### Numerical Methods Rajasekaran

Mechanics of Functionally Graded Materials and StructuresAlgorithmic and Artificial Intelligence Methods for Protein BioinformaticsInnovative Methods in Horticultural Crop ImprovementMetaheuristics Algorithm and Optimization of Engineering and Complex SystemsFinite Element Methods in EngineeringMachining Polymer Matrix Composites: Tools, Techniques, and SustainabilityTumor Immunology and Immunotherapy - Molecular MethodsAdvanced Manufacturing Techniques for Engineering and Engineered MaterialsTheory of Beam-Columns, Volume 2User Interface Inspection MethodsParallel System Interconnections and CommunicationsRandom Number Generation and Monte Carlo MethodsHorticulture -- New Technologies and ApplicationsCognitive and Soft Computing Techniques for the Analysis of Healthcare DataForming and Machining of Polymers, Ceramics, and CompositesDecision Support Systems for Sustainable DevelopmentCotton Breeding and BiotechnologyComputational Methods in Drug Discovery and Repurposing for Cancer TherapyEnergy Research AbstractsCrop Traits for Defense Against Pests and Disease: Durability, Breakdown and Future Prospects, 2nd EditionBiotechnological strategies for the conservation of medicinal and ornamental climbersHandbook of Approximation Algorithms and MetaheuristicsAdvances in Smart System TechnologiesTuberculosis of the Skeletal SystemThe Random Projection MethodDynamic Response and Failure of Composite Materials and StructuresHandbook On Timoshenkoehrenfest Beam And Uflyand- Mindlin Plate TheoriesAdditive and Subtractive Manufacturing of CompositesApplications and Techniques in Information SecurityNutriomics of Millet CropsMarine Medicinal FoodsMathematical Modeling for Computer ApplicationsManufacturing Techniques for MaterialsMastering Orthopedic Techniques Spine SurgeryExploration of Artificial Intelligence and Blockchain Technology in Smart and Secure HealthcareMonsoon as MethodMarvels of Artificial and Computational Intelligence in Life SciencesApproximation, Randomization and Combinatorial Optimization. Algorithms and TechniquesPower on the MoveModern Techniques in Spine Surgery Farzad Ebrahimi Yi Pan Jameel Al-Khayri R., Thanigaivelan Cabrera, Francisco Mata Thanigaivelan, R. Wai-Fah Chen Chauncey Wilson Miltos D. Grammatikakis James E. Gentle J. Prakash Akash Kumar Bhoi Matruprasad Rout Gregory E. Kersten Zulqurnain Khan Ganji Purnachandra Nagaraju Alison J. Karley Anwar Shahzad Teofilo F. Gonzalez P. Suresh SM Tuli Santosh S. Vempala Valentina Lopresto Isaac E Elishakoff Sanjay Mavinkere Rangappa Qingfeng Chen Ramesh Namdeo Pudake Biswadip Basu Mallik T.S. Srivatsan Garg Bhavuk Arvind K. Sharma, Dalip Kamboj, Savita Wadhawan, Gousia Habib, Samiya Khan, Valentina Emilia Balas Lindsay Bremner Thirunavukkarasu Sivaraman Klaus Jansen Cristina-Ioana Dragomir Arvind Bhave

Mechanics of Functionally Graded Materials and Structures Algorithmic and Artificial Intelligence Methods for Protein Bioinformatics Innovative Methods in Horticultural Crop Improvement Metaheuristics Algorithm and Optimization of Engineering and Complex Systems Finite Element Methods in Engineering Machining Polymer Matrix Composites: Tools, Techniques, and Sustainability Tumor Immunology and Immunotherapy – Molecular Methods Advanced Manufacturing Techniques for Engineering and Engineered Materials Theory of Beam-Columns, Volume 2 User Interface Inspection Methods Parallel System Interconnections and Communications Random Number Generation and Monte Carlo Methods Horticulture — New Technologies and Applications Cognitive and Soft Computing Techniques for the Analysis of Healthcare Data Forming and Machining of Polymers, Ceramics, and Composites Decision Support Systems for Sustainable Development Cotton Breeding and Biotechnology Computational Methods in Drug Discovery and Repurposing for Cancer Therapy Energy Research Abstracts Crop Traits for Defense Against Pests and Disease: Durability, Breakdown and Future Prospects, 2nd Edition Biotechnological strategies for the conservation of medicinal and ornamental climbers Handbook of Approximation Algorithms and Metaheuristics Advances in Smart System Technologies Tuberculosis of the Skeletal System The Random Projection Method Dynamic Response and Failure of Composite Materials and Structures Handbook On Timoshenko-ehrenfest Beam And Uflyand- Mindlin Plate Theories Additive and Subtractive Manufacturing of Composites Applications and Techniques in Information Security Nutriomics of Millet Crops Marine Medicinal Foods Mathematical Modeling for Computer Applications Manufacturing Techniques for Materials Mastering Orthopedic Techniques Spine Surgery Exploration of Artificial Intelligence and Blockchain Technology in Smart and Secure Healthcare Monsoon as Method Marvels of Artificial and Computational Intelligence in Life Sciences Approximation, Randomization and Combinatorial Optimization. Algorithms and Techniques Power on the Move Modern Techniques in Spine Surgery Farzad Ebrahimi Yi Pan Jameel Al-Khayri R., Thanigaivelan Cabrera, Francisco Mata Thanigaivelan, R. Wai-Fah Chen Chauncey Wilson Miltos D. Grammatikakis James E. Gentle J. Prakash Akash Kumar Bhoi Matruprasad Rout Gregory E. Kersten Zulqurnain Khan Ganji Purnachandra Nagaraju Alison J. Karley Anwar Shahzad Teofilo F. Gonzalez P. Suresh SM Tuli Santosh S. Vempala Valentina Lopresto Isaac E Elishakoff Sanjay Mavinkere Rangappa Qingfeng Chen Ramesh Namdeo Pudake Biswadip Basu Mallik T.S. Srivatsan Garg Bhavuk Arvind K. Sharma, Dalip Kamboj, Savita Wadhawan, Gousia Habib, Samiya Khan, Valentina Emilia Balas Lindsay Bremner Thirunavukkarasu Sivaraman Klaus Jansen Cristina-Ioana Dragomir Arvind Bhave

the functionally graded materials fgm concept originated in japan in 1984 during the spaceplane project in the form of a proposed thermal barrier material capable of withstanding a surface temperature of 2000 k and a temperature gradient of 1000 k across a cross section 10 mm the materials can be designed for specific function and applications fgms offer great promise in applications where the operating conditions are extreme for example wear resistant linings for handling large heavy abrasive ore particles rocket heat shields heat exchanger tubes thermoelectric generators heat engine components plasma facings for fusion reactors and electrically insulating metal ceramic joints they are also ideal for minimizing thermomechanical mismatch in metal ceramic bonding this book is a result of contributions of experts from the international scientific community working in different aspects of functionally graded materials and structures and reports on the latest research and development findings on this topic through original and innovative research studies through its six chapters the reader will have access to works related to processing characteristics modeling and applications of functionally graded materials and structures the book contains up to date publications from leading experts and the edition is intended to provide valuable recent information to the professionals involved in functionally graded materials and structure analysis and applications the text is addressed not only to researchers but also to professional engineers students and other experts in a variety of disciplines both academic and industrial seeking to gain a better understanding of what has been done in the field recently and what open problems are in this area

algorithmic and artificial intelligence methods for protein bioinformatics an in depth look at the latest research methods and applications in the field of protein bioinformatics this book presents the latest developments in protein bioinformatics introducing for the first time cutting edge research results alongside novel algorithmic and ai methods for the analysis of protein data in one complete self contained volume algorithmic and artificial intelligence methods for protein bioinformatics addresses key challenges facing both computer scientists and biologists arming readers with tools and techniques for analyzing and interpreting protein data and solving a variety of biological problems featuring a collection of authoritative articles by leaders in the field this work focuses on the analysis of protein sequences structures and interaction networks using both traditional algorithms and ai methods it also examines in great detail data preparation simulation experiments evaluation methods and applications algorithmic and artificial intelligence methods for protein data drug applications such as protein related drug

activity comparison incorporates salient case studies illustrating how to apply the methods outlined in the book tackles the complex relationship between proteins from a systems biology point of view relates the topic to other emerging technologies such as data mining and visualization includes many tables and illustrations demonstrating concepts and performance figures algorithmic and artificial intelligence methods for protein bioinformatics is an essential reference for bioinformatics specialists in research and industry and for anyone wishing to better understand the rich field of protein bioinformatics

this book focuses on recent advances in molecular tools nanotechnology and artificial intelligence to monitor manage and improve horticultural crops in terms of plant growth nutrient deficiency toxicity diseases abiotic stress soil amendments and agrochemicals entering the surrounding environment the book consists of 11 chapters grouped in 3 parts part i nanotechnology and artificial intelligence part ii monitoring abiotic and biotic stress part iii genetic engineering and genomics this book provides an overview of nanotechnology and omics used to improve the productivity of crops and sustainability in the future it also describes the basic structures of six popular artificial intelligence techniques and their applications in horticultural crop improvement the book presents molecular techniques such as molecular markers genome sequencing genome editing and genetic modification that are considered efficient tools to achieve the goals of plant breeders in horticultural crop improvement programs chapters are written by globally recognized scientists and subjected to a rigorous review process to ensure quality presentation and scientific precision each chapter begins with an introduction that covers similar contexts and includes a detailed discussion of the topic accompanied by high quality color images diagrams and relevant details and concludes with recommendations for future study directions in addition to a comprehensive bibliography

in the field of engineering optimization and decision making have become pivotal concerns the ever increasing demand for data processing has given rise to issues such as extended processing times and escalated memory utilization posing formidable obstacles across various engineering domains problems persist requiring not only solutions but advancements beyond existing best practices creating and implementing novel heuristic algorithms is a time intensive process yet the imperative to do so remains strong driven by the potential to significantly lower computational costs even with marginal improvements this book titled metaheuristics algorithm and optimization of engineering and complex systems is a beacon of innovation in this context it examines the critical need for inventive algorithmic solutions exploring hyperheuristic approaches that offer solutions such as automating search spaces through integrated heuristics designed to cater to a broad audience this book is a valuable resource for both novice and experienced dynamic optimization practitioners by addressing the spectrum of theory and practice as well as discrete versus continuous dynamic optimization it becomes an indispensable reference in a captivating and emerging field with a deliberate focus on inclusivity the book is poised to benefit anyone with an interest in staying abreast of the latest developments in dynamic optimization

academic scholars engaged in machining polymer matrix composites face challenges due to material property variations complex structures and the pursuit of high surface quality the lack of comprehensive resources further hampers their ability to develop efficient and sustainable machining techniques machining polymer matrix composites tools techniques and sustainability edited by francisco mata cabrera and issam hanafi offers a comprehensive solution this book provides practical knowledge on tool selection cutting parameters surface quality and tool wear empowering scholars to overcome the intricacies of machining these materials with insights into turning milling drilling grinding and advancements in high speed and ultrasonic machining the book equips scholars with a comprehensive toolbox for optimizing their machining techniques the book goes beyond technique to address environmental impact covering topics such as energy consumption waste generation and emissions through case studies it offers practical applications and valuable insights into the challenges and opportunities of machining polymer matrix composites this comprehensive solution encompassing knowledge practical guidance and sustainability considerations empowers academic scholars to achieve high quality machined components while minimizing their environmental footprint regardless of their expertise level whether beginners seeking fundamental understanding or experienced professionals in need of advanced insights scholars will find this book an indispensable resource by covering tool selection cutting parameters surface quality and environmental impact machining polymer matrix composites tools techniques and sustainability equips scholars with the necessary tools to excel in machining polymer matrix composites

tumor immunology and immunotherapy molecular methods volume 629 the latest release in the methods in enzymology series continues the legacy of this premier serial with quality chapters authored by leaders in the field chapters in this release include droplet digital pcr for measuring circulating tumor derived dna detection and quantification of cytosolic dna methods to detect endogenous dsrna induction and recognition quantification of eif2alpha phosphorylation during immunogenic cell death assessment of annexin a1 release during immunogenic cell death luciferase assisted detection of extracellular atp in the course of icd the p2x7 receptor structure and function and much more contains the authority of authors who are leaders in their field provides a comprehensive source on new methods and research in enzymology

as technology advances it is imperative to stay current in the newest developments made within the engineering industry and within material sciences trends in manufacturing such as 3d printing casting welding surface modification computer numerical control cnc non traditional industry 4 0 ergonomics and hybrid machining methods must be closely examined to utilize these important resources for the betterment of society advanced manufacturing techniques for engineering and engineered materials provides a unified and complete overview about the recent and emerging trends developments and associated technology with scope for the commercialization of techniques specific to manufacturing materials this book also reviews the various machining methods for difficult to cut materials and novel materials including matrix composites covering topics such as agro waste conventional machining and material performance this book is an essential resource for researchers engineers technologists students and professors of higher education industry workers entrepreneurs researchers and academicians

this second volume of a two volume work discussessystematically the complete theory of space beam columns it presents principles and methods of analysis for beam columns in space which should be the basis for structural design and shows how these theories are applied for the solution of practical design problems an unabridged j ross

user interface inspection methods succinctly covers five inspection methods heuristic evaluation perspective based user interface inspection cognitive walkthrough pluralistic walkthrough and formal usability inspections heuristic evaluation is perhaps the best known inspection method requiring a group of evaluators to review a product against a set of general principles the perspective based user interface inspection is based on the principle that different perspectives will find different problems in a user interface in the related persona based inspection colleagues assume the roles of personas and review the product based on the needs background tasks and pain points of the different personas the cognitive walkthrough focuses on ease of learning most of the inspection methods do not require users the main exception is the pluralistic walkthrough in which a user is invited to provide feedback while members of a product team listen observe the user and ask questions after reading this book you will be able to use these ui inspection methods with confidence and certainty

this introduction to networking large scale parallel computer systems acts as a primary resource

for a wide readership including network systems engineers electronics engineers systems designers computer scientists involved in systems design and implementation of parallel algorithms development graduate students in systems architecture design or engineering

the role of monte carlo methods and simulation in all of the sciences has in creased in importance during the past several years these methods are at the heart of the rapidly developing subdisciplines of computational physics computational chemistry and the other computational sciences the growing power of computers and the evolving simulation methodology have led to the recog nition of computation as a third approach for advancing the natural sciences together with theory and traditional experimentation monte carlo is also a fundamental tool of computational statistics at the kernel of a monte carlo or simulation method is random number generation generation of random numbers is also at the heart of many standard statis tical methods the random sampling required in most analyses is usually done by the computer the computations required in bayesian analysis have become viable because of monte carlo methods this has led to much wider applications of bayesian statistics which in turn has led to development of new monte carlo methods and to refinement of existing procedures for random number generation

in november 1990 indo american hybrid seeds iahs one of the largest and very innovative horticultural enterprises of its kind in india celebrated its silver jubilee year in the town of bangalore india on the occasion of this silver jubilee of iahs an international seminar on new frontiers in horticulture was organized from 25 28th of november 1990 at the ashok radisson hotel in bangalore iahs was almost fully responsible in terms of organization and financially for this international seminar assisted by an international scientific advisory board the organizing committee all members of the company iahs really did a great job i would like to thank in particular mr mammohan attavar the company s founder and mr sri n k bhat partner of the company respectively chairman and treasurer of the organizing committee for their organizational and financial support in organizing this conference very special words of thanks go to my colleague editor dr jitendra prakash secretary organization of our very successful conference

cognitive and soft computing techniques for the analysis of healthcare data discusses the insight of data processing applications in various domains through soft computing techniques and enormous advancements in the field the book focuses on the cross disciplinary mechanisms and ground breaking research ideas on novel techniques and data processing approaches in handling structured and unstructured healthcare data it also gives insight into various information processing models and many memories associated with it while processing the information for forecasting future trends and decision making this book is an excellent resource for researchers and professionals who work in the healthcare industry data science and machine learning focuses on data centric operations in the healthcare industry provides the latest trends in healthcare data analytics and practical implementation outcomes of the proposed models addresses real time challenges and case studies in the healthcare industry

forming and machining of polymers ceramics and composites targets the two important manufacturing processes where plastic deformation is involved to give the required shape and size to the raw material the main goal of the book is to represent the recent developments in the field of forming and machining of different non metals especially polymers composites and ceramics special focus is on the advancement of these processes to manufacture components from these non metals presents exclusive material dedicated to forming and machining of non metals that is polymers ceramics and composites provides comprehensive coverage of all important topics related to non metals processing covers basics and current research in the field of forming and machining of non metals focuses on sustainability interventions and intelligent manufacturing techniques for quality and productivity in forming and machining of non metals discusses conventional and non conventional machining and microfabrication aspects for fabrication and processing of non metals this book is aimed at graduate students and researchers in materials processing and machine design

in recent years much work has been done in formulating and clarifying the concept of sustainable development and related theoretical and research issues now the challenge has shifted to designing and stimulating processes of effective planning and decision making at all levels of human activity in such a way as to achieve local and global sustainable development information technology can help a great deal in achieving sustainable development by providing well designed and useful tools for decision makers one such tool is the decision support system or dss this book explores the area of dss in the context of sustainable development as dss is a very new technique especially in the developing world this book will serve as a reference text primarily for managers government officials and information professionals in developing countries it covers the concept of sustainable development and examines the state of the art in dss use other interested readers will include students teachers and analysts in information sciences dss designers developers and implementors and international development agencies

cotton breeding and biotechnology presents information on one of the most economically important crops of the world cotton this book contains chapters on the history of cotton breeding approaches technologies for increasing germination crop growth and yield and fiber quality issues it emphasizes sustainable development in the cotton industry analysing the progress of breeding technologies under environmental adversity the book explores the national and global status of cotton crop including cotton production possible impacts of climate change and the vulnerability of cotton to pest infestations and disease attacks features focuses on cotton breeding and biotechnology proposes ideas data and strategies to mount breeding programs for enhancing cotton production details strategies for cotton quality improvement against abiotic and biotic stresses emphasizes the revival of cotton in pakistan and south asian region this book is useful to researchers cotton breeders and growers farmers and the agriculture industry

computational methods in drug discovery and repurposing for cancer therapy provides knowledge about ongoing research as well as computational approaches for drug discovery and repurposing for cancer therapy the book also provides detailed descriptions about target molecules pathways and their inhibitors for easy understanding and applicability the book discusses tools and techniques such as integrated bioinformatics approaches systems biology tools molecular docking computational chemistry artificial intelligence machine learning structure based virtual screening biomarkers and transcriptome those are discussed in the context of different cancer types such as colon pancreatic glioblastoma endometrial and retinoblastoma among others this book is a valuable resource for researchers students and members of the biomedical and medical fields who want to learn more about the use of computational modeling to better tailor the treatment for cancer patients discusses in silico remodeling of effective phytochemical compounds for discovering improved anticancer agents for substantial significant cancer therapy covers potential tools of bioinformatics that are applied toward discovering new targets by drug repurposing and strategies to cure different types of cancers demonstrates the significance of computational and artificial intelligence approaches in anticancer drug discovery explores how these various advances can be integrated into a precision and personalized medicine approach that can eventually enhance patient care

with global populations expected to exceed 9 2 billion by 2050 and available land and water resources devoted to crop production dwindling we face significant challenges to secure global food security only 12 plant species feed 80 of the world's population with just three crop species wheat rice and maize accounting for food consumed by 50 of the global population annual losses to crop pests and pathogens are significant thought to be equivalent to that required to feed a

billion people at a time when crop productivity has plateaued with pesticide applications becoming increasingly unfeasible on cost efficacy and environmental grounds there is growing interest in exploiting plant resistance and tolerance traits for crop protection indeed mankind has been selectively breeding plants for desirable traits for thousands of years however resistance and tolerance traits have not always been those most desired and in many cases have been inadvertently lost during the domestication process crops have been effectively disarmed by domestication moreover mechanistic understanding of how resistance and tolerance traits operate is often incomplete which makes identifying the right combination for crop protection difficult we aimed to address this research topic by inviting authors to contribute their knowledge of appropriate resistance and tolerance traits explore what is known about durability and breakdown of defensive traits and finally asking what are the prospects for exploiting these traits for crop protection the research topic summarised in this book addresses some of the most important issues in the future sustainability of global crop production

the book provides an overview on adoption of biotechnological approaches for the conservation micropropagation synseed production of various medicinal and ornamental climbers the work includes a brief chapter on evolution and diversification of climbers other chapters give insights on protocols for in vitro propagation and synseed production of selected threatened medicinal and ornamental climbers informative chapter on the production of bioactive compound and their enhancement through genetic transformation and elicitation have been incorporated to cover latest advancement in the field of plant biotechnology this book also explores the use of molecular marker technique for the desired improvement magnification of medicinal and aesthetic value of climbing plants

handbook of approximation algorithms and metaheuristics second edition reflects the tremendous growth in the field over the past two decades through contributions from leading experts this handbook provides a comprehensive introduction to the underlying theory and methodologies as well as the various applications of approximation algorithms and metaheuristics volume 1 of this two volume set deals primarily with methodologies and traditional applications it includes restriction relaxation local ratio approximation schemes randomization tabu search evolutionary computation local search neural networks and other metaheuristics it also explores multi objective optimization reoptimization sensitivity analysis and stability traditional applications covered include bin packing multi dimensional packing steiner trees traveling salesperson scheduling and related problems volume 2 focuses on the contemporary and emerging applications of methodologies to problems in combinatorial optimization computational geometry and graphs problems as well as in large scale and emerging application areas it includes approximation algorithms and heuristics for clustering networks sensor and wireless communication bioinformatics search streams virtual communities and more about the editor teofilo f gonzalez is a professor emeritus of computer science at the university of california santa barbara he completed his ph d in 1975 from the university of minnesota he taught at the university of oklahoma the pennsylvania state university and the university of texas at dallas before joining the ucsb computer science faculty in 1984 he spent sabbatical leaves at the monterrey institute of technology and higher education and utrecht university he is known for his highly cited pioneering research in the hardness of approximation for his sublinear and best possible approximation algorithm for k tmm clustering for introducing the open shop scheduling problem as well as algorithms for its solution that have found applications in numerous research areas as well as for his research on problems in the areas of job scheduling graph algorithms computational geometry message communication wire routing etc

this book presents select peer reviewed proceedings of the international conference on frontiers in smart systems technologies icfsst 2019 it focuses on latest research and cutting edge technologies in smart systems and intelligent autonomous systems with advanced functionality comprising topics related to diverse aspects of smart technologies such as high security reliability miniaturization energy consumption and intelligent data processing the book contains contributions from academics as well as industry given the range of the topics covered this book will prove useful for students researchers and professionals alike

tuberculosis of the skeletal system is the latest edition of this comprehensive guide to the effects of tuberculosis on the bones and joints with guidelines for their management the book is divided into twenty six chapters across three sections the first section covers general considerations in osteo articular tuberculosis including epidemiology and prevalence pathology and pathogenesis diagnosis and investigations and anti tubercular drugs the second section covers extra spinal regional tuberculosis from the hip joint to the shoulder short tubular bones to sacroiliac joints and tendon sheaths this section also includes a chapter on tuberculous osteomyelitis infection of the bone marrow each chapter covers pathogenesis clinical features radiological findings differential diagnosis methods of treatment surgical techniques and relevant anatomy the final section focuses on tuberculosis of the spine including imaging for the disease differential diagnosis operative treatment and surgical anatomy the increased prevalence of superbugs is addressed throughout this new edition with discussion on new modalities which could potentially combat them enhanced by over 280 illustrations and images this edition of tuberculosis of the skeletal system is an ideal update for orthopaedic surgeons key points latest edition of this comprehensive guide to the management of osteo articular tuberculosis previous edition published 2008 9789351524625 the increased prevalence of superbugs is addressed in this edition with new modalities which could potentially combat them 282 images and illustrations

random projection is a simple geometric technique for reducing the dimensionality of a set of points in euclidean space while preserving pairwise distances approximately the technique plays a key role in several breakthrough developments in the field of algorithms in other cases it provides elegant alternative proofs the book begins with an elementary description of the technique and its basic properties then it develops the method in the context of applications which are divided into three groups the first group consists of combinatorial optimization problems such as maxcut graph coloring minimum multicut graph bandwidth and vlsi layout presented in this context is the theory of euclidean embeddings of graphs the next group is machine learning problems specifically learning intersections of halfspaces and learning large margin hypotheses the projection method is further refined for the latter application the last set consists of problems inspired by information retrieval namely nearest neighbor search geometric clustering and efficient low rank approximation motivated by the first two applications an extension of random projection to the hypercube is developed here throughout the book random projection is used as a way to understand simplify and connect progress on these important and seemingly unrelated problems the book is suitable for graduate students and research mathematicians interested in computational geometry

dynamic response and failure of composite materials and structures presents an overview of recent developments in a specialized area of research with original contributions from the authors who have been asked to outline needs for further investigations in their chosen topic area the result is a presentation of the current state of the art in very specialized research areas that cannot be found elsewhere in the literature for example massabò presents a newly developed theory for laminated composite plates that accounts for imperfect bonding between layers with new solutions for problems involving thermal effects this theory is new and computationally efficient and the author describes how it fits in the broader context of composite plate theory abrate discusses the design of composite marine propellers and presents a detailed derivation of the equations of motion of a rotating blade including centrifugal effects and the effects of pre twisting and other geometric parameters this book is a major reference resource for academic and industrial researchers and designers working in aerospace automotives and the marine

engineering industry presents recent developments in a research field that has experienced tremendous advances because of improved computational capabilities new materials and new testing facilities includes contributions from leading researchers from europe and the usa who present the current state of the art including unique and original research provides extensive experimental results and numerical solutions appeals to a broad range of professional researchers working in aerospace automotive and marine engineering fields

the refined theory of beams which takes into account both rotary inertia and shear deformation was developed jointly by timoshenko and ehrenfest in the years 1911 1912 in over a century since the theory was first articulated tens of thousands of studies have been performed utilizing this theory in various contexts likewise the generalization of the timoshenko ehrenfest beam theory to plates was given by uflyand and mindlin in the years 1948 1951 the importance of these theories stems from the fact that beams and plates are indispensable and are often occurring elements of every civil mechanical ocean and aerospace structure despite a long history and many papers there is not a single book that summarizes these two celebrated theories this book is dedicated to closing the existing gap within the literature it also deals extensively with several controversial topics namely those of priority the so called second spectrum shear coefficient and other issues and shows vividly that the above beam and plate theories are unnecessarily overcomplicated in the spirit of einstein s dictum everything should be made as simple as possible but not simpler this book works to clarify both the timoshenko ehrenfest beam and uflyand mindlin plate theories and seeks to articulate everything in the simplest possible language including their numerous applications this book is addressed to graduate students practicing engineers researchers in their early career and active scientists who may want to have a different look at the above theories as well as readers at all levels of their academic or scientific career who want to know the history of the subject the timoshenko ehrenfest beam and uflyand mindlin plate theories are the key reference works in the study of stocky beams and thick plates that should be given their due and remain important for generations to come since classical bernoulli euler beam and kirchhoff love theories are applicable for slender beams and thin plates respectively related link s

this book describes crucial aspects related to the additive and subtractive manufacturing of different composites the first half of this book mainly deals with the various types of composite fabrication methods along with the introduction features and mechanisms and also the processing of composite materials via additive manufacturing route also the thermal mechanical physical and chemical properties relevant to the processing of composite materials are included in the chapters the second half of this book primarily demonstrates an extensive section on the different types of additive manufacturing processes like selective laser sintering selective laser melting stereolithography fused deposition modeling and material jetting used to fabricate the metals and polymers also the chapters address the complete description of fabrication processes for metal matrix composites and polymer matrix composites moreover the different methods adopted such as short peening micro machining heat treatment and solution treatment to improve the surface improvement are well discussed this book gives many helps to researchers and students in the fields of the additive and subtractive manufacturing of different composites

this book constitutes the refereed proceedings of the 9th international conference on applications and techniques in information security atis 2018 held in nanning china in november 2018 the 19 full papers were carefully reviewed and selected from 59 submissions the papers are organized in the following topical sections information security information abuse prevention security implementations knowledge discovery and applications

millets are popularly known as nutri cereals due to their high calcium dietary fiber polyphenol vitamins and protein content millet crops have the potential to aid in food security efforts in regions where natural and manmade causes are deteriorating land resources nutriomics of millet crops emphasizes the importance of nutriomics of millet crops in the context of universal health

highlighting biotechnological advancements offering enrichment of the nutritional value of millets millet crops have the potential to be a staple crop demonstrating an economically feasible approach to combat micronutrient malnutrition features presents comprehensive studies on health promoting nutritional components of millets provides enumeration on molecular breeding strategies for improvement of millet nutraceuticals discusses genomics assisted breeding for enhancement of nutritional quality in millets includes information related to sensory and biofortification of millet based foods by assessing the relevance of millets in sustainable global agro ecosystems due to their nutritional and agronomic attributes the united nations celebrated 2023 as the international year of millets this book complements this effort and is useful to researchers and policy planners working across the disciplines of plant breeding and food technology nutriomics of millet crops also encourages young researchers to explore this promising field

this volume on medicinal foods from the sea narrates the bioactive principles of various marine floral vertebrate and invertebrate faunal macro and micro algal and microbial sources contributions from eminent scientists worldwide explain about the latest advance implications in the development and application of marine originated functional foods as potential pharmaceuticals and medicines for the benefit of humankind by meeting the present nutraceutical demands the latest important information for food scientists and nutritionists peer reviewed articles by a panel of respected scientists the go to series since 1948

manufacturing techniques for materials engineering and engineered provides a cohesive and comprehensive overview of the following i prevailing and emerging trends ii emerging developments and related technology and iii potential for the commercialization of techniques specific to manufacturing of materials the first half of the book provides the interested reader with detailed chapters specific to the manufacturing of emerging materials such as additive manufacturing with a valued emphasis on the science technology and potentially viable practices specific to the manufacturing technique used this section also attempts to discuss in a lucid and easily understandable manner the specific advantages and limitations of each technique and goes on to highlight all of the potentially viable and emerging technological applications the second half of this archival volume focuses on a wide spectrum of conventional techniques currently available and being used in the manufacturing of both materials and resultant products manufacturing techniques for materials is an invaluable tool for a cross section of readers including engineers researchers technologists students at both the graduate level and undergraduate level and even entrepreneurs

spine surgery has come to the age into the new millennium this is an efficient technical guide designed easy to use concise and accurate how to reference for spine surgeons and residents in training who wish to attack a broad range of challenges in techniques of spine surgery the world s foremost spine surgeons from usa uk europe and asia describe their preferred techniques in step by step approach explaining the indications and contraindications identifying pitfalls and potential complications improvement in technology and innovation has given spine surgery a new vision as well as a practical proposition the book has been written in an atlas format and this one of a kind book offers a comprehensive coverage of all practical aspects of operative spine surgery covering the conventional as well as modern minimally invasive techniques to address various spine pathologies all masters in the field present a clear layout more than 400 high quality excellent illustrations and masterly tips and pearls to make a difficult spine surgery possible even for an average spine surgeon the detailed operative steps plus all the images make the book a handy companion for all involved in operative spine care

this book offers in depth reviews of different techniques and novel approaches of using blockchain and artificial intelligence in smart healthcare services the volume brings 14 reviews and research articles written by academicians researchers and industry professionals to give

readers a current perspective of smart healthcare solutions for medical and public health services the book starts with examples of how blockchain can be applied in healthcare services such as the care of osteoporosis patients and security several chapters review ai models for disease detection including breast cancer colon cancer and anemia the authors have included model design and parameters for the benefit of professionals who want to implement specific algorithms furthermore the book also includes chapters on iot frameworks for smart healthcare systems giving readers a primer on how to utilize the technology in this sector additional use cases for machine learning for gesture learning covid 19 management and sentiment analysis

an edited volume by monsoon assemblages a european research council funded research project the book presents the methods that monsoon assemblages has evolved for engaging the monsoon a globally connected weather system as a coproducer of urban life and space in south and southeast asian cities it challenges views of climate as an inert backdrop to urban life instead suggesting that it is materially and spatially active in shaping urban politics ecologies infrastructures buildings and bodies it combines critical texts with cartography photography and ethnography to present the project s methodology and its outcomes and invites urban practitioners to think differently about space time representation and human and non human agency it offers intra disciplinary intra active methods for rethinking human and non human relations with weather in ways that meet the challenges of climate change and the anthropocene

marvels of artificial and computational intelligence in life sciences is a primer for scholars and students who are interested in the applications of artificial intelligence ai and computational intelligence ci in life sciences and other industries the book consists of 16 chapters 9 of which focus on ai and 7 which showcase the benefits of ci approaches to solve specific problems chapters are edited by subject experts who describe the roles and applications of ai and ci in different parts of our lives in a concise and lucid manner the book covers the following key themes ai revolution in healthcare and drug discovery ai s impact on biology and energy management ai and ci in physical sciences and predictive modeling computational biology the editors have compiled a good blend of topics in applied science and engineering to give readers a clear understanding of the multidisciplinary nature of the two facets of computing each chapter includes references for advanced readers

this book constitutes the joint refereed proceedings of the 7th international workshop on approximation algorithms for combinatorial optimization problems approx 2004 and the 8th international workshop on randomization and computation random 2004 held in cambridge ma usa in august 2004 the 37 revised full papers presented were carefully reviewed and selected from 87 submissions among the issues addressed are design and analysis of approximation algorithms inapproximability results approximation classes online problems graph algorithms cuts geometric computations network design and routing packing and covering scheduling game theory design and analysis of randomised algorithms randomized complexity theory pseudorandomness derandomization probabilistic proof systems error correcting codes and other applications of approximation and randomness

based on intensive ethnographic work in romania and india conducted over six years this book traces the struggle for social justice in roma and adivasi communities throughout centuries of persecution and marginalization the roma and adivasi have been viewed as both victims and fighters as royals and paupers beasts and gods and lately have been challenging the political and social order by defying the status quo different from commonly held suppositions that assume most marginalized and mobile communities typically resist the state and engage in hostile acts to undermine its authority power on the move shows how these groups are willing to become full members by utilizing different means such as protests sit ins and grass roots organizing they aim to gain the attention of the state national and international hoping to reach inclusion and access social justice

minimally invasive techniques are now the preferred method for spine surgery because the incision is much smaller causing less damage to surrounding muscles pain is usually greatly reduced and recovery time is faster this book is a practical guide to minimally invasive diagnostic and surgical techniques for spine operations beginning with an overview of spinal anatomy and the basics of minimally invasive surgery the following chapters examine the management of numerous different spinal conditions a complete chapter is dedicated to patients with spinal cord injury and rehabilitation more than 200 clinical photographs diagrams and tables enhance the comprehensive text making it an invaluable resource for both trainees and practising spine surgeons key points comprehensive guide to minimally invasive spine surgery covers diagnosis and treatment of numerous spinal disorders complete chapter dedicated to spinal injury and rehabilitation includes more than 200 photographs and illustrations

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### The Curious Case of 102 Grams: Unveiling the Oz Enigma

Ever found yourself staring at a recipe, a package of imported goods, or even a scientific report, only to be confronted by a bewildering clash of units? Grams versus ounces – a seemingly simple conversion, yet one that can trip up even the most seasoned cooks and scientists. Today, we delve into the specific, yet surprisingly intricate, world of converting 102 grams to ounces. We'll unravel the mystery, explore the practical applications, and even tackle some advanced conversion queries. Get ready to become a unit conversion maestro!

# Understanding the Fundamentals: Grams and Ounces

Before we dive into the specifics of 102 grams, let's establish a foundational understanding. The gram (g) and the ounce (oz) are both units of mass, but they belong to different systems: the metric system (grams) and the imperial/US customary system (ounces). The key difference lies in their relative size. One ounce is significantly larger than one gram. This inherent difference is what makes the conversion process necessary. To bridge this gap, we need a conversion factor. This factor, approximately 28.35 grams per ounce, is the cornerstone of our calculations. Imagine trying to build a precise Lego castle without knowing the relative sizes of the bricks; this conversion factor is our instruction manual.

# The Conversion Calculation: 102g to oz

Armed with our conversion factor, let's tackle the main event: converting 102 grams to ounces. The formula is straightforward: Ounces = Grams / 28.35 grams/ounce Plugging in our value: Ounces =  $102g / 28.35 g/oz \square 3.6 oz$  Therefore, 102 grams is approximately equal to 3.6 ounces. This seems simple enough, but remember that this is an approximation. Depending on the level of precision required, you might need to carry the decimal places further. In many culinary applications, 3.6 ounces is perfectly sufficient; however, in scientific contexts or precise engineering applications, more decimal places might be essential.

# Real-World Applications: From Baking to Science

The conversion of 102 grams to ounces isn't just a theoretical exercise; it has a multitude of practical applications. Consider baking: a recipe might call for 102 grams of flour, but your measuring cups are calibrated in ounces. Knowing the conversion allows for accurate measurement and consistent results. In the scientific realm, precise mass measurements are crucial. A chemist might need to measure out 102 grams of a reagent, but the available weighing scale might display ounces. Accurate conversion ensures the experiment's reproducibility and reliability. Even in everyday life, understanding this conversion can be helpful when dealing with international packages or products with dual labeling.

# Beyond the Basics: Precision and Significant Figures

While 3.6 oz is a perfectly acceptable approximation for many purposes, the concept of significant figures adds another layer of complexity. The number of significant figures indicates the precision

of a measurement. Given that 102 grams has three significant figures, it's prudent to express the conversion to a similar level of precision. More sophisticated calculators or software can provide a more accurate answer, potentially offering more decimal places to reflect this precision. For example, a more precise calculation might yield 3.597 ounces, which retains a higher degree of accuracy. This is especially vital in fields like pharmaceuticals or aerospace where even small errors can have significant consequences.

### Advanced Considerations: Different Types of Ounces

The world of ounces is not entirely uniform. While we've primarily focused on the avoirdupois ounce (the most common type used in the US and UK), there are other types, such as the troy ounce (used for precious metals) and the fluid ounce (a unit of volume). Confusing these different types of ounces can lead to significant errors. It's crucial to be mindful of the context and ensure you're using the correct type of ounce for your specific conversion needs. This awareness adds another layer to the seemingly simple conversion process.

### Conclusion: Mastering the Art of Unit Conversion

Converting 102 grams to ounces, while seemingly trivial at first glance, unveils a fascinating world of measurement systems, precision, and practical applications. Understanding the underlying principles, using the correct conversion factor, and being mindful of significant figures are essential for accurate and reliable results. From baking a cake to conducting a scientific experiment, the ability to seamlessly convert between grams and ounces is a valuable skill that transcends disciplinary boundaries.

### **Expert-Level FAQs:**

1. What is the exact conversion factor for grams to ounces, and why is it not a whole number? The exact conversion factor is 28.3495231 grams per avoirdupois ounce. It's not a whole number because the metric and imperial systems were developed independently, using different base units and standards. 2. How does temperature affect the conversion between grams and ounces? Temperature affects the density of materials. For most everyday applications, this effect is negligible, but for highly precise measurements involving substances with significant thermal expansion, temperature needs to be accounted for. 3. Can I use online converters for 102g to oz conversions, and how reliable are they? Yes, numerous online converters are readily available. Their reliability depends on their programming accuracy. Always cross-check results from multiple sources for critical applications. 4. What are the implications of using an inaccurate conversion factor for pharmaceutical calculations? Inaccurate conversion in pharmaceutical calculations can lead to incorrect dosages, potentially causing harm to patients. Precision is paramount. 5. Beyond grams and ounces, what are some other common unit conversions encountered in scientific and engineering fields? Common conversions include those involving liters and gallons, kilograms and pounds, meters and feet, and Celsius and Fahrenheit. Mastering these is crucial for interdisciplinary work.

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