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Nota di contenuto	<p>Intro -- Preface -- Organization -- Contents -- New Bounds for Linear Codes of Covering Radius 2 -- 1 Introduction -- 2 An Upper Bound on the Length Function <math>q(3,2)</math> -- 3 Upper Bounds on the Length Function <math>q(r,2)</math>, <math>r</math>5 Odd -- 4 Comparison with the Previously Known Results -- References -- Multidimensional Decoding Networks for Trapping Set Analysis -- 1 Introduction -- 2 Preliminaries -- 3 Multidimensional Network Framework -- 4 Trapping Set Characterization -- 5 Representations Yielding Transitivity -- 6 Conclusions -- References -- Erasure Correction and Locality of Hypergraph Codes -- 1 Introduction -- 2 Preliminaries -- 3 Bounds on Regular Hypergraph Codes -- 4 Bounds on Biregular Hypergraph Codes -- 5 Conclusions -- References -- Reed-Muller Codes: Information Sets from Defining Sets -- 1 Introduction -- 2 Preliminaries -- 3 Information Sets for Abelian Codes -- 4 Cyclic Codes as Two-Dimensional Cyclic Codes -- 5 Reed-Muller Codes -- 6 Information Sets for First-Order Reed-Muller Codes -- 7 Information Sets for Second-Order Reed-Muller Codes -- 8 Conclusions -- References -- Distance Properties of Short LDPC Codes and Their Impact on the BP, ML and Near-ML Decoding Performance -- 1 Introduction -- 2 Preliminaries -- 2.1 Ensembles of Binary and Binary Images of Nonbinary Regular LDPC Codes -- 2.2 QC LDPC Codes -- 3 Stopping Redundancy and Convergence to the ML Decoding Performance -- 4 Upper Bounds on ML and BP Decoding Error Probability for Ensembles of LDPC Codes -- 5 Simulation Results -- 6 Discussion -- References -- Decoding a Perturbed Sequence Generated by an LFSR -- 1 Introduction -- 2 A Decoding Problem -- 3 The Decoding Algorithm -- References -- A Construction of Orbit Codes -- 1 Introduction -- 2 Preliminaries -- 3 Our Construction -- 4 Open Questions -- References -- Analysis of Two Tracing Traitor Schemes via Coding Theory.</p> <p>1 Introduction -- 2 Open Tracing Traitor Schemes - How Do They Work? -- 3 How to Compare t-IPP Codes and t-IPP Family of Sets? -- 4 New Lower Bound on the Size of IPPS Codes -- 4.1 The Previous Results -- 4.2 Constant Weight Codes with Large Distance and Traceability Set System -- References -- Reliable Communication Across Parallel Asynchronous Channels with Glitches -- 1 Introduction -- 2 Problem Formulation -- 3 Related Work -- 4 Coding Schemes -- 4.1 Single-Code Based Coding Frameworks (<math>W=1</math>) -- 4.2 A Multiple-Code Based Coding Framework (<math>W &gt; 1</math>) -- 4.3 A Comparison of the Efficiency of the Techniques -- 5 Summary -- A Appendices -- A.1 A Sketch of the Proof that the Transmission of Information Is Practically Error Free -- A.2 The Proof that When <math>R_{\max}</math> Is Maximized, the Density of Ones Tends to <math>1/2</math> -- References -- On the Kernel of Z2s-Linear Hadamard Codes -- 1 Introduction -- 2 Generalized Gray Map -- 3 Construction of Z2s-Linear Hadamard Codes -- 4 Partial Classification of Z2s-Linear Hadamard Codes -- 5 Conclusions -- References -- Random Network Coding over Composite Fields -- 1 Introduction -- 2 The Multicast Problem -- 3 Calculations in Composite Fields -- 4 Success Probability</p>

-- 5 Concluding Remarks -- References -- Bounding the Minimum Distance of Affine Variety Codes Using Symbolic Computations of Footprints -- 1 Introduction -- 2 Affine Variety Codes and the Footprint Bound -- 3 Code Words from the Klein Curve -- 3.1 Leading Monomial Equal to  $Y$  -- 3.2 Leading Monomial Equal to  $Y^2$  -- 3.3 Leading Monomial Equal to  $XY$  -- 3.4 The Remaining Cases -- 4 Code Parameters -- 5 Concluding Remarks -- References -- On Binary Matroid Minors and Applications to Data Storage over Small Fields -- 1 Introduction -- 2 Preliminaries on LRCs and Matroids -- 2.1 Matroid Fundamentals -- 2.2 Fundamentals on Cyclic Flats. 3 Sufficient Conditions for Uniformity -- 4 Criteria for Uniformity via Cyclic Flats -- 4.1 Minors Given by Restriction or Contraction only -- 4.2 Minors Given by both Restriction and Contraction -- 5 Structural Properties of Binary LRCs -- 6 Conclusions and Future Work -- References -- Absorbing Set Analysis of Codes from Affine Planes -- 1 Introduction -- 2 Preliminaries -- 3 Finite Euclidean LDPC Codes -- 3.1 Fully Absorbing Sets and Elementary Absorbing Sets -- 4 Conclusions -- References -- Asymptotic Bounds for the Sizes of Constant Dimension Codes and an Improved Lower Bound -- 1 Introduction -- 2 Preliminaries -- 3 Upper Bounds -- 3.1 Upper Bounds for Partial Spreads -- 4 The Linkage Construction Revisited -- 5 Asymptotic Bounds -- 6 Codes Better Than the MRD Bound -- 7 Conclusion -- References -- On Quasi-Abelian Complementary Dual Codes -- 1 Introduction -- 2 Preliminaries -- 2.1 Notations -- 2.2 Decompositions -- 3 Characterization and Enumeration of QACD Codes -- 4 Asymptotically Good Binary QAEC Codes of Index 3 -- References -- Relative Generalized Hamming Weights and Extended Weight Polynomials of Almost Affine Codes -- 1 Introduction -- 2 Matroids, Demi-Matroids and Almost Affine Codes -- 2.1 Matroids and Demi-Matroids -- 2.2 Almost Affine Codes -- 2.3 Generalized Hamming Weights -- 3 Equivalent Formulations of Some Hamming Weights of Pairs of Codes -- 3.1 An Open Question Concerning Subcodes -- 4 Extended Weight Polynomials of Almost Affine Codes -- References -- On the Performance of Block Woven Codes Constructions with Row-Wise Permutations -- 1 Introduction -- 2 Block Woven Code Construction and Encoding -- 2.1 Simplified Deterministic Description -- 2.2 Proposed Code Ensemble -- 3 Decoding Algorithm -- 4 Distance Properties -- 5 Numerical results -- 6 Conclusion -- References.

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Sommario/riassunto

This book constitutes the refereed proceedings of the 5th International Castle Meeting on Coding Theory and Applications, ICMCTA 2017, held in Vihula, Estonia, in August 2017. The 24 full papers presented were carefully reviewed and selected for inclusion in this volume. The papers cover relevant research areas in modern coding theory, including codes and combinatorial structures, algebraic geometric codes, group codes, convolutional codes, network coding, other applications to communications, and applications of coding theory in cryptography. .

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