Record Nr. UNINA9910144684603321 Autore Dey Aloke **Titolo** Fractional factorial plans [[electronic resource] /] / Aloke Dey, Rahul Mukerjee New York,: Wiley, c1999 Pubbl/distr/stampa **ISBN** 1-282-30739-8 9786612307393 0-470-31698-5 0-470-31782-5 Descrizione fisica 1 online resource (236 p.) Collana Wiley series in probability and statistics Probability and statistics section Altri autori (Persone) MukerjeeRahul Disciplina 519.5 519.5354 Soggetti Experimental design Factorial experiment designs Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Fractional Factorial Plans; Contents; Preface; 1. Introduction; 1.1 Introductory Remarks, 1; 1.2 Preliminary Ideas, 2; 1.3 Scope of the Book, 5; 2. Fractional Plans and Orthogonal Arrays; 2.1 Introduction, 7; 2.2 Kronecker Notation, 7; 2.3 Fractional Factorial Plans, 11; 2.4 Concept of Resolution, 18; 2.5 Optimality Criteria, 20; 2.6 Role of Orthogonal Arrays, 23; Exercises, 30; 3. Symmetric Orthogonal Arrays; 3.1 Introduction, 32; 3.2 Orthogonal Arrays and Hadamard Matrices, 32; 3.3 Foldover Technique, 34; 3.4 Use of Galois Fields, 36; 3.5 Method of Differences, 40 3.6 Some Further Results, 46Exercises, 47; 4. Asymmetric Orthogonal Arrays; 4.1 Introduction, 48; 4.2 Collapsing and Replacement Procedures, 48; 4.3 Use of Hadamard Matrices, 50; 4.4 Use of Difference Matrices, 56; 4.5 Use of Resolvable Arrays, 60; 4.6 More on the Method of Grouping, 66; 4.7 Arrays of Higher Strength, 68; Exercises, 74; 5. Some Results on Nonexistence; 5.1 Introduction, 75;

5.2 Bose-Bush Approach, 75; 5.3 Linear Programming and Other

Bounds, 79; 5.4 On the Tight and Nearly Tight Cases, 84; Exercises, 93;

6. More on Optimal Fractional plans and Related Topics

6.1 Introduction and Preliminaries, 946.2 Augmented Orthogonal Arrays: Addition of One Run, 95; 6.3 Augmented Orthogonal Arrays: Further Results, 102; 6.4 Nearly Orthogonal Arrays, 1 17; 6.5 Connection with Weighing Designs, 122; 6.6 Optimality with Two or Three Factors, 128; 6.7 Some Other Plans, 134; Exercises, 139; 7. Trend-Free Plans and Blocking; 7.1 Introduction, 140; 7.2 Trend-Free Plans: Basic Principles, 140; 7.3 Trend-Free Orthogonal Arrays, 147; 7.4 Blocking, 158; Exercises, 161; 8. Some Further Developments; 8.1 Introduction, 162

8.2 Regular Fractions and Minimum Aberration Designs, 1628.3 Search Designs, 175; 8.4 Supersaturated Designs, 182; Exercises, 184; Appendix; A. 1 Hadamard Matrices, 187; A.2 Difference Matrices, 189; A.3 Selected Orthogonal Arrays, 190; References; Index

Sommario/riassunto

A one-stop reference to fractional factorials and related orthogonal arrays. Presenting one of the most dynamic areas of statistical research, this book offers a systematic, rigorous, and up-to-date treatment of fractional factorial designs and related combinatorial mathematics. Leading statisticians Aloke Dey and Rahul Mukerjee consolidate vast amounts of material from the professional literature--expertly weaving fractional replication, orthogonal arrays, and optimality aspects. They develop the basic theory of fractional factorials using the calculus of factorial arrangements, thereb