

Regular E-optimal spring balance weighing design with correlated errors

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Abstract

The problems linked with an E-optimal spring balance weighing design with correlated errors are discussed. The concept of the paper is the generalization of ideas of optimal designs presented in [1] and [2]. The topic is focus on the determining the maximal eigenvalue of the information matrix for the design. There is given the lowest of the eigenvalue and the conditions under which the lowest bound is fulfill. The constructing method of the E-optimal design, based on the incidence matrices of balanced incomplete block designs, is presented.

Keywords

Balanced incomplete block design, E-optimal design, Spring balance weighing design.

References

- [1] Jacroux M. and W. Notz (1983). On the optimality of spring balance weighing designs. *Ann. Statist.* 11, 970–978.
- [2] Neubauer M.G. and W. Watkins (2002). E-optimal of spring balance weighing designs for $n \equiv -1(\text{mod } 4)$ objects. *Siam J. Matrix Anal. Appl.* 24, 91–105.