Free pdf Sobolev spaces their generalizations and elliptic problems in smooth and lipschitz domains springer monographs in mathematics [PDF]

Domain Science and Engineering Serre's Problem on Projective Modules Sobolev Spaces, Their Generalizations and Elliptic Problems in Smooth and Lipschitz Domains Domains in Ferroic Crystals and Thin Films Models, Modules and Abelian Groups Elliptic Equations in Polyhedral Domains Integral Domains Inside Noetherian Power Series Rings: Constructions and Examples Rings, Modules, and Closure Operations Harmonic Analysis of Mean Periodic Functions on Symmetric Spaces and the Heisenberg Group Index Analysis Impulsive Systems on Hybrid Time Domains System Modeling and Optimization Dirichlet-dirichlet Domain Decomposition Methods For Elliptic Problems: H And Hp Finite Element Discretizations Continuous Semigroups of Holomorphic Self-maps of the Unit Disc Human-Centric Decision-Making Models for Social Sciences Numerical Conformal Mapping Rings, Monoids and Module Theory Numerical Treatment of Partial Differential Equations Approximation Theory and Approximation Practice, Extended Edition Continuous Lattices and Domains Linear and Quasilinear Parabolic Systems: Sobolev Space Theory High Magnetic Fields

Center Manifolds for Semilinear Equations with Non-Dense Domain and Applications to Hopf Bifurcation in Age Structured Models Conformally Invariant Metrics and Quasiconformal Mappings Nonlinear Stability of Ekman Boundary Layers in Rotating Stratified Fluids An Introduction to the Mathematical Theory of the Navier-Stokes Equations Abstract Parabolic Evolution Equations and their Applications Rings and Things and a Fine Array of Twentieth Century Associative Algebra Elliptic Boundary Value Problems in Domains with Point Singularities Operator Semigroups Meet Complex Analysis, Harmonic Analysis and Mathematical Physics The Divisor Class Group of a Krull Domain Advances in Commutative Ring Theory Lectures on the Nearest Neighbor Method Arithmetic of Quadratic Forms Geometric Theory of Information Model-Driven Domain Analysis and Software Development: Architectures and Functions Principles of Abstract Interpretation The Story of Algebraic Numbers in the First Half of the 20th Century Constant Mean Curvature Surfaces with Boundary Multivariate Data Analysis on Matrix Manifolds

Domain Science and Engineering *2021-11-08*

in this book the author explains domain engineering and the underlying
science and he then shows how we can derive requirements prescriptions for
computing systems from domain descriptions a further motivation is to present
domain descriptions requirements prescriptions and software design
specifications as mathematical quantities the author s maxim is that before
software can be designed we must understand its requirements and before
requirements can be prescribed we must analyse and describe the domain for
which the software is intended he does this by focusing on what it takes to
analyse and describe domains by a domain we understand a rationally
describable discrete dynamics segment of human activity of natural and man
made artefacts examples include road rail and air transport container
terminal ports manufacturing trade healthcare and urban planning the book
addresses issues of seemingly large systems not small algorithms and it
emphasizes descriptions as formal mathematical quantities this is the first
thorough monograph treatment of the new software engineering phase of
software development one that precedes requirements engineering it emphasizes
a methodological approach by treating in depth analysis and description
principles techniques and tools it does this by basing its domain modeling on
fundamental philosophical principles a view that is new for a computer
science monograph the book will be of value to computer scientists engaged
with formal specifications of software the author reveals this as a field of
interesting problems most chapters include pointers to further study and
exercises drawn from practical engineering and science challenges the text is

supported by a primer to the formal specification language rsl and extensive indexes

Serre's Problem on Projective Modules *2006-05-05*

an invaluable summary of research work done in the period from 1978 to the present

Sobolev Spaces, Their Generalizations and Elliptic Problems in Smooth and Lipschitz Domains *2015-05-06*

this book which is based on several courses of lectures given by the author at the independent university of moscow is devoted to sobolev type spaces and boundary value problems for linear elliptic partial differential equations its main focus is on problems in non smooth lipschitz domains for strongly elliptic systems the author who is a prominent expert in the theory of linear partial differential equations spectral theory and pseudodifferential operators has included his own very recent findings in the present book the book is well suited as a modern graduate textbook utilizing a thorough and clear format that strikes a good balance between the choice of material and the style of exposition it can be used both as an introduction to recent advances in elliptic equations and boundary value problems and as a valuable survey and reference work it also includes a good deal of new and extremely useful material not available in standard textbooks to date graduate and post

graduate students as well as specialists working in the fields of partial differential equations functional analysis operator theory and mathematical physics will find this book particularly valuable

Domains in Ferroic Crystals and Thin Films 2011-03-02

at present the marketplace for professionals researchers and graduate students in solid state physics and materials science lacks a book that presents a comprehensive discussion of ferroelectrics and related materials in a form that is suitable for experimentalists and engineers this book proposes to present a wide coverage of domain related issues concerning these materials this coverage includes selected theoretical topics which are covered in the existing literature in addition to a plethora of experimental data which occupies over half of the book the book presents experimental findings and theoretical understanding of ferroic non magnetic domains developed during the past 60 years it addresses the situation by looking specifically at bulk crystals and thin films with a particular focus on recently developed microelectronic applications and methods for observations of domains with techniques such as scanning force microscopy polarized light microscopy scanning optical microscopy electron microscopy and surface decorating techniques domains in ferroic crystals and thin films covers a large area of material properties and effects connected with static and dynamic properties of domains which are extremely relevant to materials referred to as ferroics in other textbooks on solid state physics one large

group of ferroics is customarily covered those in which magnetic properties play a dominant role numerous books are specifically devoted to magnetic ferroics and cover a wide spectrum of magnetic domain phenomena in contrast domains in ferroic crystals and thin films concentrates on domain related phenomena in nonmagnetic ferroics these materials are still inadequately represented in solid state physics textbooks and monographs

Models, Modules and Abelian Groups 2008-12-10

this is a memorial volume dedicated to a l s corner previously professor in oxford who published important results on algebra especially on the connections of modules with endomorphism algebras the volume contains refereed contributions which are related to the work of corner it contains also an unpublished extended paper of corner himself a memorial volume with important contributions related to algebra

Elliptic Equations in Polyhedral Domains *2010-04-22*

this is the first monograph which systematically treats elliptic boundary value problems in domains of polyhedral type the authors mainly describe their own recent results focusing on the dirichlet problem for linear strongly elliptic systems of arbitrary order neumann and mixed boundary value problems for second order systems and on boundary value problems for the stationary stokes and navier stokes systems a feature of the book is the systematic use of green s matrices using estimates for the elements of these

matrices the authors obtain solvability and regularity theorems for the solutions in weighted and non weighted sobolev and holder spaces some classical problems of mathematical physics laplace and biharmonic equations lame system are considered as examples furthermore the book contains maximum modulus estimates for the solutions and their derivatives the exposition is self contained and an introductory chapter provides background material on the theory of elliptic boundary value problems in domains with smooth boundaries and in domains with conical points the book is destined for graduate students and researchers working in elliptic partial differential equations and applications

Integral Domains Inside Noetherian Power Series Rings: Constructions and Examples *2021-10-08*

power series provide a technique for constructing examples of commutative rings in this book the authors describe this technique and use it to analyse properties of commutative rings and their spectra this book presents results obtained using this approach the authors put these results in perspective often the proofs of properties of classical examples are simplified the book will serve as a helpful resource for researchers working in commutative algebra

Rings, Modules, and Closure Operations 2019-11-30

this book presents a systematic exposition of the various applications of closure operations in commutative and noncommutative algebra in addition to further advancing multiplicative ideal theory the book opens doors to the various uses of closure operations in the study of rings and modules with emphasis on commutative rings and ideals several examples counterexamples and exercises further enrich the discussion and lend additional flexibility to the way in which the book is used i e monograph or textbook for advanced topics courses

Harmonic Analysis of Mean Periodic Functions on Symmetric Spaces and the Heisenberg Group 2009-06-13

the theory of mean periodic functions is a subject which goes back to works of littlewood delsarte john and that has undergone a vigorous development in recent years there has been much progress in a number of problems concerning local pects of spectral analysis and spectral synthesis on homogeneous spaces the study oftheseproblemsturnsouttobecloselyrelatedtoavarietyofquestionsinharmonic analysis complex analysis partial differential equations integral geometry appr imation theory and other branches of contemporary mathematics the present book describes recent advances in this direction of research

symmetric spaces and the heisenberg group are an active eld of investigation at 2 the moment the simplest examples of symmetric spaces the classical 2 sphere s 2 and the hyperbolic plane h play familiar roles in many areas in mathematics the n heisenberg grouph is a principal model for nilpotent groups and results obtained n forh may suggest results that hold more generally for this important class of lie groups the purpose of this book is to develop harmonic analysis of mean periodic functions on the above spaces

Index Analysis *2015-01-06*

the featured review of the ams describes the author s earlier work in the field of approach spaces as a landmark in the history of general topology in this book the author has expanded this study further and taken it in a new and exciting direction the number of conceptually and technically different systems which characterize approach spaces is increased and moreover their uniform counterpart uniform gauge spaces is put into the picture an extensive study of completions both for approach spaces and for uniform gauge spaces as well as compactifications for approach spaces is performed a paradigm shift is created by the new concept of index analysis making use of the rich intrinsic quantitative information present in approach structures a technique is developed whereby indices are defined that measure the extent to which properties hold and theorems become inequalities involving indices therefore vastly extending the realm of applicability of many classical results the theory is then illustrated in such varied fields as topology functional analysis probability theory hyperspace theory and domain theory finally a

comprehensive analysis is made concerning the categorical aspects of the theory and its links with other topological categories index analysis will be useful for mathematicians working in category theory topology probability and statistics functional analysis and theoretical computer science

Impulsive Systems on Hybrid Time Domains *2019-02-07*

this monograph discusses the issues of stability and the control of impulsive systems on hybrid time domains with systems presented on discrete time domains continuous time domains and hybrid time domains time scales research on impulsive systems has recently attracted increased interest around the globe and significant progress has been made in the theory and application of these systems this book introduces recent developments in impulsive systems and fundamentals of various types of differential and difference equations it also covers studies in stability related to time delays and other various control applications on the different impulsive systems in addition to the analyses presented on dynamical systems that are with or without delays or impulses this book concludes with possible future directions pertaining to this research

System Modeling and Optimization *2017-04-10*

this book is a collection of thoroughly refereed papers presented at the 27th ifip tc 7 conference on system modeling and optimization held in sophia antipolis france in june july 2015 the 48 revised papers were carefully

reviewed and selected from numerous submissions they cover the latest progress in their respective areas and encompass broad aspects of system modeling and optimiza tion such as modeling and analysis of systems governed by partial differential equations pdes or ordinary differential equations odes control of pdes odes nonlinear optimization stochastic optimization multi objective optimization combinatorial optimization industrial applications and numericsof pdes

Dirichlet-dirichlet Domain Decomposition Methods For Elliptic Problems: H And Hp Finite Element Discretizations 2015-01-29

domain decomposition dd methods provide powerful tools for constructing parallel numerical solution algorithms for large scale systems of algebraic equations arising from the discretization of partial differential equations these methods are well established and belong to a fast developing area in this volume the reader will find a brief historical overview the basic results of the general theory of domain and space decomposition methods as well as the description and analysis of practical dd algorithms for parallel computing it is typical to find in this volume that most of the presented dd solvers belong to the family of fast algorithms where each component is efficient with respect to the arithmetical work readers will discover new analysis results for both the well known basic dd solvers and some dd methods recently devised by the authors e g for elliptic problems with varying

chaotically piecewise constant orthotropism without restrictions on the finite aspect ratios the hp finite element discretizations in particular by spectral elements of elliptic equations are given significant attention in current research and applications this volume is the first to feature all components of dirichlet dirichlet type dd solvers for hp discretizations devised as numerical procedures which result in dd solvers that are almost optimal with respect to the computational work the most important dd solvers are presented in the matrix vector form algorithms that are convenient for practical use

Continuous Semigroups of Holomorphic Self-maps of the Unit Disc *2020-02-14*

the book faces the interplay among dynamical properties of semigroups analytical properties of infinitesimal generators and geometrical properties of koenigs functions the book includes precise descriptions of the behavior of trajectories backward orbits petals and boundary behavior in general aiming to give a rather complete picture of all interesting phenomena that occur in order to fulfill this task we choose to introduce a new point of view which is mainly based on the intrinsic dynamical aspects of semigroups in relation with the hyperbolic distance and a deep use of carathéodory prime ends topology and gromov hyperbolicity theory this work is intended both as a reference source for researchers interested in the subject and as an introductory book for beginners with a undergraduate background in real and complex analysis for this purpose the book is self contained and all non

standard and mostly all standard results are proved in details

Human-Centric Decision-Making Models for Social Sciences 2013-11-01

the volume delivers a wealth of effective methods to deal with various types of uncertainty inherently existing in human centric decision problems it elaborates on comprehensive decision frameworks to handle different decision scenarios which help use effectively the explicit and tacit knowledge and intuition model perceptions and preferences in a more human oriented style the book presents original approaches and delivers new results on fundamentals and applications related to human centered decision making approaches to business economics and social systems individual chapters cover multi criteria multiattribute decision making decision making with prospect theory decision making with incomplete probabilistic information granular models of decision making and decision making realized with the use of non additive measures new emerging decision theories being presented as along with a wide spectrum of ongoing research make the book valuable to all interested in the field of advanced decision making the volume self contained in its nature offers a systematic exposure to the concepts design methodologies and detailed algorithms a prudent balance between the theoretical studies and applications makes the material suitable for researchers and graduate students in information computer sciences psychology cognitive science economics system engineering operation research and management science risk management public and social policy

Numerical Conformal Mapping 2022-03-11

this book contains select papers on rings monoids and module theory which are presented at the 3rd international conference on mathematics and statistics aus icms 2020 held at the american university of sharjah united arab emirates from 6 9 february 2020 this conference was held in honour of the work of the distinguished algebraist daniel d anderson many participants and colleagues from around the world felt it appropriate to acknowledge his broad and sweeping contributions to research in algebra by writing an edited volume in his honor the topics covered are inevitably a cross section of the vast expansion of modern algebra the book is divided into two sections surveys and recent research developments with each section hopefully offering symbiotic utility to the reader the book contains a balanced mix of survey papers which will enable expert and non expert alike to get a good overview of developments across a range of areas of algebra the book is expected to be of interest to both beginning graduate students and experienced researchers

Rings, Monoids and Module Theory *2007-10-04*

this book deals with discretization techniques for partial differential equations of elliptic parabolic and hyperbolic type it provides an introduction to the main principles of discretization and gives a presentation of the ideas and analysis of advanced numerical methods in the area the book is mainly dedicated to finite element methods but it also discusses difference methods and finite volume techniques coverage offers

analytical tools properties of discretization techniques and hints to algorithmic aspects it also guides readers to current developments in research

Numerical Treatment of Partial Differential Equations *2019-01-01*

this is a textbook on classical polynomial and rational approximation theory for the twenty first century aimed at advanced undergraduates and graduate students across all of applied mathematics it uses matlab to teach the field s most important ideas and results approximation theory and approximation practice extended edition differs fundamentally from other works on approximation theory in a number of ways its emphasis is on topics close to numerical algorithms concepts are illustrated with chebfun and each chapter is a publishable matlab m file available online the book centers on theorems and methods for analytic functions which appear so often in applications rather than on functions at the edge of discontinuity with their seductive theoretical challenges original sources are cited rather than textbooks and each item in the bibliography is accompanied by an editorial comment in addition each chapter has a collection of exercises which span a wide range from mathematical theory to chebfun based numerical experimentation this textbook is appropriate for advanced undergraduate or graduate students who have an understanding of numerical analysis and complex analysis it is also appropriate for seasoned mathematicians who use matlab

Approximation Theory and Approximation Practice, Extended Edition 2003-03-06

Continuous Lattices and Domains *2020-11-18*

this monograph presents a systematic theory of weak solutions in hilbert sobolev spaces of initial boundary value problems for parabolic systems of partial differential equations with general essential and natural boundary conditions and minimal hypotheses on coefficients applications to quasilinear systems are given including local existence for large data global existence near an attractor the leray and hopf theorems for the navier stokes equations and results concerning invariant regions supplementary material is provided including a self contained treatment of the calculus of sobolev functions on the boundaries of lipschitz domains and a thorough discussion of measurability considerations for elements of bochner sobolev spaces this book will be particularly useful both for researchers requiring accessible and broadly applicable formulations of standard results as well as for students preparing for research in applied analysis readers should be familiar with the basic facts of measure theory and functional analysis including weak derivatives and sobolev spaces prior work in partial differential equations is helpful but not required

Linear and Quasilinear Parabolic Systems: Sobolev Space Theory *2003*

this three volume book provides a comprehensive review of experiments in very strong magnetic fields that can only be generated with very special magnets the first volume is entirely devoted to the technology of laboratory magnets permanent superconducting high power water cooled and hybrid pulsed magnets both nondestructive and destructive megagauss fields volumes 2 and 3 contain reviews of the different areas of research where strong magnetic fields are an essential research tool these volumes deal primarily with solid state physics other research areas covered are biological systems chemistry atomic and molecular physics nuclear resonance plasma physics and astrophysics including qed

High Magnetic Fields *2009*

several types of differential equations such as delay differential equations age structure models in population dynamics evolution equations with boundary conditions can be written as semilinear cauchy problems with an operator which is not densely defined in its domain the goal of this paper is to develop a center manifold theory for semilinear cauchy problems with non dense domain using liapunov perron method and following the techniques of vanderbauwhede et al in treating infinite dimensional systems the authors study the existence and smoothness of center manifolds for semilinear cauchy

problems with non dense domain as an application they use the center manifold theorem to establish a hopf bifurcation theorem for age structured models

Center Manifolds for Semilinear Equations with Non-Dense Domain and Applications to Hopf Bifurcation in Age Structured Models *2020-04-11*

this book is an introduction to the theory of quasiconformal and quasiregular mappings in the euclidean n dimensional space where n is greater than 2 there are many ways to develop this theory as the literature shows the authors approach is based on the use of metrics in particular conformally invariant metrics which will have a key role throughout the whole book the intended readership consists of mathematicians from beginning graduate students to researchers the prerequisite requirements are modest only some familiarity with basic ideas of real and complex analysis is expected

Conformally Invariant Metrics and Quasiconformal Mappings *2014-03-05*

a stationary solution of the rotating navier stokes equations with a boundary condition is called an ekman boundary layer this book constructs stationary solutions of the rotating navier stokes boussinesq equations with stratification effects in the case when the rotating axis is not necessarily

perpendicular to the horizon the author calls such stationary solutions ekman layers this book shows the existence of a weak solution to an ekman perturbed system which satisfies the strong energy inequality moreover the author discusses the uniqueness of weak solutions and computes the decay rate of weak solutions with respect to time under some assumptions on the ekman layers and the physical parameters the author also shows that there exists a unique global in time strong solution of the perturbed system when the initial datum is sufficiently small comparing a weak solution satisfying the strong energy inequality with the strong solution implies that the weak solution is smooth with respect to time when time is sufficiently large

Nonlinear Stability of Ekman Boundary Layers in Rotating Stratified Fluids *2011-07-19*

the book provides a comprehensive detailed and self contained treatment of the fundamental mathematical properties of boundary value problems related to the navier stokes equations these properties include existence uniqueness and regularity of solutions in bounded as well as unbounded domains whenever the domain is unbounded the asymptotic behavior of solutions is also investigated this book is the new edition of the original two volume book under the same title published in 1994 in this new edition the two volumes have merged into one and two more chapters on steady generalized oseen flow in exterior domains and steady navier stokes flow in three dimensional exterior domains have been added most of the proofs given in the previous edition were also updated an introductory first chapter describes all relevant questions

treated in the book and lists and motivates a number of significant and still open questions it is written in an expository style so as to be accessible also to non specialists each chapter is preceded by a substantial preliminary discussion of the problems treated along with their motivation and the strategy used to solve them also each chapter ends with a section dedicated to alternative approaches and procedures as well as historical notes the book contains more than 400 stimulating exercises at different levels of difficulty that will help the junior researcher and the graduate student to gradually become accustomed with the subject finally the book is endowed with a vast bibliography that includes more than 500 items each item brings a reference to the section of the book where it is cited the book will be useful to researchers and graduate students in mathematics in particular mathematical fluid mechanics and differential equations review of first edition first volume the emphasis of this book is on an introduction to the mathematical theory of the stationary navier stokes equations it is written in the style of a textbook and is essentially self contained the problems are presented clearly and in an accessible manner every chapter begins with a good introductory discussion of the problems considered and ends with interesting notes on different approaches developed in the literature further stimulating exercises are proposed mathematical reviews 1995

An Introduction to the Mathematical Theory of the

Navier-Stokes Equations 2009-11-03

this monograph is intended to present the fundamentals of the theory of
abstract parabolic evolution equations and to show how to apply to various
nonlinear dif sion equations and systems arising in science the theory gives
us a uni ed and s tematic treatment for concrete nonlinear diffusion models
three main approaches are known to the abstract parabolic evolution equations
namely the semigroup methods the variational methods and the methods of using
operational equations in order to keep the volume of the monograph in
reasonable length we will focus on the semigroup methods for other two
approaches see the related references in bibliography the semigroup methods
which go back to the invention of the analytic se groups in the middle of the
last century are characterized by precise formulas representing the solutions
of the cauchy problem for evolution equations the ta analytic semigroup e
generated by a linear operator a provides directly a fundamental solution to
the cauchy problem for an autonomous linear e du lution equation au f t 0

Abstract Parabolic Evolution Equations and their Applications 2004

this book surveys more than 125 years of aspects of associative algebras
especially ring and module theory it is the first to probe so extensively
such a wealth of historical development moreover the author brings the reader
up to date in particular through his report on the subject in the second half

of the twentieth century included in the book are certain categorical properties from theorems of frobenius and stickelberger on the primary decomposition of finite abeliangroups hilbert s basis theorem and his nullstellensatz including the modern formulations of the latter by krull goldman and others maschke s theorem on the representation theory of finite groups over a field and the fundamental theorems of wedderburn on the structure of finite dimensional algebrasand finite skew fields and their extensions by braver kaplansky chevalley goldie and others a special feature of the book is the in depth study of rings with chain condition on annihilator ideals pioneered by noether artin and jacobson and refined and extended by many later mathematicians two of the author s prior works algebra rings modules and categories i and ii springer verlag 1973 are devoted to the development of modern associative algebra and ring and module theory thoseworks serve as a foundation for the present survey which includes a bibliography of over 1 600 references and is exhaustively indexed in addition to the mathematical survey the author gives candid and descriptive impressions of the last half of the twentieth century in part ii snapshots ofsome mathematical friends and places beginning with his teachers and fellow graduate students at the university of kentucky and at purdue faith discusses his fulbright nato postdoctoral at heidelberg and at the institute for advanced study ias at princeton his year as a visiting scholar at berkeley and the many acquaintances he met there and in subsequent travels in india europe and most recently barcelona comments on the first edition researchers in algebra should find it bothenjoyable to read and very useful in their work in all cases faith cites full references as to the origin and development of the theorem i know of no other work in print which does this as thoroughly

and as broadly john o neill university of detroit at mercy part ii snapshots ofsome mathematical friends and places is wonderful it is a joy to read mathematicians of my age and younger will relish reading snapshots james a huckaba university of missouri columbia

Rings and Things and a Fine Array of Twentieth Century Associative Algebra *1997*

for graduate students and research mathematicians interested in partial differential equations and who have a basic knowledge of functional analysis restricted to boundary value problems formed by differential operators avoiding the use of pseudo differential operators concentrates on fundamental results such as estimates for solutions in different function spaces the fredholm property of the problem s operator regularity assertions and asymptotic formulas for the solutions of near singular points considers the solutions in sobolev spaces of both positive and negative orders annotation copyrighted by book news inc portland or

Elliptic Boundary Value Problems in Domains with Point Singularities *2015-12-10*

this proceedings volume originates from a conference held in herrnhut in june 2013 it provides unique insights into the power of abstract methods and techniques in dealing successfully with numerous applications stemming from

classical analysis and mathematical physics the book features diverse topics in the area of operator semigroups including partial differential equations martingale and hilbert transforms banach and von neumann algebras schrödinger operators maximal regularity and fourier multipliers interpolation operator theoretical problems concerning generation perturbation and dilation for example and various qualitative and quantitative tauberian theorems with a focus on transfinite induction and magics of cantor the last fifteen years have seen the dawn of a new era for semigroup theory with the emphasis on applications of abstract results often unexpected and far removed from traditional ones the aim of the conference was to bring together prominent experts in the field of modern semigroup theory harmonic analysis complex analysis and mathematical physics and to present the lively interactions between all of those areas and beyond in addition the meeting honored the sixtieth anniversary of prof c j k batty whose scientific achievements are an impressive illustration of the conference goal these proceedings present contributions by prominent scientists at this international conference which became a landmark event they will be a valuable and inspiring source of information for graduate students and established researchers

Operator Semigroups Meet Complex Analysis, Harmonic Analysis and Mathematical Physics 1973-05-10

there are two main purposes for the wntmg of this monograph on factorial rings and the associated theory of the divisor class group of a krull domain one is to collect the material which has been published on the subject since

samuel s treatises from the early 1960 s another is to present some of claborn s work on dedekind domains since i am not an historian i tread on thin ice when discussing these matters but some historical comments are warranted in introducing this material krull s work on finite discrete principal orders originating in the early 1930 s has had a great influence on ring theory in the suc ceeding decades mori nagata and others worked on the problems krull suggested but it seems to me that the theory becomes most useful after the notion of the divisor class group has been made func torial and then related to other functorial concepts for example the picard group thus in treating the group of divisors and the divisor class group i have tried to explain and exploit the functorial properties of these groups perhaps the most striking example of the exploitation of this notion is seen in the works of i danilov which appeared in 1968 and 1970

The Divisor Class Group of a Krull Domain 1999-03-04

presents the proceedings of the recently held third international conference on commutative ring theory in fez morocco details the latest developments in commutative algebra and related areas featuring 26 original research articles and six survey articles on fundamental topics of current interest examines wide ranging developments in commutative algebra together with connections to algebraic number theory and algebraic geometry

Advances in Commutative Ring Theory *2015-12-08*

this text presents a wide ranging and rigorous overview of nearest neighbor methods one of the most important paradigms in machine learning now in one self contained volume this book systematically covers key statistical probabilistic combinatorial and geometric ideas for understanding analyzing and developing nearest neighbor methods gérard biau is a professor at université pierre et marie curie paris luc devroye is a professor at the school of computer science at mcgill university montreal

Lectures on the Nearest Neighbor Method *2010-08-09*

this book is divided into two parts the first part is preliminary and consists of algebraic number theory and the theory of semisimple algebras there are two principal topics classification of quadratic forms and quadratic diophantine equations the second topic is a new framework which contains the investigation of gauss on the sums of three squares as a special case to make the book concise the author proves some basic theorems in number theory only in some special cases however the book is self contained when the base field is the rational number field and the main theorems are stated with an arbitrary number field as the base field so the reader familiar with class field theory will be able to learn the arithmetic theory of quadratic forms with no further references

Arithmetic of Quadratic Forms *2014-05-08*

this book brings together geometric tools and their applications for information analysis it collects current and many uses of in the interdisciplinary fields of information geometry manifolds in advanced signal image video processing complex data modeling and analysis information ranking and retrieval coding cognitive systems optimal control statistics on manifolds machine learning speech sound recognition and natural language treatment which are also substantially relevant for the industry

Geometric Theory of Information *2010-10-31*

this book displays how to effectively map and respond to the real world challenges and purposes which software must solve covering domains such as mechatronic embedded and high risk systems where failure could cost human lives provided by publisher

Model-Driven Domain Analysis and Software Development: Architectures and Functions 2021-09-21

introduction to abstract interpretation with examples of applications to the semantics specification verification and static analysis of computer programs formal methods are mathematically rigorous techniques for the specification development manipulation and verification of safe robust and secure software

and hardware systems abstract interpretation is a unifying theory of formal methods that proposes a general methodology for proving the correctness of computing systems based on their semantics the concepts of abstract interpretation underlie such software tools as compilers type systems and security protocol analyzers this book provides an introduction to the theory and practice of abstract interpretation offering examples of applications to semantics specification verification and static analysis of programming languages with emphasis on calculational design the book covers all necessary computer science and mathematical concepts including most of the logic order linear fixpoint and discrete mathematics frequently used in computer science in separate chapters before they are used in the text each chapter offers exercises and selected solutions chapter topics include syntax parsing trace semantics properties and their abstraction fixpoints and their abstractions reachability semantics abstract domain and abstract interpreter specification and verification effective fixpoint approximation relational static analysis and symbolic static analysis the main applications covered include program semantics program specification and verification program dynamic and static analysis of numerical properties and of such symbolic properties as dataflow analysis software model checking pointer analysis dependency and typing both for forward and backward analysis and their combinations principles of abstract interpretation is suitable for classroom use at the graduate level and as a reference for researchers and practitioners

Principles of Abstract Interpretation *2019-01-18*

the book is aimed at people working in number theory or at least interested
in this part of mathematics it presents the development of the theory of
algebraic numbers up to the year 1950 and contains a rather complete
bibliography of that period the reader will get information about results
obtained before 1950 it is hoped that this may be helpful in preventing
rediscoveries of old results and might also inspire the reader to look at the
work done earlier which may hide some ideas which could be applied in
contemporary research

The Story of Algebraic Numbers in the First Half of the 20th Century *2013-08-31*

the study of surfaces with constant mean curvature cmc is one of the main
topics in classical differential geometry moreover cmc surfaces are important
mathematical models for the physics of interfaces in the absence of gravity
where they separate two different media or for capillary phenomena further as
most techniques used in the theory of cmc surfaces not only involve geometric
methods but also pde and complex analysis the theory is also of great
interest for many other mathematical fields while minimal surfaces and cmc
surfaces in general have already been treated in the literature the present
work is the first to present a comprehensive study of compact surfaces with
boundaries narrowing its focus to a geometric view basic issues include the

discussion whether the symmetries of the curve inherit to the surface the possible values of the mean curvature area and volume stability the circular boundary case and the existence of the plateau problem in the non parametric case the exposition provides an outlook on recent research but also a set of techniques that allows the results to be expanded to other ambient spaces throughout the text numerous illustrations clarify the results and their proofs the book is intended for graduate students and researchers in the field of differential geometry and especially theory of surfaces including geometric analysis and geometric pdes it guides readers up to the state of the art of the theory and introduces them to interesting open problems

Constant Mean Curvature Surfaces with Boundary
2021-09-15

this graduate level textbook aims to give a unified presentation and solution of several commonly used techniques for multivariate data analysis mda unlike similar texts it treats the mda problems as optimization problems on matrix manifolds defined by the mda model parameters allowing them to be solved using free optimization software manopt the book includes numerous in text examples as well as manopt codes and software guides which can be applied directly or used as templates for solving similar and new problems the first two chapters provide an overview and essential background for studying mda giving basic information and notations next it considers several sets of matrices routinely used in mda as parameter spaces along with their basic topological properties a brief introduction to matrix riemannian manifolds

and optimization methods on them with manopt complete the mda prerequisite the remaining chapters study individual mda techniques in depth the number of exercises complement the main text with additional information and occasionally involve open and or challenging research questions suitable fields include computational statistics data analysis data mining and data science as well as theoretical computer science machine learning and optimization it is assumed that the readers have some familiarity with mda and some experience with matrix analysis computing and optimization

Multivariate Data Analysis on Matrix Manifolds

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