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Algebra, Analysis, and Associated Topics

Birkhäuser

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Dedicated to God

Preface

Analysis and algebra are two key branches of Mathematics. Analysis is a branch of Mathematics which studies continuous changes and includes the theories of integration, differentiation, measure, limits, analytic functions, and infinite series while algebra is the study of algebraic structures, groups, rings, modules, fields, vector spaces, and lattices. A basic premise of this book is that quality assurance is effectively achieved through the selection of quality research articles. This book comprises the contribution of various researchers in 15 chapters. Each chapter identifies the existing challenges in the areas of Algebra, Analysis, and related topics. These chapters are representing the importance of existing results and helpful for generating new ideas for various research problems of pure Mathematics.

This book provides the technique suitable for solving the problem with sufficient mathematical background, and discussions on the obtained results with physical interruptions to understand the domain of applicability of Analysis and Algebra. This book discusses new results in cutting-edge areas of several branches of mathematics and applications, including analysis, algebra number theory, etc. Also, algebra and combinatorics are core areas of mathematics which find broad applications in the sciences and in other mathematical fields. Literature survey is also provided in each of chapter which reveals the challenges, outcomes, and developments of higher- level mathematics in this decade.

The book comprised of the following interesting topics of Pure Mathematics:

- Maximal Rotational Hypersurfaces
- k-Horadam Sequences
- Lauricella Function
- Absolute Nörlund Summable Factor
- Derivations and Special Functions over Fields
- Central Automorphism of a Group
- Brandt Semigroup B_n
- Δ Convergence in $CAT(0)$ Spaces
- Quantum Dynamical Semi-Group
- Cardinality of Sum-Sets

- Cantor Dyadic Groups
- $\mathcal{I}_2$-Statistical Limit Points and Cluster Points
- Bessel and Whittaker Functions
- Neutrosophic e Space

This book promotes a vision of pure mathematics as integral to modern science and engineering. Theoretically oriented readers will find an overview of Mathematics and its applications. Readers will find a variety of current research topics with sufficient discussion in terms of physical point of view to adapt for solving the particular application. The book stimulates the advancement of mathematics and its applications.

As editors, we would like to express our sincere thanks to the Akal University for providing us excellent facilities and support for further research. We are also grateful to all referees for spending their valuable time to reviews the chapters. The editors are thankful to Chris Eder Associate Editor at Springer, for his continuous support toward the publication of this book.

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