CHAPTER 31

MATHEMATICAL SCIENCES
STATISTICS

Doctoral Theses

411. BUSHRA HUSAIN
Optimal Orthogonally Blocked Mixture Designs Using F-Squares.
Supervisors : Dr. Poonam Singh and Dr. Vandana Sarin Walia
Th 18108

Abstract

It has obtained F-square based optimal orthogonally blocked mixture designs for Scheffe's model, Becker's models, Darroach and Waller's model and K-model, followed by nearly optimal designs and finally orthogonally blocked mixture component-amount designs via projections of F-squares showing that the property of block orthogonality is preserved by the projections considered.

Contents

1. An Introduction to mixture experiments. 2. Orthogonally blocked mixture disigns using f-squares. 3. Four component optimal othogonally blocked designs based on f-squares for scheffe's quadratic model. 4. Four component optimal orthogonally blocked designs based on f-squares for some other models. 5. Four component nearly optimal orhhogonal block designs based on f-squares. 6. Optimal othogonally blocked mixture component-amount designs via projections of f-squares. References and Appendixes.

412. KOLE (Basudev)
Computer Aided Search for Efficient Supersaturated Designs.
Supervisor : Dr. Poonam Singh
Th 18107

Abstract

The present investigation deals with the development of methods of construction of two-level, multi-level and mixed-level SSDs for balanced as well as unbalanced cases. The efficiency of the

constructed designs has also been calculated. Effort has been mase to give designs that have as hiogh efficiency as possible. Computer algorithms have been developed to construct efficient two-level, multi-level and mixed-level SSDs for both balanced as well as unbalanced cases. A new method for constructing mixed-level SSDs, based on Uniform design and Hadamard matrix has been proposed. A new class of two-level optimal SSDs has been introduced in which both the original design as well as the extended design obtained on additional of runs are optimal. The catalogue of SSDs obtained from the computer algorithms, th new method using Hadamard matrix and Uniform design as well as the new class of SSDs have been prepared.

Contents

1. Introduction and review of literature. 2. Construction of efficient balanced and nearly balanced two-level supersaturated designs. 3. Construction of efficient multi-level supersaturated designs. 4. Construction of optimal maixed-level supersaturated designs. 5. Construction of efficient unbalanced mixed-level supersaturated designs. 6. Additional of runs to a two-level supersaturated design. References.

413. PANDA (Mahesh Kumar)
Some Contributions to Optimal Designs for Experiments with Mixtures.
Supervisor : Dr. Poonam Singh
Th 18109

Abstract

Cost is an important factor inmost experiments, irrespective of the nature of the model. In other words, one should try to have designs that are not only theoretically efficient but attractive to practitioners in their practicality. This dessertation has find designs that have a combination of these attributes. The particular model in this is the mixture experiment model without process variables. This work undertakes exercises on certain problems related to obtaining of optimal designs for model for experiment with mixtures.

Contents

1. Introduction. 2. D-optimal design for three and four components mixture model with inverse terms. 3. A-optimal designs for an additive cubic model. 4. Optimal design for second degree k-model for mixture experiments based on weighted simplex cetroid

design. 5. Model-robust d- and a-optimal designs for k-model for mixture experiments. 6. Multi-response optimal mixture designs. References.

M.Phil Dissertations

414. AVNEET KAUR
Review of Classical and Bayesian Inference for Some Distributions Useful in Reliability Theory.
Supervisor : Dr. Ajit Chaturvedi

415. GOEL (Komal)
Detailed Study of the Survival Analysis of Cancer Patients Using Various Markov Processes.
Supervisor : Dr. Gurprit Grover

416. KAUSHIK (Sakshi)
Review of Semi-Parametric and Non-Parametric Estimation Procedures for Recurrent Events.
Supervisor : Dr. Gurprit Grover