

<<几何分析手册（第2卷）>>

图书基本信息

书名：<<几何分析手册（第2卷）>>

13位ISBN编号：9787040288834

10位ISBN编号：7040288834

出版时间：2010-4

出版时间：高等教育出版社

作者：季理真 编

页数：431

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

前言

The marriage of geometry and analysis, in particular non-linear differential equations, has been very fruitful. An early deep application of geometric analysis is the celebrated solution by Shing-Tung Yau of the Calabi conjecture in 1976. In fact, Yau together with many of his collaborators developed important techniques in geometric analysis in order to solve the Calabi conjecture. Besides solving many open problems in algebraic geometry such as the Severi conjecture, the characterization of complex projective varieties, and characterization of certain Shimura varieties, the Calabi-Yau manifolds also provide the basic building blocks in the superstring theory model of the universe. Geometric analysis has also been crucial in solving many outstanding problems in low dimensional topology, for example, the Smith conjecture, and the positive mass conjecture in general relativity. Geometric analysis has been intensively studied and highly developed since 1970s, and it is becoming an indispensable tool for understanding many parts of mathematics. Its success also brings with it the difficulty for the uninitiated to appreciate its breadth and depth. In order to introduce both beginners and non-experts to this fascinating subject, we have decided to edit this handbook of geometric analysis. Each article is written by a leading expert in the field and will serve as both an introduction to and a survey of the topics under discussion. The handbook of geometric analysis is divided into several parts, and this volume is the second part. Shing-Tung Yau has been crucial to many stages of the development of geometric analysis. Indeed, his work has played an important role in bringing the well-deserved global recognition by the whole mathematical sciences community to the field of geometric analysis. In view of this, we would like to dedicate this handbook of geometric analysis to Shing-Tung Yau on the occasion of his sixtieth birthday. Summarizing the main mathematical contributions of Yau will take many pages and is probably beyond the capability of the editors. Instead, we quote several award citations on the work of Yau. The citation of the Veblen Prize for Yau in 1981 says: "We have rarely had the opportunity to witness the spectacle of the work of one mathematician affecting, in a short span of years, the direction of whole areas of research. Few mathematicians can match Yau's achievements in depth, in impact, and in the diversity of methods and applications."

<<几何分析手册 (第2卷)>>

内容概要

Geometric Analysis combines differential equations and differential geometry. An important aspect is to solve geometric problems by studying differential equations. Besides some known linear differential operators such as the Laplace operator, many differential equations arising from differential geometry are nonlinear. A particularly important example is the Vlonge-Ampere equation; Applications to geometric problems have also motivated new methods and techniques in differential equations. The field of geometric analysis is broad and has had many striking applications. This handbook of geometric analysis provides introductions to and surveys of important topics in geometric analysis and their applications to related fields which is intend to be referred by graduate students and researchers in related areas.

书籍目录

Heat Kernels on Metric Measure Spaces with Regular Volume Growth Alexander Griqoryan1 Introduction1.1 Heat kernel in R^n 1.2 Heat kernels on Riemannian manifolds1.3 Heat kernels of fractional powers of Laplacian1.4 Heat kernels on fractal spaces1.5 Summary of examples2 Abstract heat kernels2.1 Basic definitions2.2 The Dirichlet form2.3 Identifying in the non-local case2.4 Volume of balls3 Besov spaces3.1 Besov spaces in R^n 3.2 Besov spaces in a metric measure space3.3 Embedding of Besov spaces into HSlder spaces.4 The energy domain4.1 A local case4.2 Non-local case4.3 Subordinated heat kernel4.4 Bessel potential spaces5 The walk dimension5.1 Intrinsic characterization of the walk dimension5.2 Inequalities for the walk dimension6 Two-sided estimates in the local case6.1 The Dirichlet form in subsets6.2 Maximum principles6.3 A tail estimate6.4 Identifying in the local caseReferencesA Convexity Theorem and Reduced Delzant Spaces Bong H. Lian , Bailin Song1 Introduction2 Convexity of image of moment map3 Rationality of moment polytope4 Realizing reduced Delzant spaces5 Classification of reduced Delzant spacesReferencesLocalization and some Recent ApplicationsBong H. Lian , Kefeng Liu1 Introduction2 Localization3 Mirror principle4 Hori-Vafa formula5 The Marino-Vafa Conjecture6 Two partition formula7 Theory of topological vertex8 Gopakumar-Vafa conjecture and indices of elliptic operators..9 Two proofs of the ELSV formula10 A localization proof of the Witten conjecture11 Final remarksReferencesGromov-Witten Invariants of Toric Calabi-Yau Threefolds Chiu-Chu Melissa Liu1 Gromov-Witten invariants of Calabi-Yau 3-folds1.1 Symplectic and algebraic Gromov-Witten invariants1.2 Moduli space of stable maps1.3 Gromov-Witten invariants of compact Calabi-Yau 3-folds1.4 Gromov-Witten invariants of noncompact Calabi-Yau 3-folds2 Traditional algorithm in the toric case2.1 Localization2.2 Hodge integrals3 Physical theory of the topological vertex4 Mathematical theory of the topological vertex4.1 Locally planar trivalent graph4.2 Formal toric Calabi-Yau (FTCY) graphs4.3 Degeneration formula4.4 Topological vertex "4.5 Localization4.6 Framing dependence4.7 Combinatorial expression4.8 Applications4.9 Comparison5 GW/DT correspondences and the topological vertexAcknowledgmentsReferencesSurvey on Affine SpheresJohn Loftin1 Introduction2 Affine structure equations3 Examples4 Two-dimensional affine spheres and Titeicas equation5 Monge-Ampre equations and duality6 Global classification of affine spheres7 Hyperbolic affine spheres and invariants of convex cones8 Projective manifolds9 Affine manifolds10 Affine maximal hypersurfaces11 Affine normal flowReferencesConvergence and Collapsing Theorems in Riemannian GeometryXiaochun RongIntroduction1 Gromov-Hausdorff distance in space of metric spaces1.1 The Gromov-Hausdorff distance1.2 Examples1.3 An alternative formulation of GH-distance1.4 Compact subsets of (Met, d_{GH}) 1.5 Equivariant GH-convergence1.6 Pointed GH-convergence2 Smooth limits-fibrations2.1 The fibration theorem2.2 Sectional curvature comparison2.3 Embedding via distance functions2.4 Fibrations2.5 Proof of theorem 2.1.12.6 Center of mass2.7 Equivariant fibrations2.8 Applications of the fibration theorem3 Convergence theorems3.1 Cheeger-Gromovs convergence theorem3.2 Injectivity radius estimate3.3 Some elliptic estimates3.4 Harmonic radius estimate3.5 Smoothing metrics4 Singular limits-singular fibrations4.1 Singular fibrations4.2 Controlled homotopy structure by geometry4.3 The 2 -finiteness theorem4.4 Collapsed manifolds with pinched positive sectional curvature5 Almost flat manifolds5.1 Gromovs theorem on almost flat manifolds5.2 The Margulis lemma5.3 Flat connections with small torsion5.4 Flat connection with a parallel torsion5.5 Proofs——part I5.6 Proofs——part II5.7 Refined fibration theoremReferencesGeometric Transformations and Soliton EquationsChuu-Lian Terng "1 Introduction2 The moving frame method for submanifolds3 Line congruences and Backlund transforms4 Sphere congruences and Ribaucour transforms5 Combescure transforms , O -surfaces , and k -tuples6 From moving frame to Lax pair7 Soliton hierarchies constructed from symmetric spaces8 The U -system and the Gauss-Codazzi equations9 Loop group actions10 Action of simple elements and geometric transformsReferencesAffine Integral Geometry from a Differentiable ViewpointDeane Yang1 Introduction2 Basic definitions and notation2.1 Linear group actions3 Objects of study3.1 Geometric setting3.2 Convex body3.3 The space of all convex bodies3.4 Valuations4 Overall strategy5 Fundamental constructions5.1 The support function5.3 The polar body5.4 The inverse Gauss map5.5 The second fundamental form5.6 The Legendre transform5.7 The

<<几何分析手册 (第2卷)>>

curvature function The homogeneous contour integral6.1 Homogeneous functions and differential forms6.2 The homogeneous contour integral for a differential form6.3 The homogeneous contour integral for a measure6.4 Homogeneous integral calculus7 An explicit construction of valuations7.1 Duality7.2 Volume8 Classification of valuations9 Scalar valuations9.1 $SL(n)$ -invariant valuations9.2 Hugs theorem10 Continuous $GL(n)$ -homogeneous valuations10.1 Scalar valuations10.2 Vector-valued valuations11 Matrix-valued valuations.11.1 The Cramer-Rao inequality12 Homogeneous function- and convex body-valued valuations.13 QuestionsReferencesClassification of Fake Projective PlanesSai-Kee Yeung1 Introduction2 Uniformization of fake projective planes3 Geometric estimates on the number of fake projective planes.4 Arithmeticity of lattices associated to fake projective planes.5 Covolume formula of Prasad6 Formulation of proof7 Statements of the results8 Further studiesReferences

编辑推荐

The launch of this Advanced Lectures in Mathematics series is aimed at keeping mathematicians informed of the latest developments in mathematics , as well as to aid in the learning of new mathematical topics by students all over the world. Each volume consists of either an expository monograph or a collection of significant introductions to important topics. This series emphasizes the history and sources of motivation for the topics under discussion , and also gives an over view of the current status of research in each particular field. These volumes are the first source to which people will turn in order to learn new subjects and to discover the latest results of many cutting-edge fields in mathematics. Geometric Analysis combines differential equations and differential geometry. An important aspect is to solve geometric problems by studying differential equations. Besides some known linear differential operators such as the laplace operator , many differential equations arising from differential geometry are nonlinear. A particularly important example is the Monge-Ampre equation. Applications to geometric problems have also motivated new methods and techniques in differential equations. The field of geometric analysis is broad and has had many striking applications. This handbook of geometric analysis provides introductions to and surveys of important topics in geometric analysis and their applications to related fields which is intend to be referred by graduate students and researchers in related areas.

<<几何分析手册 (第2卷)>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介, 请支持正版图书。

更多资源请访问:<http://www.tushu007.com>