

CONTENTS

Preface	vii
Contributors	xv
Part 1: Applications of Coding Theory to Computational Complexity	1
Chapter 1: Linear Complexity and Related Complexity Measures .. <i>Arne Winterhof</i>	3
Chapter 2: Lattice and Construction of High Coding Gain Lattices from Codes	41
<i>Mohammad-Reza Sadeghi</i>	
Chapter 3: Distributed Space-Time Codes with Low ML Decoding Complexity	77
<i>G. Susinder Rajan and B. Sundar Rajan</i>	
Part 2: Methods of Algebraic Combinatorics in Coding Theory/Codes Construction and Existence	119
Chapter 4: Coding Theory and Algebraic Combinatorics	121
<i>Michael Huber</i>	
Chapter 5: Block Codes from Matrix and Group Rings	159
<i>Paul Hurley and Ted Hurley</i>	
Chapter 6: LDPC and Convolutional Codes from Matrix and Group Rings	195
<i>Paul Hurley and Ted Hurley</i>	

Chapter 7: Search for Good Linear Codes in the Class of Quasi-Cyclic and Related Codes.....	239
<i>Nuh Aydin and Tsvetan Asamov</i>	
Part 3: Source Coding/Channel Capacity/ Network Coding	287
Chapter 8: Applications of Universal Source Coding to Statistical Analysis of Time Series.....	289
<i>Boris Ryabko</i>	
Chapter 9: Introduction to Network Coding for Acyclic and Cyclic Networks.....	339
<i>Ángela I. Barbero and Øyvind Ytrehus</i>	
Chapter 10: Distributed Joint Source-Channel Coding on a Multiple Access Channel.....	423
<i>Vinod Sharma and R. Rajesh</i>	
Part 4: Other Selected Topics in Information and Coding Theory	469
Chapter 11: Low-Density Parity-Check Codes and the Related Performance Analysis Methods.....	471
<i>Xudong Ma</i>	
Chapter 12: Variable Length Codes and Finite Automata.....	505
<i>Marie-Pierre Béal, Jean Berstel, Brian H. Marcus, Dominique Perrin, Christophe Reutenauer and Paul H. Siegel</i>	
Chapter 13: Decoding and Finding the Minimum Distance with Gröbner Bases: History and New Insights.....	585
<i>Stanislav Bulygin and Ruud Pellikaan</i>	
Chapter 14: Cooperative Diversity Systems for Wireless Communication.....	623
<i>Murat Uysal and Muhammad Mehboob Fareed</i>	
Chapter 15: Public Key Cryptography and Coding Theory.....	663
<i>Pascal Véron</i>	