Contents

Introduction ---- V

Marco Buratti

1 Tiling rings with "precious" differences — 1

Marco Buratti, Michael Kiermaier, Sascha Kurz, Anamari Nakić, and Alfred Wassermann

2 q-analogs of group divisible designs —— 21

Ayça Çeşmelioğlu, Wilfried Meidl, and Alexander Pott

3 A survey on bent functions and their duals —— 39

John Clikeman, James A. Davis, and David Clayton

4 Construction of Bent functions using covering extended building sets — 57

Daniel Gerike and Gohar M. Kyureghyan

Results on permutation polynomials of shape $x^t + \gamma \operatorname{Tr}_{\sigma^n/\sigma}(x^d)$ — 67

Koen van Greevenbroek and Jonathan Jedwab

6 A new structure for difference matrices over abelian p-groups — 79

Daniel J. Katz

Weil sums of binomials: properties, applications and open problems —— 109

Rodrigo Martins, Daniel Panario, and Claudio Qureshi

8 A survey on iterations of mappings over finite fields —— 135

Koji Momihara, Qi Wang, and Qing Xiang

9 Cyclotomy, difference sets, sequences with low correlation, strongly regular graphs and related geometric substructures — 173

Giorgis Petridis

10 Pseudorandomness of large sets in finite fields —— 199

Misha Rudnev

Point-plane incidences and some applications in positive characteristic —— 211



VIII -- Contents

Bernhard Schmidt

12 A survey of group invariant Butson matrices and their relation to generalized bent functions and various other objects —— 241

John Sheekey

13 MRD codes: constructions and connections —— 255

Akhilesh Anilkumar Siddhanti and Subhamoy Maitra

Differential fault attack on hardware stream ciphers—a technical survey —— 287

Qiang Wang

15 Polynomials over finite fields: an index approach —— 319