Editorial

Differential Geometry and Its Application

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1. Introduction

We have launched a Special Issue of *Axioms* which focuses on the generalization of Riemannian spaces and their mappings. This Special Issue provides a platform to showcase the latest achievements in many branches of theoretical and practical studies of mathematics, which relate to the theory of Riemannian and generalized Riemannian spaces and their mappings. The scope of this Special Issue includes Riemannian Spaces and generalizations, Kenmotsu manifolds, Kaehler manifolds, manifolds with non-symmetric linear connection, cosymplectic manifolds, contact manifolds, statistical manifolds, Minkowski spaces, geodesic mappings, almost geodesic mappings, holomorphically projective mappings, warped product of manifolds, complex space forms, quaternionic space forms, golden manifolds, inequalities, invariants, immersions, etc. Potential authors are encouraged to submit papers that present new ideas in the field of differential geometry in addition to the above topics. Given the broad scope and widespread interest in this topic, more works should be published in this area. It is expected that a follow-up Special Issue, "Differential Geometry and Its Application II", will be published in due course.

2. Overview of the Published Papers

This Special Issue contains 16 papers which were accepted for publication after a rigorous reviewing process.

In their study (Contribution 1), Cornelia-Livia Bejan, Galia Nakova and Adara M. Blaga use a Kähler B-manifold (i.e., a Kähler manifold with a Norden metric) to obtain some corresponding results from the Kählerian and para-Kählerian context concerning the Bochner curvature. They prove that such a manifold is of constant totally real sectional curvatures if and only if it is a holomorphic Einstein, Bochner flat manifold. Moreover, they provide the necessary and sufficient conditions for a gradient Ricci soliton or a holomorphic η-Einstein Kähler manifold with a Norden metric to be Bochner flat. Finally, they show that a Kähler B-manifold is of quasi–constant totally real sectional curvatures if and only if it is a holomorphic η-Einstein, Bochner flat manifold.

In another study (Contribution 2), Jamal Oudetallah, Rehab Alharbi and Iqbal M. Batiha define the so-called pairwise r-compactness in topological and bitopological spaces. In particular, several inferred properties of the r-compact spaces and their connections with other topological and bitopological spaces are studied theoretically. As a result, several novel theorems of the r-compact space are generalized in the pairwise r-compact space. The results established in this research paper are new in the field of topology.

The authors of Contribution 3, Halil İbrahim Yoldaş, Abdul Haseeb and Fatemah Mofarreh, investigate a Kenmotsu manifold satisfying certain curvature conditions endowed with $\star$ — η-Ricci solitons. First, they find some necessary conditions for such a manifold to be ϕ-Einstein. Then, they study the notion of $\star$ — η-Ricci soliton on this manifold and prove some significant results related to this notion. Finally, they construct a nontrivial example of three-dimensional Kenmotsu manifolds to verify some of their results.

The authors of Contribution 4, Jae Min Lee and Byungdo Park, construct a model of differential K-theory using superbundles with a $\mathbb{Z}/2\mathbb{Z}$-graded connection and a differential

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Differential Geometry And Its Application With Mathematica:

   Modern Differential Geometry of Curves and Surfaces with Mathematica Elsa Abbena,Simon Salamon,Alfred Gray,2017-09-06 Presenting theory while using Mathematica in a complementary way Modern Differential Geometry of Curves and Surfaces with Mathematica the third edition of Alfred Gray s famous textbook covers how to define and compute standard geometric functions using Mathematica for constructing new curves and surfaces from existing ones Since Gray s death authors Abbena and Salamon have stepped in to bring the book up to date While maintaining Gray s intuitive approach they reorganized the material to provide a clearer division between the text and the Mathematica code and added a Mathematica notebook as an appendix to each chapter They also address important new topics such as quaternions The approach of this book is at times more computational than is usual for a book on the subject For example Brioshi s formula for the Gaussian curvature in terms of the first fundamental form can be too complicated for use in hand calculations but Mathematica handles it easily either through computations or through graphing curvature Another part of Mathematica that can be used effectively in differential geometry is its special function library where nonstandard spaces of constant curvature can be defined in terms of elliptic functions and then plotted Using the techniques described in this book readers will understand concepts geometrically plotting curves and surfaces on a monitor and then printing them Containing more than 300 illustrations the book demonstrates how to use Mathematica to plot many interesting curves and surfaces Including as many topics of the classical differential geometry and surfaces as possible it highlights important theorems with many examples It includes 300 miniprograms for computing and plotting various geometric objects alleviating the drudgery of computing things such as the curvature and torsion of a curve in space **Modern Differential Geometry of Curves and Surfaces with MATHEMATICA** Alfred Gray,1998-02-01 This book not only explains and develops the classical theory of curves but also allows the reader to reproduce and study curves and surfaces using computer methods This second edition contains eight new chapters on global curve theory space curves minimal surfaces inversions cyclides the Gauss Bonnet Theorem and global surface theory **Differential Geometry and Its Applications** John Oprea,1997 Appropriate for undergraduate courses in Differential Geometry Designed not just for the math major but for all students of science this text provides an introduction to the basics of the calculus of variations and optimal control theory as well as differential geometry It then applies these essential ideas to understand various phenomena such as soap film formation and particle motion on surfaces *Differential Geometry and Its Applications* János Szenthe,L. Tamássy,1992 Modern Differential Geometry of Curves and Surfaces with Mathematica, Second Edition mary Gray,1997-12-29 The Second Edition combines a traditional approach with the symbolic manipulation abilities of Mathematica to explain and develop the classical theory of curves and surfaces You will learn to reproduce and study interesting curves and surfaces many more than are included in typical texts using computer methods By plotting geometric objects and studying the printed result teachers and students can understand

concepts geometrically and see the effect of changes in parameters Modern Differential Geometry of Curves and Surfaces with Mathematica explains how to define and compute standard geometric functions for example the curvature of curves and presents a dialect of Mathematica for constructing new curves and surfaces from old The book also explores how to apply techniques from analysis Although the book makes extensive use of Mathematica readers without access to that program can perform the calculations in the text by hand While single and multi variable calculus some linear algebra and a few concepts of point set topology are needed to understand the theory no computer or Mathematica skills are required to understand the concepts presented in the text In fact it serves as an excellent introduction to Mathematica and includes fully documented programs written for use with Mathematica Ideal for both classroom use and self study Modern Differential Geometry of Curves and Surfaces with Mathematica has been tested extensively in the classroom and used in professional short courses throughout the world   **Computational Science and Its Applications – ICCSA 2020** Osvaldo Gervasi,Beniamino Murgante,Sanjay Misra,Chiara Garau,Ivan Blečić,David Taniar,Bernady O. Apduhan,Ana Maria A. C. Rocha,Eufemia Tarantino,Carmelo Maria Torre,Yeliz Karaca,2020-09-28 The seven volumes LNCS 12249 12255 constitute the refereed proceedings of the 20th International Conference on Computational Science and Its Applications ICCSA 2020 held in Cagliari Italy in July 2020 Due to COVID 19 pandemic the conference was organized in an online event Computational Science is the main pillar of most of the present research industrial and commercial applications and plays a unique role in exploiting ICT innovative technologies The 466 full papers and 32 short papers presented were carefully reviewed and selected from 1450 submissions Apart from the general track ICCSA 2020 also include 52 workshops in various areas of computational sciences ranging from computational science technologies to specific areas of computational sciences such as software engineering security machine learning and artificial intelligence blockchain technologies and of applications in many fields

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Workshop on Computational Optimization and Applications COA 2021 International Workshop on Cities Technologies and Planning CTP 2021 International Workshop on Computational Astrochemistry CompAstro 2021 International Workshop on Advanced Modeling E Mobility in Urban Spaces DEMOS 2021 The chapters On Local Convergence of Stochastic Global Optimization Algorithms and Computing Binding Energies of Interstellar Molecules by Semiempirical Quantum Methods Comparison between DFT and GFN2 on Crystalline Ice are published open access under a CC BY license Creative Commons Attribution 4 0 International License   **Modern Differential Geometry of Curves and Surfaces with Mathematica, Fourth Edition** Elsa Abbena,Alfred Gray,Simon Salamon,2016 Reflecting the latest version of Mathematica this text provides an introduction to differential geometry by covering curves and surfaces in detail Popular with students and professionals in mathematics physics and computer science the book shows readers how to reproduce a large number of illustrations using Mathematica This edition covers the latest mathematical research and moves the Mathematica notebooks to the authors website making the book even easier to use   **Computational Science and Its Applications - ICCSA 2005** Osvaldo Gervasi,2005-04-27 The four volume set LNCS 3480 3483 constitutes the refereed proceedings of the International Conference on Computational Science and Its Applications ICCSA 2005 held in Singapore in May 2005 The four volumes present a total of 540 papers selected from around 2700 submissions The papers span the whole range of computational science comprising advanced applications in virtually all sciences making use of computational techniques as well as foundations techniques and methodologies from computer science and mathematics such as high performance computing and communication networking optimization information systems and technologies scientific visualization graphics image processing data analysis simulation and modelling software systems algorithms security multimedia etc   Computational Science and Its Applications – ICCSA 2024 Workshops Osvaldo Gervasi,Beniamino Murgante,Chiara Garau,David Taniar,Ana Maria A. C. Rocha,Maria Noelia Faginas Lago,2024-07-29 This eleven volume set LNCS 14815 14825 constitutes the refereed workshop proceedings of the 24th International Conference on Computational Science and Its Applications ICCSA 2024 held at Hanoi Vietnam during July 1 4 2024 The 281 full papers 17 short papers and 2 PHD showcase papers included in this volume were carefully reviewed and selected from a total of 450 submissions In addition the conference consisted of 55 workshops focusing on very topical issues of importance to science technology and society from new mathematical approaches for solving complex computational systems to information and knowledge in the Internet of Things new statistical and optimization methods several Artificial Intelligence approaches sustainability issues smart cities and related technologies   Analysis with Mathematica® Galina Filipuk,Andrzej Kozłowski,2022 This book is devoted to applications differential equations elements of special functions and differential geometry of curves and surfaces with a specific focus on visualization in Mathematica Discusses how Mathematica can be used as an aid in solving mathematical problems and discovering a solution A complete tutorial provides the background needed for understanding the examples

and how to compute in Mathematica This book focusses on applications of Mathematica in differential geometry and differential equations Students learn how to solve mathematical problems with a computer algebra system Contains a vast collection of worked out examples   Bibliotheca Chemico-mathematica Henry Sotheran Ltd,Heinrich Zeitlinger,Henry Cecil Sotheran,1921   *Differential Geometry and Its Applications* John Oprea,2019-02-06 Differential Geometry and Its Applications studies the differential geometry of surfaces with the goal of helping students make the transition from the compartmentalized courses in a standard university curriculum to a type of mathematics that is a unified whole It mixes geometry calculus linear algebra differential equations complex variables the calculus of variations and notions from the sciences That mix of ideas offers students the opportunity to visualize concepts through the use of computer algebra systems such as Maple Differential Geometry and Its Applications emphasizes that this visualization goes hand in hand with understanding the mathematics behind the computer construction The book is rich in results and exercises that form a continuous spectrum from those that depend on calculation to proofs that are quite abstract   **Fulltext Sources Online** ,2007   **The Encyclopaedia Britannica** James Louis Garvin,Franklin Henry Hooper,Warren E. Cox,1929   *Geometry and its Applications* Vladimir Rovenski,Paweł Walczak,2014-05-05 This volume has been divided into two parts Geometry and Applications The geometry portion of the book relates primarily to geometric flows laminations integral formulae geometry of vector fields on Lie groups and osculation the articles in the applications portion concern some particular problems of the theory of dynamical systems including mathematical problems of liquid flows and a study of cycles for non dynamical systems This Work is based on the second international workshop entitled Geometry and Symbolic Computations held on May 15 18 2013 at the University of Haifa and is dedicated to modeling using symbolic calculations in differential geometry and its applications in fields such as computer science tomography and mechanics It is intended to create a forum for students and researchers in pure and applied geometry to promote discussion of modern state of the art in geometric modeling using symbolic programs such as MapleTM and Mathematica as well as presentation of new results   **The Encyclopaedia Britannica** ,1929   **Bulletin of the American Mathematical Society** American Mathematical Society,1910   *Bulletin (new Series) of the American Mathematical Society* ,1916   **Issues in Education** Georgia B. Kimmey,1930 Issues in Education traces the development of Catholic schools in the Diocese of Galveston Houston and the various types of lessons and curriculums that were given emphasis over the past 150 years Author Georgia Kimmey outlines the economic factors that guided the growth of the Houston Metropolitan area the hurricane that wiped out Galveston Island the building of the Houston Ship Channel the discovery of oil in Texas and the impact of these events on the building of schools and the creation of suburbs

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