

Contents

Preface	V
Contents	VI
Chapter 1: Introduction	
Section 1. Definitions and elementary results	1
Section 2. Latin squares and difference matrices	5
Section 3. Nets and affine planes	9
Section 4. Neofields	14
Section 5. The existence problem	18
Chapter 2: Elementary abelian groups	
Section 1. Introduction	25
Section 2. A linear algebra approach	26
Section 3. A special class of examples	28
Section 4. Systems of order 5 or less	30
Chapter 3: Cyclotomic orthomorphisms	
Section 1. Linear and quadratic orthomorphisms	35
Section 2. Cyclotomic orthomorphisms	40
Section 3. Permutation polynomials	43
Section 4. Cyclotomy and permutation polynomials	47
Chapter 4: Automorphisms and translation nets	
Section 1. Introduction	50
Section 2. Orthomorphisms from automorphisms	51
Section 3. Bounds on $\omega(\mathcal{Q}(G) \cup \mathcal{Q}^{-1}(G))$	52
Section 4. The abelian case	54
Chapter 5: Further results	
Section 1. Powers	57
Section 2. Strong complete mappings	60
Section 3. Difference sets	63
Section 4. Maximal sets of orthomorphisms	67
Section 5. Complete sets of orthomorphisms	73

Chapter 6: Data for small groups

Section 1. Introduction	77
Section 2. Groups of order 8	78
Section 3. Groups of order 9	81
Section 4. The cyclic group of order 11	82
Section 5. Groups of order at least 12	85

Chapter 7: Research directions

Section 1. Problems to consider	91
Section 2. Orthomorphism graphs	91
Section 3. Structure of orthomorphism graphs	97
Section 4. Cliques of orthomorphism graphs	100

References	105
-----------------------------	-----

Index	111
------------------------	-----