

CONTENTS

E Assmus	On the theory of designs	
Introduction		1
The code and the hull of a design		4
The hull of an affine plane		7
The Hamada-Sachar conjecture and translation planes		9
Derivations		16
Conclusions		17
Appendix: Admissible parameters for designs		17
References		20
R Bailey	Designs: mappings between structured sets	
Structured sets		22
Fractional factorials		24
Factorial structures		26
Strata		30
Incomplete-block designs		34
General balance		37
Randomization		41
Neighbour designs		44
References		45
W Deuber	Developments based on Rado's dissertation 'Studien zur Kombinatorik'	
Partition regular matrices		52
(m,p,c)-sets		56
Combinatorial lines and parameter sets		60
Graphs with arithmetic structure		65
Canonizing Ramsey theory		67
References		71
J Doyen	Designs and automorphism groups	
Introduction		75
Flag-transitive 2-(v,k,1) designs		77
Two applications		80
References		82

A Frieze	On matchings and Hamiltonian cycles in random graphs	
Introduction		84
“Proofs“ of theorems 1.1 and 1.2		86
Generalisations		90
Regular graphs, k-out and planar maps		96
Algorithmic aspects		99
Digraphs		106
Open problems		108
References		110
R Häggkvist	Decompositions of complete bipartite graphs	
Setting the stage		115
A small detour. Some connections with latin squares		120
The Ringel conjecture		124
The Oberwolfach problem		133
Main results		135
References		146
C McDiarmid	On the method of bounded differences	
Introduction		148
Colouring random graphs - before and after		150
Colouring random graphs - proofs		153
Martingales		158
Inequalities for bounded independent summands		161
Inequalities for bounded martingale difference sequences		165
Isoperimetric inequalities for graphs		169
Applications in operational research and computer science		178
Concluding remarks		183
References		184
L Teirlinck	On the use of regular arrays in the construction of t-designs	
Introduction		189
Preliminary definitions and results		189
Completing a regular $(L)ES(\lambda; t, t+1, v)$ to an $(L)S(\lambda; t, t+1, v+t)$		194
Direct products		197
Repetition-trivial arrays and t-trivial designs		198
Other applications of regular $ES(\lambda; t, t+1, v)$		202
References		206
H Wilf	The 'Snake Oil' method for proving combinatorial identities	
(I): The 'Snake Oil' method		208
Several examples		210
(II): WZ Pairs		216
References		217