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Nota di contenuto	Front matter -- Preface -- Contents -- Character Sums and Polyphase Sequence Families with Low Correlation, Discrete Fourier Transform (DFT), and Ambiguity / Gong, Guang -- Measures of Pseudorandomness / Gyarmati, Katalin -- Existence Results for Finite Field Polynomials with Specified Properties / Huczynska, Sophie -- Incidence Structures, Codes, and Galois Geometries / Jungnickel, Dieter -- Special Mappings of Finite Fields / Kyureghyan, Gohar M. -- On The Classification of Perfect Nonlinear (PN) and Almost Perfect Nonlinear (APN) Monomial Functions / Hernando, Fernando / McGuire, Gary -- Finite Fields and Quasirandom Points / Niederreiter, Harald -- Iterations of Rational Functions: Some Algebraic and Arithmetic Aspects / Ostafe, Alina -- Additive Combinatorics over Finite Fields: New Results and Applications / Shparlinski, Igor E. -- Index -- Backmatter
Sommario/riassunto	This book is based on the invited talks of the "RICAM-Workshop on

Finite Fields and Their Applications: Character Sums and Polynomials" held at the Federal Institute for Adult Education (BifEB) in Strobl, Austria, from September 2-7, 2012. Finite fields play important roles in many application areas such as coding theory, cryptography, Monte Carlo and quasi-Monte Carlo methods, pseudorandom number generation, quantum computing, and wireless communication. In this book we will focus on sequences, character sums, and polynomials over finite fields in view of the above mentioned application areas: Chapters 1 and 2 deal with sequences mainly constructed via characters and analyzed using bounds on character sums. Chapters 3, 5, and 6 deal with polynomials over finite fields. Chapters 4 and 9 consider problems related to coding theory studied via finite geometry and additive combinatorics, respectively. Chapter 7 deals with quasirandom points in view of applications to numerical integration using quasi-Monte Carlo methods and simulation. Chapter 8 studies aspects of iterations of rational functions from which pseudorandom numbers for Monte Carlo methods can be derived. The goal of this book is giving an overview of several recent research directions as well as stimulating research in sequences and polynomials under the unified framework of character theory.

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