

# Table of Contents

## Coding Theory

|                                                                                              |    |
|----------------------------------------------------------------------------------------------|----|
| Subspace Codes .....                                                                         | 1  |
| <i>Azadeh Khaleghi, Danilo Silva, and Frank R. Kschischang</i>                               |    |
| On Linear Programming Decoding on a Quantized Additive White<br>Gaussian Noise Channel ..... | 22 |
| <i>Eirik Rosnes</i>                                                                          |    |
| Codes as Modules over Skew Polynomial Rings .....                                            | 38 |
| <i>Delphine Boucher and Felix Ulmer</i>                                                      |    |
| On Higher Weights and Code Existence .....                                                   | 56 |
| <i>Hans Georg Schaathun</i>                                                                  |    |
| Mass Formula for Even Codes over $\mathbb{Z}_8$ .....                                        | 65 |
| <i>Koichi Betsumiya, Rowena Alma L. Betty, and Akihiro Munemasa</i>                          |    |
| On the Classification of Self-dual $\mathbb{Z}_k$ -Codes .....                               | 78 |
| <i>Masaaki Harada and Akihiro Munemasa</i>                                                   |    |
| On Linear Codes from Maximal Curves .....                                                    | 91 |
| <i>Stefania Fanali</i>                                                                       |    |

## Symmetric Cryptography

|                                                                                    |     |
|------------------------------------------------------------------------------------|-----|
| On Linear Cryptanalysis with Many Linear Approximations .....                      | 112 |
| <i>Benoît Gérard and Jean-Pierre Tillich</i>                                       |     |
| Bivium as a Mixed-Integer Linear Programming Problem .....                         | 133 |
| <i>Julia Borghoff, Lars R. Knudsen, and Mathias Stolpe</i>                         |     |
| Security of Cyclic Double Block Length Hash Functions .....                        | 153 |
| <i>Ewan Fleischmann, Michael Gorski, and Stefan Lucks</i>                          |     |
| Another Glance at Double-Length Hashing .....                                      | 176 |
| <i>Onur Özen and Martijn Stam</i>                                                  |     |
| Geometric Ideas for Cryptographic Equation Solving in Even<br>Characteristic ..... | 202 |
| <i>Sean Murphy and Maura B. Paterson</i>                                           |     |

## Security Protocols

|                                                                                                                  |     |
|------------------------------------------------------------------------------------------------------------------|-----|
| Provably Secure Code-Based Threshold Ring Signatures . . . . .                                                   | 222 |
| <i>Léonard Dallot and Damien Vergnaud</i>                                                                        |     |
| A New Protocol for the Nearby Friend Problem . . . . .                                                           | 236 |
| <i>Sanjit Chatterjee, Koray Karabina, and Alfred Menezes</i>                                                     |     |
| Distributing the Key Distribution Centre in Sakai Kasahara Based<br>Systems . . . . .                            | 252 |
| <i>Martin Geisler and Nigel P. Smart</i>                                                                         |     |
| Key Predistribution Schemes and One-Time Broadcast Encryption<br>Schemes from Algebraic Geometry Codes . . . . . | 263 |
| <i>Hao Chen, San Ling, Carles Padró, Huariong Wang, and<br/>Chaoping Xing</i>                                    |     |
| Attribute-Based Encryption Supporting Direct/Indirect Revocation<br>Modes . . . . .                              | 278 |
| <i>Nuttapong Attrapadung and Hideki Imai</i>                                                                     |     |
| Certificate-Free Attribute Authentication . . . . .                                                              | 301 |
| <i>Dalia Khader, Liqun Chen, and James H. Davenport</i>                                                          |     |

## Asymmetric Cryptography

|                                                                                                             |     |
|-------------------------------------------------------------------------------------------------------------|-----|
| Comparing with RSA . . . . .                                                                                | 326 |
| <i>Julien Cathalo, David Naccache, and Jean-Jacques Quisquater</i>                                          |     |
| Double-Exponentiation in Factor-4 Groups and Its Applications . . . . .                                     | 336 |
| <i>Koray Karabina</i>                                                                                       |     |
| Oracle-Assisted Static Diffie-Hellman Is Easier Than Discrete<br>Logarithms . . . . .                       | 351 |
| <i>Antoine Joux, Reynald Lercier, David Naccache, and<br/>Emmanuel Thomé</i>                                |     |
| An Improvement to the Gaudry-Schost Algorithm for Multidimensional<br>Discrete Logarithm Problems . . . . . | 368 |
| <i>Steven Galbraith and Raminder S. Ruprai</i>                                                              |     |

## Boolean Functions

|                                                                                                   |     |
|---------------------------------------------------------------------------------------------------|-----|
| On Designs and Multiplier Groups Constructed from Almost Perfect<br>Nonlinear Functions . . . . . | 383 |
| <i>Yves Edel and Alexander Pott</i>                                                               |     |
| A New Family of Hyper-Bent Boolean Functions in Polynomial Form . . .                             | 402 |
| <i>Sihem Mesnager</i>                                                                             |     |

|                                                                  |     |
|------------------------------------------------------------------|-----|
| The Rayleigh Quotient of Bent Functions .....                    | 418 |
| <i>Lars Eirik Danielsen, Matthew G. Parker, and Patrick Solé</i> |     |

## Side Channels and Implementations

|                                                                     |     |
|---------------------------------------------------------------------|-----|
| Cache Timing Analysis of LFSR-Based Stream Ciphers .....            | 433 |
| <i>Gregor Leander, Erik Zenner, and Philip Hawkes</i>               |     |
| Optimal Recovery of Secret Keys from Weak Side Channel Traces ..... | 446 |
| <i>Werner Schindler and Colin D. Walter</i>                         |     |
| Practical Zero-Knowledge Proofs for Circuit Evaluation .....        | 469 |
| <i>Essam Ghadafi, Nigel P. Smart, and Bogdan Warinschi</i>          |     |
| <b>Author Index</b> .....                                           | 495 |