

InfoGenerator

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Dear friends!

The Scientific Library of Belarussian National Technical University (BNTU) offers you «InfoGenerator» digest, a free access resource providing information support to teachers, students and university staff. It is prepared by library professionals and includes book reviews, open access resources and latest university news. Systematization by branch of science, annotations and additional materials make this a useful tool for readers' advisory, curriculum and research support.

The second issue of the digest contains additional resources in mathematics, mechanics, chemistry, materials science and population protection.

Scientific Library of BNTU wishes you successful and productive work and study!

Studying in English: Belarussian National Technical University welcomes international students

Belarussian National Technical University (BNTU) is one of the leading technical universities in the territory of the former Soviet Union training engineers since 1920. Meeting the challenges of the 21st century, BNTU combines classical university traditions with modern approaches and technologies. According to [Webometrics Ranking of World Universities](#) BNTU ranks among 9% of the world's best universities.

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Study in Belarus – BNTU – Belarussian National Technical University

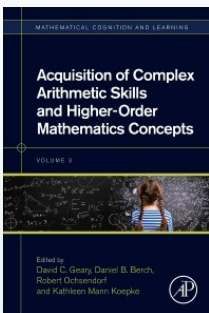


Mathematics



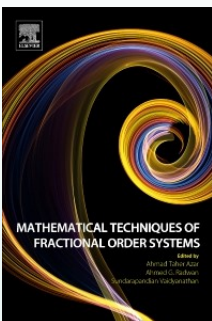
Yang, X.-S. Engineering Mathematics with Examples and Applications / X.-S. Yang. - Academic Press, 2017. – 400 p.

Engineering Mathematics with Examples and Applications provides a compact and concise primer in the field, starting with the foundations, and then gradually developing to the advanced level of mathematics that is necessary for all engineering disciplines. Therefore, this book's aim is to help undergraduates rapidly develop the fundamental knowledge of engineering mathematics.



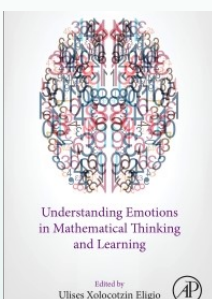
Acquisition of Complex Arithmetic Skills and Higher-Order Mathematics Concepts : A volume in Mathematical Cognition and Learning / ed. : D. C. Geary [et al.]. - Academic Press, 2017. – 360 p.

Acquisition of Complex Arithmetic Skills and Higher-Order Mathematics Concepts focuses on typical and atypical learning of complex arithmetic skills and higher-order math concepts. As part of the series Mathematical Cognition and Learning, this volume covers recent advances in the understanding of children's developing competencies with whole-number arithmetic, fractions, and rational numbers. Each chapter covers these topics from multiple perspectives, including genetic disorders, cognition, instruction, and neural networks.



Mathematical Techniques of Fractional Order Systems : A volume in Advances in Nonlinear Dynamics and Chaos (ANDC) / ed. : A. T. Azar, A. G. Radwan, S. Vaidyanathan. – Elsevier, 2018. – 700 p. – Doi : <https://doi.org/10.1016/C2016-0-05031-3>

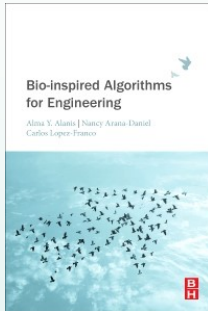
The book covers the mathematical background and literature survey of fractional-order calculus and generalized fractional-order circuit theorems from different perspectives in design, analysis and realizations, nonlinear fractional-order circuits and systems, the fractional-order memristive circuits and systems in design, analysis, emulators, simulation and experimental results. It is primarily meant for researchers from academia and industry, and for those working in areas such as control engineering, electrical engineering, computer science and information technology.



Understanding Emotions in Mathematical Thinking and Learning / ed. : U. X. Eligio. - Academic Press, 2017. – 474 p. – Doi : <https://doi.org/10.1016/C2014-0-02036-9>

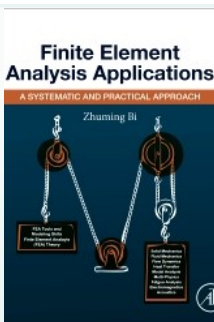
Understanding Emotions in Mathematical Thinking and Learning offers a multidisciplinary approach to the role of emotions in numerical cognition, mathematics education, learning sciences, and affective sciences. It addresses ways in which emotions relate to cognitive processes involved in learning and doing mathematics, including processing of numerical and physical magnitudes (e.g. time and space), performance in arithmetic and algebra, problem solving and reasoning attitudes, learning technologies, and mathematics achievement.

Mathematical Modeling



Alanis, A. Y. Bio-inspired Algorithms for Engineering, / A. Y. Alanis, N. Arana-Daniel, C. López-Franco. - Butterworth-Heinemann, 2018. – 152 p. – Doi : <https://doi.org/10.1016/C2017-0-00350-6>

The book proposes novel algorithms to solve real-life, complex problems, combining well-known bio-inspired algorithms with new concepts, including both rigorous analyses and unique applications. It covers both theoretical and practical methodologies, allowing readers to learn more about the implementation of bio-inspired algorithms. This book is a useful resource for both academic and industrial engineers working on artificial intelligence, robotics, machine learning, vision, classification, pattern recognition, identification and control.



Bi, Z. Finite Element Analysis Applications : A Systematic and Practical Approach / Z. Bi. - Academic Press, 2019. – 520 p. – Doi : <https://doi.org/10.1016/C2016-0-00054-2>

In this new textbook, Professor Bi condenses the introduction of theories and focuses mainly on essentials that students need to understand FEA models. The book is organized to be application-oriented, covering FEA modeling theory and skills directly associated with activities involved in design processes.

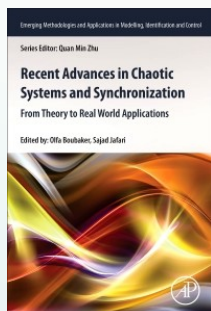
Discussion of classic FEA elements (such as truss, beam and frame) is limited.



De Borst, R. Computational Methods for Fracture in Porous Media : Isogeometric and Extended Finite Element Methods / R. de Borst. – Elsevier, 2018. – 206 p. – Doi : <https://doi.org/10.1016/C2015-0-04377-5>

Reviews the basic equations that govern fluid-saturated porous media. A multi-scale approach to modeling fluid transport in joints, cracks, and faults is described in such a way that the resulting formulation allows for a sub-grid representation of the crack and fluid flow in the crack. Interface elements are also analyzed with their extension to the hydromechanical case.

Mathematical Modeling



Recent Advances in Chaotic Systems and Synchronization : From Theory to Real World Applications : A volume in Emerging Methodologies and Applications in Modelling / ed. : O. Boubaker, S. Jafari. - Academic Press, 2019. – 391 p. – Doi : <https://doi.org/10.1016/C2017-0-03998-8>

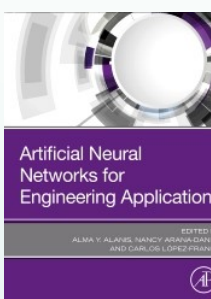
This book covers the latest advances in chaos theory, along with the efficiency of novel synchronization approaches.

Readers will find the fundamentals and algorithms related to the analysis and synchronization of chaotic systems, along with key applications, including electronic design, text and image encryption, and robot control and tracking.



Yeoh, G. H. Computational Techniques for Multiphase Flows / G. H. Yeoh, J. Tu. - 2nd ed. - Butterworth-Heinemann, 2019. – 640 p. – Doi : <https://doi.org/10.1016/C2017-0-01655-5>

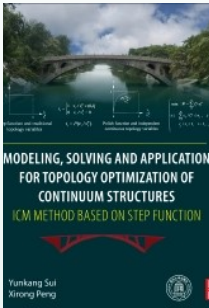
The book begins with an overview of the state-of-the-art techniques for multiple numerical methods in handling multiphase flow, compares them, and finally highlights their strengths and weaknesses. In addition, it covers more straightforward, conventional theories and governing equations in early chapters, moving on to the more modern and complex computational models and tools later in the book. It is therefore accessible to those who may be new to the subject while also featuring topics of interest to the more experienced researcher.



Artificial Neural Networks for Engineering Applications / ed. : A. Y. Alanis, N. Arana-Daniel, C. López-Franco. - Academic Press, 2019. – 176 p. – Doi : <https://doi.org/10.1016/C2018-0-01649-7>

Readers will find different methodologies to solve various problems, including complex nonlinear systems, cellular computational networks, waste water treatment, attack detection on cyber-physical systems, control of UAVs, biomechanical and biomedical systems, time series forecasting, biofuels, and more. Besides the real-time implementations, the book contains all the theory required to use the proposed methodologies for different applications.

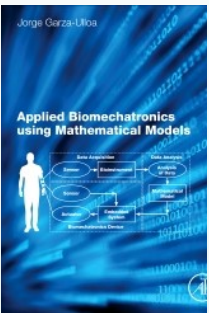
Mathematical Modeling



Sui, Y. Modelling, Solving and Application for Topology Optimization of Continuum Structures : ICM Method Based on Step Function / Y. Sui, X. Peng. - Butterworth-Heinemann, 2018. – 394 p. – Doi : <https://doi.org/10.1016/C2015-0-04148-X>

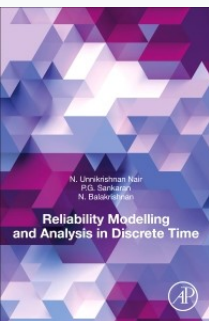
The book features many numerical examples that are solved by the ICM method, helping researchers and engineers solve their own problems on topology optimization.

This valuable reference is ideal for researchers in structural optimization design, teachers and students in colleges and universities working, and majoring in, related engineering fields, and structural engineers.



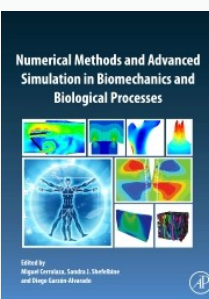
Garza-Ulloa, J. Applied Biomechanics using Mathematical Models / J. Garza-Ulloa. - Academic Press, 2018. – 662 p. Doi : <https://doi.org/10.1016/C2016-0-02333-1>

Applied Biomechanics Using Mathematical Models provides an appropriate methodology to detect and measure diseases and injuries relating to human kinematics and kinetics. It features mathematical models that, when applied to engineering principles and techniques in the medical field, can be used in assistive devices that work with bodily signals.



Nair, N. U. Reliability Modelling and Analysis in Discrete Time / N. U. Nair, P. G. Sankaran, N. Balakrishnan. - Academic Press, 2018. – 508 p. – Doi : <https://doi.org/10.1016/C2014-0-01528-6>

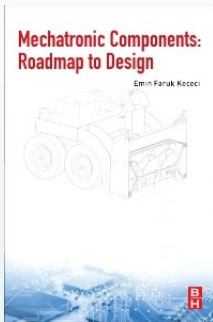
This engaging book discusses their distributional properties and dependence structures before exploring various orderings associated between different reliability structures. Though clear explanations, multiple examples, and exhaustive coverage of the basic and advanced topics of research in this area, the work gives the reader a thorough understanding of the theory and concepts associated with discrete models and reliability structures.



Numerical Methods and Advanced Simulation in Biomechanics and Biological Processes / ed. : M. Cerrolaza, S. J. Shefelbine, D. Garzón-Alvarado. - Academic Press, 2018. – 454 p. – Doi : <https://doi.org/10.1016/C2016-0-01393-1>

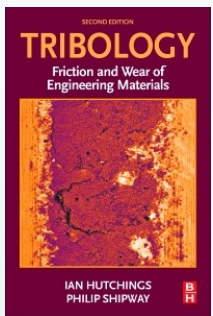
The book covers a wide range of important subjects in the field of numerical methods applied to biomechanics, including bone biomechanics, tissue and cell mechanics, 3D printing, computer assisted surgery and fluid dynamics. Modeling strategies, technology and approaches are continuously evolving as the knowledge of biological processes increases. Both theory and applications are covered, making this an ideal book for researchers, students and R&D professionals.

Mechanics



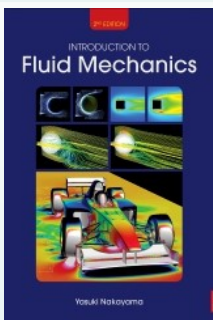
Kececi, E. F. Mechatronic Components : Roadmap to Design / E. F. Kececi. - Butterworth-Heinemann, 2019. – 248 p. – Doi : <https://doi.org/10.1016/C2017-0-01132-1>

Mechatronic Components: Roadmap to Design explains the practical application of mechatronics, including sections on adaptive structures, robotics and other areas where mechanics and electronics converge. Professional engineers in a variety of areas will find this textbook to be extremely helpful with its in-depth use of flow diagrams and schemes that help readers understand the logic behind the design of such systems. Using approximately 130 different components with diagrams and flowcharts that help engineers from different fields understand the general properties and selection criteria of a component, this book presents a comprehensive resource on mechatronic components.



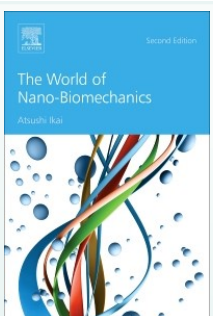
Hutchings, I. Tribology : Friction and Wear of Engineering Materials / I. Hutchings, P. Shipway. - 2nd ed. - Butterworth-Heinemann, 2017. – 412 p.

This fully updated and expanded book maintains its core emphasis on friction and wear of materials, but now also has a strengthened coverage of the more traditional tribological topics of contact mechanics and lubrication. It provides a solid scientific foundation that will allow readers to formulate appropriate solutions when faced with practical problems, as well as to design, perform and interpret meaningful tribological tests in the laboratory.



Nakayama, Y. Introduction to Fluid Mechanics / Y. Nakayama. - 2nd ed. - Butterworth-Heinemann, 2018. – 400 p.

Introduction to Fluid Mechanics, Second Edition, uses clear images and animations of flow patterns to help readers grasp the fundamental rules of fluid behavior. Everyday examples are provided for practical context, before tackling the more involved mathematic techniques that form the basis for computational fluid mechanics.

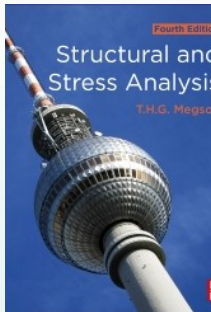


The World of Nano-Biomechanics / ed. : A. Ikai. - 2nd ed. – Elsevier, 2017. – 340 p. – Doi : <https://doi.org/10.1016/C2015-0-01857-3>

The World of Nano-Biomechanics, Second Edition, focuses on the remarkable progress in the application of force spectroscopy to molecular and cellular biology that has occurred since the book's first edition in 2008.

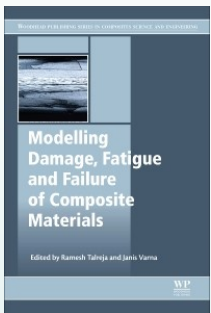
Topics include the development of molecular biosensors, mechanical diagnosis, cellular-level wound healing, and a look into the advances that have been made in our understanding of the significance of mechanical rigidity/flexibility of protein/DNA structure for the manifestation of biological activities.

Materials Science



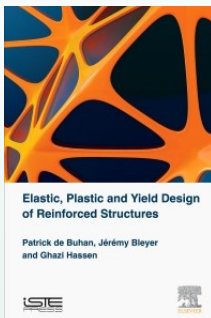
Megson, T. H. G. Structural and Stress Analysis / T. H. G. Megson. - 4th ed. - Butterworth-Heinemann, 2020. – 830 p. – Doi : <https://doi.org/10.1016/C2017-0-01528-8>

Structural and Stress Analysis, Fourth Edition, provides readers with a comprehensive introduction to all types of structural and stress analysis. Starting with an explanation of the basic principles of statics, the book then covers normal and shear force, bending moments, and torsion. Building on the success of prior editions, this update features new material on structural dynamics and fatigue, along with additional discussions of Eurocode compliance in the design of beams. With worked examples, practice problems, and extensive illustrations, it is an all-in-one resource for students and professionals interested in learning structural analysis.



Modelling Damage, Fatigue and Failure of Composite Materials : A volume in Woodhead Publishing Series in Composites Science and Engineering / ed. : R. Talreja, J. Varna. - Woodhead Publishing, 2016. – 472 p. – Doi : <https://doi.org/10.1016/C2013-0-16521-X>

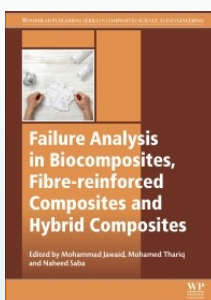
The book is a comprehensive source of physics-based models for the analysis of progressive and critical failure phenomena in composite materials, and focuses on materials modeling, while also reviewing treatments to give the reader thorough direction for analyzing failure in composite structures.



De Buhan, P. Elastic, Plastic and Yield Design of Reinforced Structures / P. de Buhan, J. Bleyer, G. Hassen. - ISTE Press – Elsevier, 2017. – 342 p.

Elastic, Plastic and Yield Design of Reinforced Structures presents a whole set of new results which have been published by the authors over the last 30 years in the field of continuum solid mechanics applied to the analysis and design of reinforced civil engineering structures.

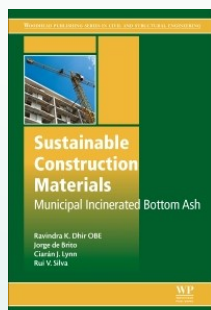
The focus is on the development and application of up-scaling/homogenization methods in the design of such composite structures, with a special emphasis on the plastic behavior and ultimate strength of materials.



Failure Analysis in Biocomposites, Fibre-Reinforced Composites and Hybrid Composites : A volume in Woodhead Publishing Series in Composites Science and Engineering / ed. : M. Jawaid, M. Thariq, N. Sab. - Woodhead Publishing, 2019. – 274 p. – Doi : <https://doi.org/10.1016/C2016-0-04423-6>

Failure Analysis in Biocomposites, Fibre-Reinforced Composites and Hybrid Composites covers key aspects of fracture and failure in natural/synthetic fiber reinforced polymer based composite materials, ranging from crack propagation, to crack growth, and from notch-size effect, to damage-tolerant design. The book describes a broad range of techniques and strategies for the compositional and failure analysis of polymeric materials and products.

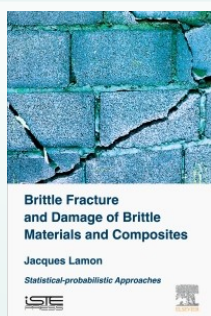
Materials Science



Sustainable Construction Materials : Municipal Incinerated Bottom Ash / R. K. Dhir [et al.]. - Woodhead Publishing, 2018. – 458 p. – Doi : <https://doi.org/10.1016/C2015-0-00489-0>

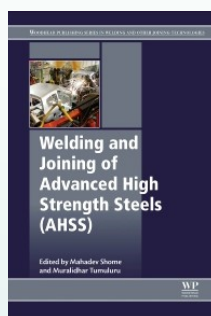
This book develops a single global knowledge-base, encouraging greater use of selected waste streams.

The focus of massive systematic reviews is to encourage the uptake of recycled secondary materials (RSM) by the construction industry and guide researchers to recognize what is already known regarding waste.



Lamon, J. Brittle Fracture and Damage of Brittle Materials and Composites : Statistical-probabilistic Approaches / J. Lamon. - ISTE Press – Elsevier, 2016. – 296 p. – Doi : <https://doi.org/10.1016/C2015-0-01222-9>

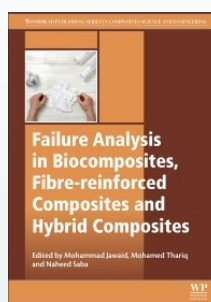
This book explores those brittle materials susceptible to crack arrest and the flaws which initiate crack induced damage. A detailed description of microstructural features covering numerous brittle materials, including ceramics, glass, concrete, metals, polymers and ceramic fibers to help you develop your knowledge of material fracture.



Welding and Joining of Advanced High Strength Steels (AHSS) / ed. : M. Shome, M. Tumuluru. - Woodhead Publishing, 2015. – 204 p. – Doi : <https://doi.org/10.1016/C2013-0-16259-9>

Welding and Joining of Advanced High Strength Steels (AHSS): The Automotive Industry discusses the ways advanced high strength steels (AHSS) are key to weight reduction in sectors such as automotive engineering. It includes a discussion on how welding can alter the microstructure in the heat affected zone, producing either excessive hardening or softening, and how these local changes create potential weaknesses that can lead to failure.

This text reviews the range of welding and other joining technologies for AHSS and how they can be best used to maximize the potential of AHSS.



Faraji, G. Severe Plastic Deformation : Methods, Processing and Properties / G. Faraji, H. S. Kim, H. T. Kashi. – Elsevier, 2018. – 324 p. – Doi : <https://doi.org/10.1016/C2016-0-05256-7>

The book offers an overview of these methods, introduces ultrafine-grained and nano-grained metals and methods for various bulk, sheet, tubular and large size samples, reviews effective parameters to make a severe plastic deformation method better, from property (mechanical) and processing (cost, time, load, etc.) viewpoints, discusses mechanical, physical and chemical properties of UFG and NS metals, and concludes with various applications for these methods.

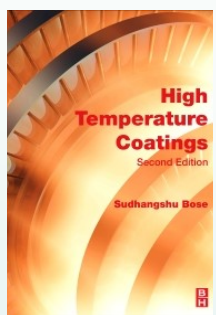
Over the last several decades, a large number of severe plastic deformation methods have been developed for processing a wide array of metals for superior properties, making this a timely resource.

Materials Science



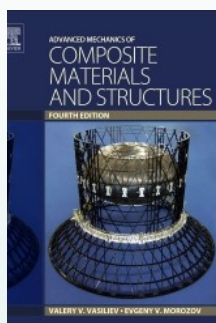
Materials and Surface Engineering : Research and Development / ed. : J. P. Davim. - Woodhead Publishing, 2012. – 308 p.

This book addresses all types of materials, including metals and alloys, polymers, ceramics and glasses, composites, nano-materials, biomaterials, etc. The relationship between micro and nano-structure, processing, properties of materials is discussed. Surface engineering is a truly interdisciplinary topic in materials science that deals with the surface of solid matter.



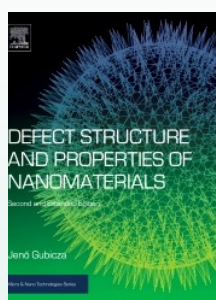
Bose, S. High Temperature Coatings / S. Bose. - 2nd ed. - Butterworth-Heinemann, 2018. – 416 p. – Doi : <https://doi.org/10.1016/C2015-0-01316-8>

This is the first true practical guide on the use of thermally protective coatings for high-temperature applications, including the latest developments in materials used for protective coatings. It covers the make-up and behavior of such materials under thermal stress and the methods used for applying them to specific types of substrates, as well as invaluable advice on inspection and repair of existing thermal coatings.



Vasiliev, V. V. Advanced Mechanics of Composite Materials and Structures / V. V. Vasiliev, E. V. Morozov. - 4th ed. – Elsevier, 2018. – 882 p. – Doi : <https://doi.org/10.1016/C2016-0-04497-2>

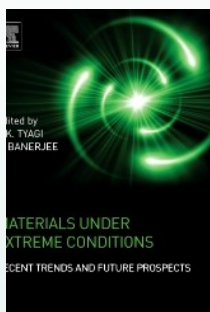
The fourth edition has been updated to reflect new manufacturing processes (such as 3D printing of two matrix composite structural elements) and new theories developed by the authors. The authors have expanded the content of advanced topic areas with new chapters on axisymmetric deformation of composite shells of revolution, composite pressure vessels, and anisogrid composite lattice structures.



Gubicza, J. Defect Structure and Properties of Nanomaterials : Second and Extended Edition / J. Gubicza. - 2nd ed. - Woodhead Publishing, 2017. – 410 p.

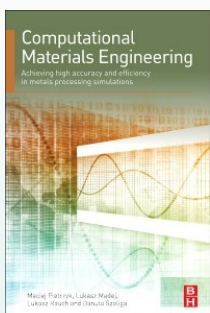
Defect Structure and Properties of Nanomaterials: Second and Extended Edition covers a wide range of nanomaterials including metals, alloys, ceramics, diamond, carbon nanotubes, and their composites. This new edition is fully revised and updated, covering important advances that have taken place in recent years.

Materials Science



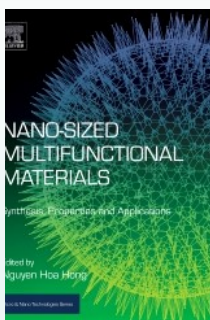
Materials Under Extreme Conditions : Recent Trends and Future Prospects / ed. : A.K. Tyagi, S. Banerjee. – Elsevier, 2017. – 870 p.

Materials Under Extreme Conditions: Recent Trends and Future Prospects analyzes the chemical transformation and decomposition of materials exposed to extreme conditions, such as high temperature, high pressure, hostile chemical environments, high radiation fields, high vacuum, high magnetic and electric fields, wear and abrasion related to chemical bonding, special crystallographic features, and microstructures.



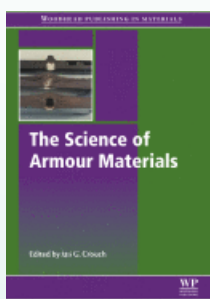
Computational Materials Engineering : Achieving High Accuracy and Efficiency in Metals Processing Simulations / M. Pietrzyk [et al.]. - Butterworth-Heinemann, 2016. – 376 p. – Doi : <https://doi.org/10.1016/C2013-0-00074-6>

Computational Materials Engineering: Achieving High Accuracy and Efficiency in Metals Processing Simulations describes the most common computer modeling and simulation techniques used in metals processing, from so-called "fast" models to more advanced multiscale models, also evaluating possible methods for improving computational accuracy and efficiency.



Nano-Sized Multifunctional Materials : Synthesis, Properties and Applications : A volume in Micro and Nano Technologies / ed. : N. H. Hong. – Elsevier, 2019. – 289 p. – Doi : <https://doi.org/10.1016/C2017-0-00527-X>

Nano-sized Multifunctional Materials: Synthesis, Properties and Applications explores how materials can be down-scaled to nanometer-size in order to tailor and control properties. These advanced, low-dimensional materials, ranging from quantum dots and nanoparticles, to ultra-thin films develop multifunctional properties.



The Science of Armour Materials : A volume in Woodhead Publishing in Materials / ed. : I. G. Crouch. - Woodhead Publishing, 2017. – 754 p.

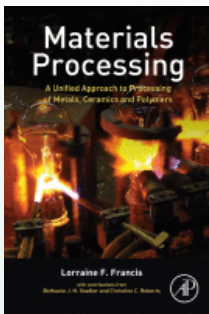
The Science of Armour Materials comprehensively covers the range of armor materials from steels and light alloys, through glasses and ceramics, to fibers, textiles, and protective apparel. The book also discusses aspects of analytical and numerical modeling, as well as laboratory-based high-strain rate testing and ballistic testing methodologies. Each chapter is written from an international perspective, including reviews of the current global literature, and incorporates case studies that focus upon real life applications, research outcomes, and lessons learned.

Materials Science



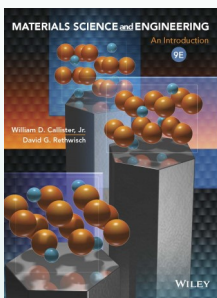
Materials and Devices for Bone Disorders / ed. : Susmita Bose, Amit Bandyopadhyay. – Academic Press, 2017. – 560 p. – Doi : <https://doi.org/10.1016/C2014-0-03361-8>

Materials for Bone Disorders is written by a cross-disciplinary team of research scientists, engineers, and clinicians and bridges the gap between materials science and bone disorders, providing integrated coverage of biomaterials and their applications. The bioceramics, biopolymers, composites, and metallic materials used in the treatment of bone disorders are introduced, as are their interactions with cells, biomolecules, and body tissues. The main types of bone disorder and disease are covered including osteoporosis, spinal injury, load bearing joint diseases, bone cancer, and forms of cranio-maxillofacial disorders.



Francis, L. Materials Processing : A Unified Approach to Processing of Metals, Ceramics and Polymers / L. Francis. - Academic Press, 2016. – 614 p.

Materials Processing is the first textbook to bring the fundamental concepts of materials processing together in a unified approach that highlights the overlap in scientific and engineering principles. It teaches students the key principles involved in the processing of engineering materials, specifically metals, ceramics and polymers, from starting or raw materials through to the final functional forms. Its self-contained approach is based on the state of matter most central to the shaping of the material: melt, solid, powder, dispersion and solution, and vapor.



Callister, W. D. Materials Science and Engineering : an introduction / W. D. Callister, D. G. Rethwisch. - United States : John Wiley & Sons, 2014. – 990 p.

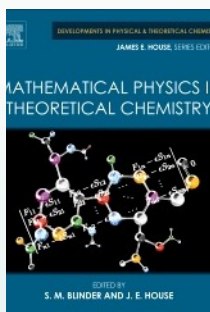
The contributors of the chapters in this book have various areas of expertise. Therefore, this book is interdisciplinary and is written for readers with a background in physical science. This book will be of interest to university students, lecturers and researchers who are interested in the fields of materials science, engineering and technology and, specifically, in advanced ceramic materials, metal, polymer composite, nanomaterials, bio-materials and optical materials. As it deals with many basic concepts that are of concern in the relevant fields, this book can also be used as a primer for studies in materials science and engineering.



Materials science and technology / ed. : S. D. Hutagalung. – 2012. – 336 p.

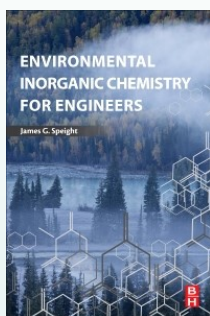
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Chemistry



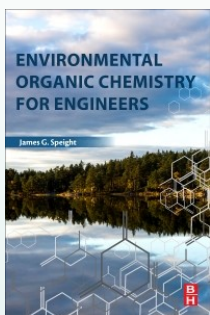
Mathematical Physics in Theoretical Chemistry : A volume in Developments in Physical & Theoretical Chemistry / ed. : S. M. Blinder, J. E. House. – Elsevier, 2019. – 423 p. – Doi : <https://doi.org/10.1016/C2016-0-04521-7>

Mathematical Physics in Theoretical Chemistry deals with important topics in theoretical and computational chemistry. Topics covered include density functional theory, computational methods in biological chemistry, and Hartree-Fock methods. As the second volume in the Developments in Physical & Theoretical Chemistry series, this volume further highlights the major advances and developments in research, also serving as a basis for advanced study.



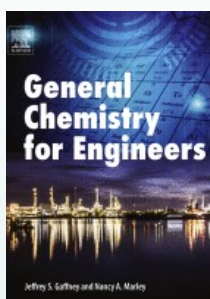
Speight, J. G. Environmental Inorganic Chemistry for Engineers / J. G. Speight. - Butterworth-Heinemann, 2017. – 592 p. – Doi : <https://doi.org/10.1016/C2013-0-16023-0>

Environmental Organic Chemistry for Engineers clearly defines the principles of environmental organic chemistry and the role they play in forming remediation strategies. In this reference, the author explores parameter estimation methods, the thermodynamics, and kinetics needed to predict the fate, transports, and reactivity of organic compounds in air, water, and soils.



Speight, J. G. Environmental Organic Chemistry for Engineers / J. G. Speight. - Butterworth-Heinemann, 2017. – 538 p. – Doi : <https://doi.org/10.1016/C2013-0-16021-7>

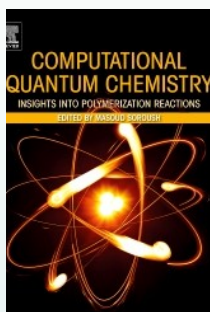
Environmental Organic Chemistry for Engineers clearly defines the principles of environmental organic chemistry and the role they play in forming remediation strategies. In this reference, the author explores parameter estimation methods, the thermodynamics, and kinetics needed to predict the fate, transports, and reactivity of organic compounds in air, water, and soils.



Gaffney, J. S. General Chemistry for Engineers / J. S. Gaffney, N. A. Marley. – Elsevier, 2018. – 638 p. – Doi : <https://doi.org/10.1016/C2015-0-05956-1>

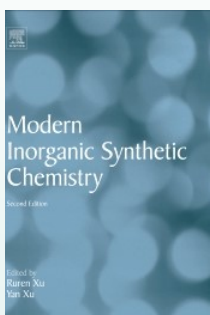
General Chemistry for Engineers explores the key areas of chemistry needed for engineers. This book develops material from the basics to more advanced areas in a systematic fashion. As the material is presented, case studies relevant to engineering are included that demonstrate the strong link between chemistry and the various areas of engineering.

Chemistry



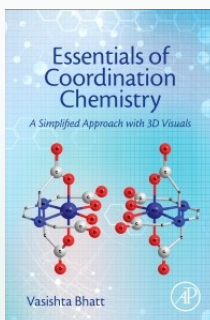
Computational Quantum Chemistry : Insights Into Polymerization Reactions / ed. : M. Soroush. – Elsevier, 2019. - 384 p. – Doi : <https://doi.org/10.1016/C2017-0-01269-7>

Computational Quantum Chemistry: Insights into Polymerization Reactions consolidates extensive research results, couples them with computational quantum chemistry (CQC) methods applicable to polymerization reactions, and presents those results systematically. CQC has advanced polymer reaction engineering considerably for the past two decades. The book puts these advances into perspective. It also allows you to access the most up-to-date research and CQC methods applicable to polymerization reactions in a single volume. The content is rigorous yet accessible to graduate students as well as researchers who need a reference of state-of-the-art CQC methods with polymerization applications.



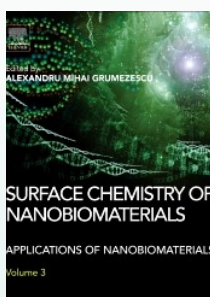
Modern Inorganic Synthetic Chemistry / ed. : R. Xu, Y. Xu. - 2nd ed. – Elsevier, 2017. – 808 p.

Modern Inorganic Synthetic Chemistry, Second Edition captures, in five distinct sections, the latest advancements in inorganic synthetic chemistry, providing materials chemists, chemical engineers, and materials scientists with a valuable reference source to help them advance their research efforts and achieve breakthroughs.



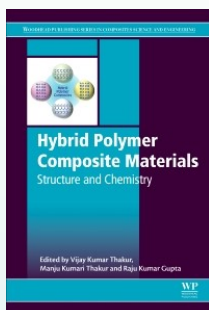
Bhatt, V. Essentials of Coordination Chemistry : A Simplified Approach with 3D Visuals / V. Bhatt. - Academic Press, 2016. – 282 p. – Doi : <https://doi.org/10.1016/C2014-0-04361-4>

Essentials of Coordination Chemistry: A Simplified Approach with 3D Visuals provides an accessible overview of this key, foundational topic in inorganic chemistry. Thoroughly illustrated within the book and supplemented by online 3D images and videos in full color, this valuable resource covers basic fundamentals before exploring more advanced topics of interest.



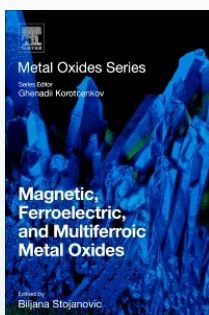
Surface Chemistry of Nanobiomaterials : Applications of Nanobiomaterials Volume 3 / ed. : A. M. Grumezescu. - William Andrew, 2016. – 528 p. – Doi : <https://doi.org/10.1016/C2015-0-00378-1>

Chemistry



Hybrid Polymer Composite Materials : Structure and Chemistry / ed. : V. K. Thakur, M. K. Thakur, R. K. Gupta. - Woodhead Publishing, 2017. – 356 p.

Hybrid Polymer Composite Materials: Volume 1: Structure and Chemistry presents the latest on these composite materials that can best be described as materials that are comprised of synthetic polymers and biological/inorganic/organic derived constituents. The combination of unique properties that emerge as a consequence of the particular arrangement and interactions between the different constituents provides immense opportunities for advanced material technologies.



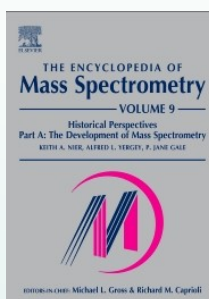
Magnetic, Ferroelectric, and Multiferroic Metal Oxides : A volume in Metal Oxides / ed. : B. D. Stojanovic. – Elsevier, 2018. – 658 p. – Doi : <https://doi.org/10.1016/C2016-0-00851-3>

As ferroelectric materials are used to make capacitors with high dielectric constant, transducers, and actuators, and in sensors, reed heads, and memories based on giant magnetoresistive effects, this book will provide an ideal source for the most updated information.



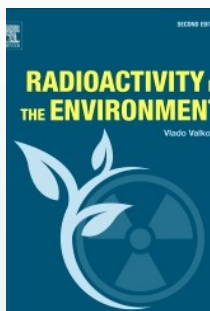
Green Chemistry : An Inclusive Approach / ed. : B. Török, T. Dransfield. – Elsevier, 2017. – 1058 p. – Doi : <https://doi.org/10.1016/C2015-0-05674-X>

Green Chemistry: An Inclusive Approach provides a broad overview of green chemistry for researchers from either an environmental science or chemistry background, starting at a more elementary level, incorporating more advanced concepts, and including more chemistry as the book progresses.



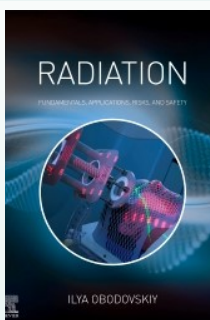
The Encyclopedia of Mass Spectrometry : Volume 9: Historical Perspectives, Part A : The Development of Mass Spectrometry / ed. : M. L. Gross, R. M. Caprioli. - Elsevier Science, 2016. – 406 p. – Doi : <https://doi.org/10.1016/C2009-0-05659-1>

Emergency Situations and Population Protection. Radiation Safety



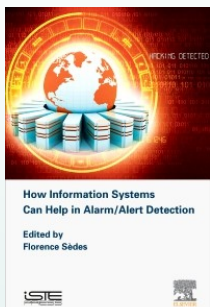
Valković, V. Radioactivity in the Environment / V. Valković. - 2nd ed. - Elsevier Science, 2019. – 810 p. – Doi : <https://doi.org/10.1016/C2017-0-03568-1>

Sources of ionizing radiation that can lead to human exposure are discussed, including natural sources, nuclear explosions, nuclear power generation, the use of radiation in medical, industrial and research purposes, and radiation-emitting consumer products. In this thoroughly updated edition, users will find new sections on developments in radioactive nuclides in nature and technologically modified exposure to natural radiation, new threats by terrorist individuals, groups and countries, changes to the status of nuclear power in the world, and more..



Obodovskiy, I. Radiation : Fundamentals, Applications, Risks, and Safety / I. Obodovskiy. – Elsevier, 2019. – 720 p. – Doi : <https://doi.org/10.1016/C2016-0-02609-8>

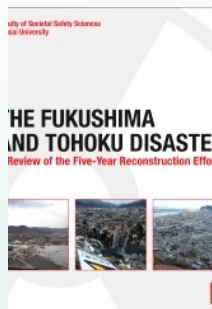
This book is devoted to the effect of small doses on the body. To understand the basic effects of radiation on humans, the book contains the necessary information from an atomic, molecular and nuclear physics, as well as from biochemistry and biology. Special attention is paid to the issues that are either not considered or discussed very briefly in existing literature. Examples include the ionization of inner atomic shells that play an essential role in radiological processes, and the questions of transformation of the energy of ionizing radiation in matter.



How Information Systems Can Help in Alarm /A. Detection / ed. : F. Sèdes. - ISTE Press – Elsevier, 2019. – 280 p. – Doi : <https://doi.org/10.1016/C2018-0-02181-7>

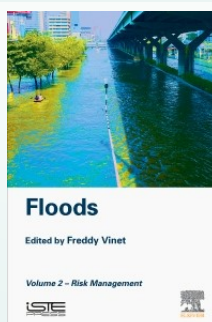
This book opens the discussion on the "procrastination", the dynamics and the reactivity of the alert systems, but also the problems of confidentiality, filtering of information, and the means of distinguishing information and rumor.

Emergency Situations and Population Protection. Radiation Safety



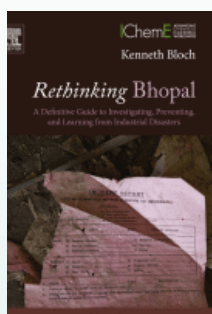
The Fukushima and Tohoku Disaster : A Review of the Five-Year Reconstruction Efforts / Faculty of Societal Safety Sciences. - Butterworth-Heinemann, 2018. – 354 p. – Doi : <https://doi.org/10.1016/C2016-0-04143-8>

The Fukushima and Tohoku Disaster: A Review of the Five-Year Reconstruction Efforts covers the outcome of the response, five years later, to the disasters associated with the Great East Japan earthquake on March 11, 2011. The 3.11 disaster, as it is referred to in Japan, was a complex accident, the likes of which humans had never faced before. This book evaluates the actions taken during and after the earthquake, tsunami, and nuclear accident, for which the Japanese government and people were not prepared.



Floods : Volume 2- Risk Management / ed. : F. Vinet. - ISTE Press – Elsevier, 2018. – 424 p. – Doi : <https://doi.org/10.1016/C2017-0-00726-7>

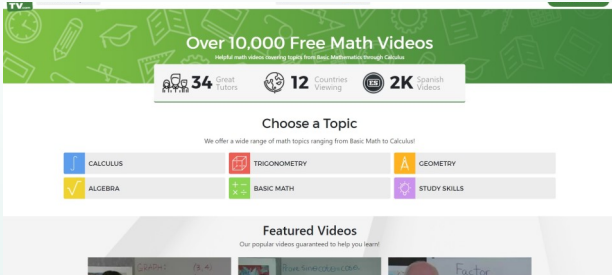
This second volume of the Floods series of books explores existing policies and tools which mitigate the impact of flooding: the construction of protective structures, the reduction of vulnerability, land use planning, the improvement of crisis management, etc. The closing chapters focus on the question of adaptation through post-flood reconstruction, integrating disaster risk reduction measures, e.g. through resilient urbanism.



Bloch, K. Rethinking Bhopal : A Definitive Guide to Investigating, Preventing, and Learning from Industrial Disasters / K. Bloch. – Elsevier, 2016. – 510 p. – Doi : <https://doi.org/10.1016/C2015-0-00206-4>

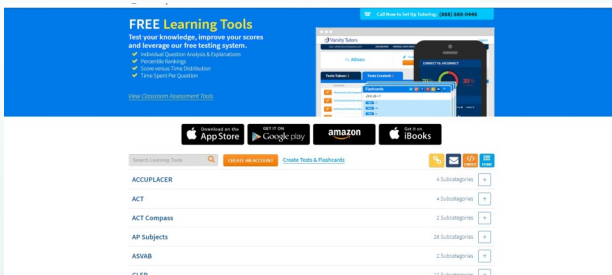
Rethinking Bhopal: A Definitive Guide to Investigating, Preventing, and Learning from Industrial Disasters is the go-to source for anyone seeking to learn how to improve process safety management (PSM) through applying fundamental asset reliability and incident investigation concepts.

Mathematical Modeling



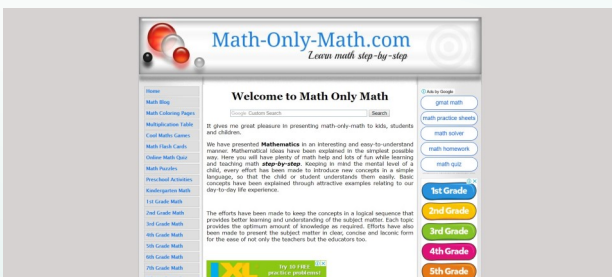
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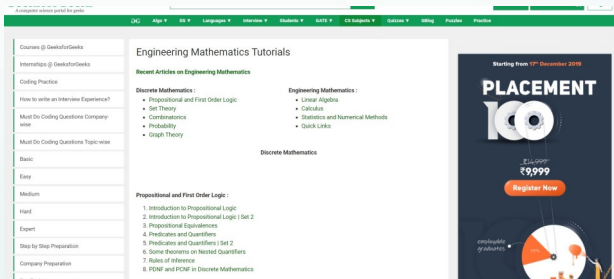
Math Only Math

Here you will have plenty of math help and lots of fun while learning and teaching math step-by-step.

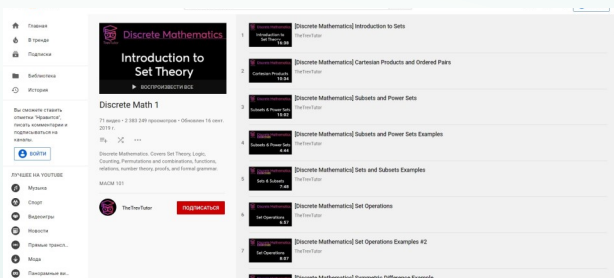
Mathematical Modeling



Math = Love



GeeksforGeeks
Engineering Mathematics Tutorials .



YouTube Channel “TheTrevTutor”. Playlist “Discrete Math 1”
Covers Set Theory, Logic, Counting, Permutations and combinations, functions, relations, number theory, proofs, and formal grammar.

Materials Science



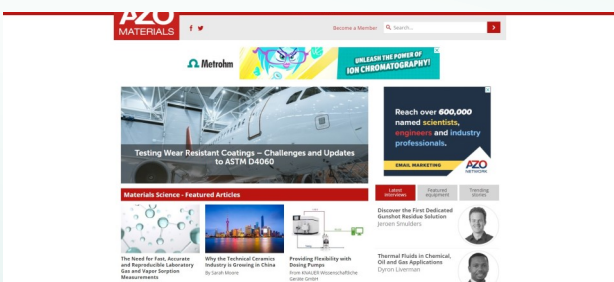
Materials Today

Materials Today is a community dedicated to the creation and sharing of materials science knowledge and experience.



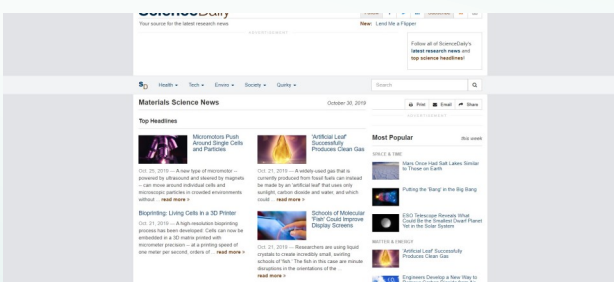
Engineering Materials News

Engineering Materials Brings You All the Latest Materials News, Features, Videos, Blogs and More, Covering Topics Like Coatings & Tribology and Materials in Production.



AZoM.com - Materials and Engineering News

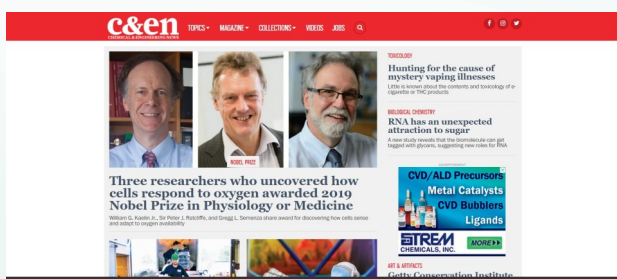
The Latest Materials and Engineering News from AZoM - The A to Z of Materials science.



ScienceDaily

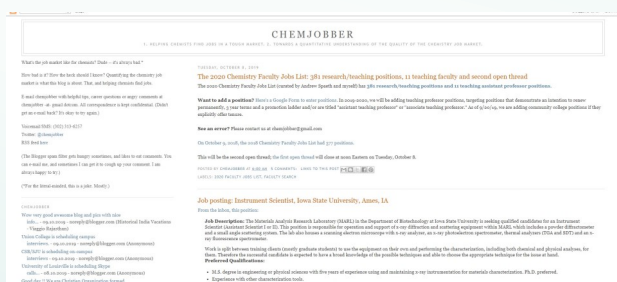
Materials Science News.

Chemistry



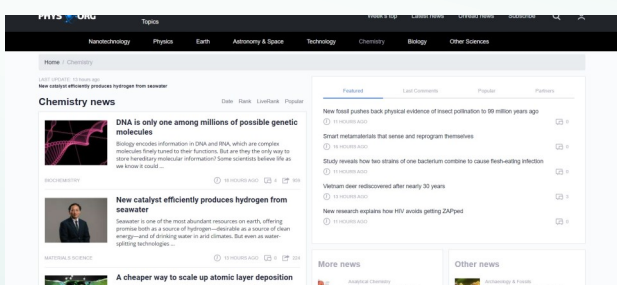
Chemical & Engineering News | American Chemical Society

Materials Today is a community dedicated to the creation and sharing of materials science knowledge and experience.



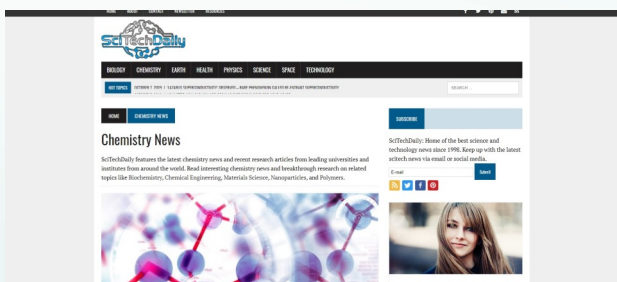
Chemjobber

The focus of this blog is 'quantifying the chemistry job market,' which, like many other fields, is bad. The blog looks at news and trends in the market and offers advice and discussion about how to navigate the field.



Phys.org/ Chemistry

News portal provides the latest news on chemistry, biochemistry, polymers, materials science. Its mission is to provide the most complete and comprehensive daily coverage of the full sweep of science, technology, and medicine news.



Chemistry SciTech Daily

Read chemistry articles from research institutes around the world - organic and inorganic chemistry - including new techniques and inventions.

Chemistry

Education

Resource of support for teaching primary, secondary and higher education students.

Chemistry | Khan Academy

Khan Academy offers practice exercises, instructional videos, and a personalized learning.

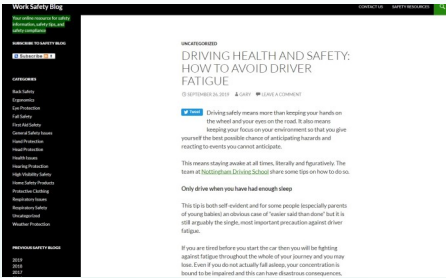
Interactive Periodic table

The Royal Society of Chemistry's interactive periodic table features history, alchemy, podcasts, videos, and data trends across the periodic table.

ChemTube 3D

ChemTube3D contains interactive 3D chemistry animations and structures, with supporting information, for students studying some of the most important topics in advanced school chemistry and university chemistry courses.

Emergency Situations and Population Protection. Radiation Safety



Work Safety Blog

Your online resource for safety information, safety tips, and safety compliance.



Radiation Answers

This Web site was prepared by appointed Health Physics Society members, and technical accuracy was assured with a separate review by a technical panel appointed by the Society Board of Directors.



Premier Safety Institute. Emergency preparedness for healthcare

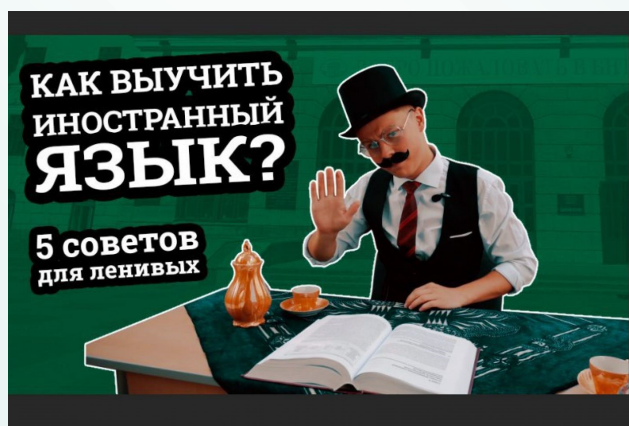
This web site is intended to provide basic tools and resources from federal governmental agencies, professional organizations, universities, and state and local public health agencies.

News

How to learn English quickly: 5 tips for beginners!

Hello guys! We decided to remind you that without knowledge of foreign languages it will be tight in the labor market, especially international. If you plan to fly high, you can't do without a foreign one. Catch five tips on how to learn a foreign language yourself, quickly and for free. You just need to be persistent.

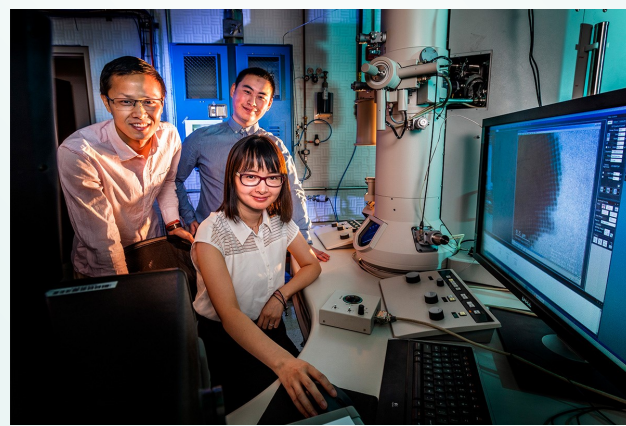
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Crystallization clarified, researchers report

Researchers from the University of Illinois at Urbana-Champaign and Northwestern University have made it possible to observe and simulate the self-assembly of crystalline materials at a much higher resolution than ever before.

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No. 2, November, 2019

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