and eBook (978-3-03826-794-2) at same price.

Energy and Environmental Materials II

Eds. Yafang Han, Jiatao Zhang and Jianguo Zhu
Materials Science Forum Vol. 814

Collection of selected, peer reviewed papers from the Chinese Materials Congress 2014 (CMC 2014), July 4-7, 2014, Chengdu, China. The 89 papers are grouped as follows: Symposium A: Energy Related Composites and Nano-Materials; Symposium B: Photocatalytic Materials and Its Applications In the Field of Energy and Environment; Symposium C: Minerals And Resources, Materials for Oil-Gas Field Engineering, Structure Building Applications; Symposium D: Environment Technologies and Functional Materials, Environmental Emission and Protection.

978-3-03835-393-5 (paperback), 598 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-096-5) and eBook (978-3-03826-779-9) at same price.

Energy and Materials Research for the Future

Eds. Mustafa I. Fadhel and Yijin Wu
Advanced Materials Research Vol. 1090

Collection of selected, peer reviewed papers from the 2014 2nd International Conference on Future Energy & Materials Research (FEMR 2014), December 24-25, 2014, Wuhan, China. The 42 papers are grouped as follows: Chapter 1: Materials Engineering; Chapter 2: Metals, Steel and Alloys; Chapter 3: Building Materials; Chapter 4: Biochemistry Materials and Engineering; Chapter 5: Energy Materials Engineering; Chapter 6: Manufacturing Materials and Engineering, Applied Materials.

978-3-03835-426-0 (paperback), 284 pages, 2015, US\$135.00/€125.00, also available on CD (978-3-03859-129-0) and eBook (978-3-03826-812-3) at same price.

Engineering Researches and Decisions in Materials Science

Ed. Guohui Yang
Advanced Materials Research Vol. 1098

These are the proceedings of the 2014 2nd International Conference on Materials and Manufacturing Research (ICMMR 2014) were held on November 17-18, 2014 held in Bangkok, Thailand. In this collection, forefront research on various aspects of evolution of Materials Science and Technologies is illustrated by 27 selected peer-reviewed papers out of a large number of papers received for the conference.

978-3-03835-459-8 (paperback), 143 pages, 2015, US\$125.00/€115.00, also available on CD (978-3-03859-236-5) and eBook (978-3-03826-920-5) at same price.

Future Materials and Manufacturing Materials Processing

Eds. Barry Tan and Mont Kumpugdee Vollrath
Advanced Materials Research Vol. 1091

Collection of selected, peer reviewed papers from the 2014 2nd International Conference on Future Materials Engineering and Industry Application (ICFMEIA 2014), December 10-11, 2014, Hong Kong. The 21 papers are grouped as follows: Chapter 1: New Materials and Advanced Materials; Chapter 2: Materials Processing, Manufacturing Processes and Systems, Applied Mechanics.

978-3-03835-430-7 (paperback), 166 pages, 2015, US\$125.00/€110.00, also available on CD (978-3-03859-133-7) and eBook (978-3-03826-816-1) at same price.

High Performance Structural Material

Eds. Yafang Han, Qiang Zhang and Bin Jiang
Materials Science Forum Vol. 816

Collection of selected, peer reviewed papers from the Chinese Materials Congress 2014 (CMC 2014), July 4-7, 2014, Chengdu, China. The 145 papers are grouped as follows: Symposium L: Metal Matrix and Ceramic Matrix Composites; Symposium M: High Temperature/Ultra-High Temperature Structural Materials, Surface and Coating Engineering; Symposium N: High Entropy Alloys and Special High Temperature Material; Symposium O: Advanced Magnesium Alloys and Application; Symposium P: Superalloys; Symposium Q: Powder Metallurgy; Symposium R: Steel.

978-3-03835-395-9 (paperback), 930 pages, 2015, US\$355.00/€325.00, also available on CD (978-3-03859-098-9) and eBook (978-3-03826-781-2) at same price.

Material Engineering Practice IX

Eds. Mária Mihalíková and Pavol Zubko
Key Engineering Materials Vol. 635

These are the proceedings of the 9th Scientific-Technical Conference on "Material in engineering practice, 2014". Its content was intended to present innovative materials on improving the properties of materials and quality of materials and, also on the degradation of properties during operation. Special attention was paid to the prediction of mechanical and technology materials properties as well as modern methods for testing the characteristics of materials.

978-3-03835-344-7 (paperback), 242 pages, 2015, US\$138.00/€100.00, also available on CD (978-3-03859-046-0) and eBook (978-3-03826-729-4) at same price.

Material Science and Engineering Technology III

Ed. Osman Adiguzel
Advanced Materials Research Vol. 1101

Collection of selected, peer reviewed papers from the 2014 3rd International Conference on Material Science and Engineering Technology (ICMSET 2014), October 24-26, 2014, Beijing, China. The 93 papers are grouped as follows: Chapter 1: Advanced Composites, Special Materials and Technologies, Applied Materials; Chapter 2: Solid State Materials, Alloys, Reinforced and Functional Materials; Chapter 3: Chemical and Biomaterials; Chapter 4: Earth, Building and Construction Materials; Chapter 5: Materials Processing Engineering, Surface and Coating; Chapter 6: Modelling Analysis and Simulation for Materials.

978-3-03835-453-6 (paperback), 504 pages, 2015, US\$275.00/€245.00, also available on CD (978-3-03859-230-3) and eBook (978-3-03826-914-4) at same price.

Materials and Manufacturing Engineering

Ed. Anil K. Bhatnagar
Applied Mechanics and Materials Vol. 749

Collection of selected, peer reviewed papers from the 2015 International Conference on Intelligent Materials and Manufacturing Engineering (IMME 2015), January 16-17, 2015, Phuket Island, Thailand. The 92 papers are grouped as follows: Chapter 1: Materials, Chemical Processes and Technologies, Biotechnologies; Chapter 2: Nanomaterials and Nanotechnologies; Chapter 3: Composite Materials and Composite Properties of Materials; Chapter 4: Steel and Alloys; Chapter 5: Building Materials and Technologies in Construction; Chapter 6: Biomaterials and Biomedical Engineering.

978-3-03835-445-1 (paperback), 488 pages, 2015, US\$145.00/€135.00, also available on CD (978-3-03859-219-8) and eBook (978-3-03826-902-1) at same price.

Materials Science, Testing and Informatics VII

Eds. T. Berecz, K. Májlínger, I.N. Orbulov and P.J. Szabó
Materials Science Forum Vol. 812

Collection of selected, peer reviewed papers from the 9th Hungarian Conference on Materials Science, October 13-15, 2013, Balatonkenese, Hungary. The 75 papers are grouped as follows: Session I. - Materials and Technologies; Session II. - Materials Testing; Session III. - Modelling.

978-3-03835-389-8 (paperback), 516 pages, 2015, US\$276.00/€200.00, also available on CD (978-3-03859-091-0) and eBook (978-3-03826-774-4) at same price.

Mechanical Engineering, Automation and Control Systems

Eds. Anna Bogdan, Nikita Martyushev and Stepan Bogdan
Applied Mechanics and Materials Vol. 756

Collection of selected, peer reviewed papers from the International Conference on Mechanical Engineering, Automation and Control Systems 2014 (MEACS 2014), October 16-18, 2014, Tomsk, Russia. The 121 papers are grouped as follows: Chapter 1: Mechanical Engineering, Processing and Surface Engineering, Metals Treatment, Equipment and Tools; Chapter 2: Material Engineering and Technologies; Chapter 3: Modelling and Numerical Simulation, Algorithms and Mathematical Methods for Applied Problems; Chapter 4: Control and Automation Systems, Manufacturing Applications; Chapter 5: Image and Signal Processing, Recognition, Information Processing and Applied Technologies.

978-3-03835-407-9 (paperback), 740 pages, 2015, US\$285.00/€255.00, also available on CD (978-3-03859-110-8) and eBook (978-3-03826-792-8) at same price.

New Materials and Processing Technologies

Ed. Tomasz Tokarski
Key Engineering Materials Vol. 641

Collection of selected, peer reviewed papers from the International Conference of Non-Ferrous Metals - Processing and New Technologies, June 4-6, 2014, Wisla, Poland. The 40 papers are grouped as follows: Chapter 1: Materials and Related Industrial Technologies; Chapter 2: Metalworking.

978-3-03835-446-8 (paperback), 344 pages, 2015, US\$145.00/€135.00, also available on CD (978-3-03859-221-1) and eBook (978-3-03826-904-5) at same price.

Recent Highlights in Advanced Functional Materials and Biomedical Research

Ed. Xinhua Yuan
Key Engineering Materials Vol. 636

Collection of selected, peer reviewed papers from the 8th International Conference on Molecular Imprinting (MIP 2014), September 18-21, 2014, Zhenjiang, China. The 37 papers are grouped as follows: Chapter 1: Engineering Materials; Chapter 2: Biotechnologies and Biomedical Engineering.

978-3-03835-382-9 (paperback), 214 pages, 2015, US\$138.00/€100.00, also available on CD (978-3-03859-084-2) and eBook (978-3-03826-767-6) at same price.

Semi-Solid Processing of Alloys and Composites XIII

Ed. Michael Modigell
Solid State Phenomena Vols. 217-218

Collection of selected, peer reviewed papers from the 13th International Conference on Semi-Solid Processing of Alloys and Composites (S2P 2014), September 15-17, 2014, Muscat, Sultanate of Oman. The 68 papers are grouped as follows: Chapter 1: Material Development and Characterisation, Chapter 2: Rheology, Modelling and Simulation, Chapter 3: Process Development, Chapter 4: Industrial Application.

978-3-03835-220-4 (paperback), 542 pages, 2015, US\$276.00/€200.00, also available on CD (978-3-03795-916-9) and eBook (978-3-03826-603-7) at same price.

Structural Monitoring of ARTistic and historical BUILDing Testimonies

Ed. Dora Foti
Key Engineering Materials Vol. 628

Collection of selected, peer reviewed papers from the Final International Conference SMART BUILT 2014, March 27-29, 2014, Bari, Italy. The 36 papers are grouped as follows: Chapter 1: Historical and Artistic Area, Chapter 2: Structural Area, Chapter 3: Computational and Technological Area.

978-3-03835-216-7 (paperback), 278 pages, 2015, US\$138.00/€100.00, also available on CD (978-3-03795-912-1) and eBook (978-3-03826-599-3) at same price.

Sustainable Construction Materials

Eds. José Aguiar, Aires Camões, Raul Figueiro, Rute Eires, Sandra Cunha and Mohammad Kheradmand
Key Engineering Materials Vol. 634

The special topic volume includes selected and extended papers from the Lusobrazilian Conference of Sustainable Construction Materials. This book contains extended papers selected and reviewed by the Scientific Committee, in areas such as Materials and Energy, Materials and Residues, Natural Materials and Materials and Repair.

978-3-03835-351-5 (paperback), 580 pages, 2015, US\$248.00/€180.00, also available on CD (978-3-03859-053-8) and eBook (978-3-03826-736-2) at same price.

Tribology Engineering

Eds. Yunn-Lin Hwang, Jeng-Haur Horng and Chin-Chung Wei
Key Engineering Materials Vol. 642

Collection of selected, peer reviewed papers from the Selected, peer reviewed papers from the International Conference on Engineering Tribology Technology 2014 (ICETT 2014), November 21-23, 2014, Nantou, Taiwan. The 62 papers are grouped as follows: Chapter 1: Tribology Engineering and Applications.

978-3-03835-458-1 (paperback), 358 pages, 2015, US\$200.00/€180.00, also available on CD (978-3-03859-235-8) and eBook (978-3-03826-919-9) at same price.

Testing and Evaluation of Inorganic Materials V

Eds. Yiwang Bao, Danyu Jiang and Jianguo Gong
Key Engineering Materials Vol. 633

Collection of Selected, Peer Reviewed Papers from the Proceedings of the Fifth Annual Meeting on Testing and Evaluation of Inorganic Materials, April 16-18, 2014, Guiyang, China. The 115 papers are grouped as follows: Chapter 1: Chemical Composition, Microstructure, Physical Properties and Technologies of Producing and Processing of Inorganic Materials, Chapter 2: Techniques and Devices for Analysis and Testing of Materials Properties.

978-3-03835-333-1 (paperback), 552 pages, 2015, US\$276.00/€200.00, also available on CD (978-3-03859-033-1) and eBook (978-3-03826-717-1) at same price.

Abrasive Blast Cleaning and Its Application

Eds. Janette Brezinová, Anna Guzanová and Dagmar Draganovská
Materials Science Foundations Vol. 83

Blasting is currently the technology with significant application in practice with a variety of materials used as blasting media. The book focuses on the theoretical basics of blasting process in terms of cleaning and roughening effect focusing on wide range of metallic and non-metallic blasting media. Original findings contained in this monograph will contribute to expanding of the knowledge base of scientific researchers as well as to the transfer of the research results into practice. The monograph will serve as a source of scientific and technical information for scientific researchers, workers of technical institutes and the general scientific community.

978-3-03835-995-1 (paperback), 112 pages, 2015, US\$110.00/€100.00, also available on CD (978-3-03859-092-7) and eBook (978-3-03826-775-1) at same price.

Advanced Composites for Marine Engineering

Eds. Limin Zhou, Yiu-Wing Mai, Boming Zhang, Jize Mao and Hao Jiang
Materials Science Forum Vol. 813

Collection of selected, peer reviewed papers from the 1st International Conference on Advanced Composites for Marine Engineering (ICACME 2013), September 10-12, 2014, Beijing, China. The 43 papers are grouped as follows: Chapter 1: Numerical Methods and Analysis, Optimization, Algorithm and Modelling for Materials and Structures; Chapter 2: Applied Mechanics, Structural Analysis, Characterisation and Applications; Chapter 3: Advanced Composite Materials and Processes.

978-3-03835-406-2 (paperback), 380 pages, 2015, US\$170.00/€150.00, also available on CD (978-3-03859-109-2) and eBook (978-3-03826-795-9) at same price.

BiomMedD 2014

Eds. Antoniac Iulian, Albu Madalina, Sinescu Cosmin and Miculescu Marian
Key Engineering Materials Vol. 638

Collection of selected, peer reviewed papers from the the 6th International Conference "Biomaterials, Tissue Engineering & Medical Devices" (Biom-MedD'2014), September 17-20, 2014, Constanța, România. The 60 papers are grouped as follows: Chapter 1: Biomaterials; Chapter 2: Biomedical Engineering; Chapter 3: Biomaterials and Technologies in Clinical Practice; Chapter 4: Auxiliary Techniques and Tools in Biomedical Practice.

978-3-03835-432-1 (paperback), 394 pages, 2015, US\$210.00/€190.00, also available on CD (978-3-03859-135-1) and eBook (978-3-03826-818-5) at same price.

Fluid Flow, Energy Transfer and Design II

Eds. Antonio F. Miguel, Luiz Rocha and Andreas Öchsner
Defect and Diffusion Forum Vol. 362

Fluid flow, thermodynamics and heat/mass transfer are nowadays central pillars of science and technology. They have been central to the development of our civilization because we use them not only to understand natural-world phenomena but also to achieve incremental improvements in technology. The special session "Fluid Flow, Energy Transfer and Design" held at the 10th International Conference on Diffusion in Solids and Liquids (DSL 2014) includes papers of different areas ranging from physics, mathematics and chemistry to engineering and provided several contributions for this topical volume. Other experts in the field of heat and mass transfer were as well invited to contribute to this volume.

978-3-03835-439-0 (paperback), 262 pages, 2015, US\$135.00/€125.00, also available on CD (978-3-03859-212-9) and eBook (978-3-03826-895-6) at same price.

Nanomaterials and Surface Technologies, Materials Applications

Eds. Tamara Petrashova, Anna Bogdan and Uliana Khorechko
Advanced Materials Research Vol. 1097

Collection of selected, peer reviewed papers from the German-Russian Young Scientists Conference «Renewable Energy - Biotechnology – Nanotechnology», May 20-22, 2014, Tomsk, Russia. The 12 papers are grouped as follows: Chapter 1: Nanomaterials and Technologies; Chapter 2: Surface and Coating Materials Technologies and Engineering; Chapter 3: Renewable Energy Materials Application, Thermal Materials Engineering, Biomaterials.

978-3-03835-400-0 (paperback), 74 pages, 2015, US\$95.00/€85.00, also available on CD (978-3-03859-103-0) and eBook (978-3-03826-786-7) at same price.

Reinforced Concrete Structures under Cyclic Loading

Farhad Aslani
Materials Science Foundations Vol. 80

In this research the validity and reliability of some proposed constitutive models for concrete considering general loading i.e. cyclic, monotonic, partial, common point and transition loading are evaluated. Amongst many existing constitutive models, because of their simplicity and common usage in the finite element analysis of RC structures, only some common proposed models based on nonlinear elasticity-based approach are investigated. These models are verified against experimental data available in the literature and the results are discussed. In this study, also, a hysteretic stress-strain model is developed for unconfined concrete with the intention of providing efficient modeling for the structural behavior of concrete in seismic regions.

978-3-03835-996-8 (paperback), 284 pages, 2015, US\$135.00/€125.00, also available on CD (978-3-03859-039-2) and eBook (978-3-03826-723-2) at same price.

Relaxation of Stress and Density, Strength (Fatigue)

Wolfgang Gräfe
Materials Science Foundations Vol. 78

This treatment of "Time-Dependent Mechanical Properties of Solids" begins with a phenomenological description of the transport of some unspecified entity. It is assumed that the transport is caused by mechanical stresses or temperature fields. Using these assumptions, it is possible to deduce formulae for a theoretically based description of several phenomena without referring to any specific process or entity. These theoretical results then provide the tools for performing methodologically better scientific work and for a better analysis of data in the practical application of materials. By publishing this work, the author hopes to improve technical safety in transportation and other fields of practical materials application. Another goal is to stimulate the scientific investigation of a wider range of substances in order to analyze more extensively the elementary processes which produce observed phenomena. This second edition is extended and Chapter 12, five new Sections as well as the Appendices A7, A8 and A9 are additionally inserted.

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Eds. Natalia Resnina and Vasili Rubanik
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