

The background features a collage of mathematical content. At the top, there are faint sketches of geometric shapes: a rectangle with a dashed line, a right-angled triangle, and a circular sector. The central portion of the cover is a white grid pattern. At the bottom, there are handwritten mathematical formulas in white on a dark background, including  $\tan x - \tan y = \frac{\sin(x+y)}{\cos x \cos y}$  and  $a^2 + b^2 = c^2 \cos x \cos y$ .

# Contemporary Mathematics:

Surveys and Research Findings

**Dr. Parama Dutta**

# Contemporary Mathematics: Surveys and Research Findings



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# Contemporary Mathematics: Surveys and Research Findings

*Editor:*

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## **Preface**

This book features a collection of survey articles authored by emerging Mathematics researchers from North-East India, showcasing their contributions to the field. Covering a broad range of topics in Mathematics and Statistics, it begins with articles on recent developments in Statistics. Subsequent sections explore areas such as Algebra, Number Theory, Coding Theory, Dynamics, Operator Theory, Mathematical Modeling, and Fuzzy Algebra. Designed to be a comprehensive reference, the book includes numerous open problems in nearly all the articles, providing valuable opportunities for further research. The editor hopes that this work will be a valuable resource for the mathematical community.

**Dr. Parama Dutta**

Lakhimpur Girls' College

Assam

## Acknowledgement

I am deeply grateful to everyone who contributed to the creation of this volume, which showcases a collection of outstanding research articles in Mathematics.

First and foremost, I extend my heartfelt thanks to the authors whose invaluable contributions and insightful research have enriched this book. Your dedication and expertise have brought diverse mathematical topics to the forefront, and it is your work that forms the core of this collection.

I would also like to express my sincere appreciation to the editorial team and reviewers for their rigorous evaluation and constructive feedback. Your support has been crucial in ensuring the quality and relevance of the articles presented.

My gratitude extends to the institutions and funding bodies that have supported the research featured in this book. Your commitment to advancing mathematical knowledge is deeply appreciated.

Special thanks are due to the publisher for their exceptional support and commitment throughout the production process. Your professionalism and dedication have been instrumental in bringing this project to fruition.

Lastly, I am thankful to my colleagues and friends for their encouragement and assistance throughout this journey. Your unwavering support has been instrumental in making this book a reality.

It is my hope that this volume serves as a valuable resource for researchers and scholars in the mathematical community and inspires further exploration and discovery.

Thank you all.

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## ABOUT THE EDITOR



**Dr. Parama Dutta** is an Assistant Professor of Mathematics at Lakhimpur Girls' College in North Lakhimpur, Assam. He completed his PhD in Mathematics at Tezpur University and his research focuses on Finite Group Theory, Ring Theory, and Algebraic Graph Theory. He has published 12 research papers in well-known international journals. He is also leading a major research project funded by DST-SERB and has edited a book on recent developments in Mathematics.



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