

Ceranka, B.; Graczyk, M.

Robustness optimal spring balance weighing designs for estimation total weight. (English)

Zbl 1274.62492

Kybernetika 47, No. 6, 902-908 (2011).

Summary: In this paper we develop the theory of spring balance weighing designs with non-positive correlated errors for that the lower bound of the variance of estimated total weight is attained.

MSC:

62K05 Optimal statistical designs

62K10 Statistical block designs

Keywords:

robustness; spring balance weighing design; total weight

Full Text: [Link](#) [EuDML](#)

References:

- [1] Banerjee, K. S.: Weighing Designs for Chemistry, Medicine, Economics, Operations Research, Statistics. Marcel Dekker Inc., New York 1975. · Zbl 0334.62030
- [2] Ceranka, B., Katulska, K.: Optimum singular spring balance weighing designs with non-homogeneity of the variances of errors for estimating the total weight. Austral. J. Statist. 28 (1986), 200-205. · Zbl 0657.62082 · doi:10.1111/j.1467-842X.1986.tb00599.x
- [3] Clatworthy, W. H.: Tables of two-associate-class partially balanced designs. NBS Appl. Math. 63 (1973). · Zbl 0289.05017
- [4] Dey, A., Gupta, S. C.: Singular weighing designs and the estimation of total weight. Comm. Statist. Theory Methods 7 (1977), 289-295. · Zbl 0362.62034 · doi:10.1080/03610927708827491
- [5] Katulska, K.: On the estimation of total weight in singular spring balance weighing designs under the covariance matrix of errors $\sigma^2 \mathbf{G}$. Austral. J. Statist. 31 (1989), 277-286. · Zbl 0707.62163 · doi:10.1111/j.1467-842X.1989.tb00397.x
- [6] Krzyśko, M., Skorzybut, M.: Discriminant analysis of multivariate repeated measures data with Kronecker product structured covariance matrices. Statist. Papers 50 (2009), 817-835. · Zbl 1247.62155 · doi:10.1007/s00362-009-0259-z
- [7] Masaro, J., Wong, C. S.: Robustness of A-optimal designs. Linear Algebra Appl. 429 (2008), 1392-1408. · Zbl 1145.62053 · doi:10.1016/j.laa.2008.02.017
- [8] Pukelsheim, F.: Optimal Design of Experiment. John Wiley and Sons, New York 1993. · Zbl 0834.62068
- [9] Raghavarao, D.: Constructions and Combinatorial Problems in designs of Experiments. John Wiley Inc., New York 1971. · Zbl 0222.62036
- [10] Raghavarao, D., Padgett, L. V.: Block Designs, Analysis, Combinatorics and Applications. Series of Applied Mathematics 17, Word Scientific Publishing Co. Pte. Ltd., 2005 · Zbl 1102.62080 · ebooks.worldscinet.com
- [11] Sinha, B. K.: Optimum spring balance weighing designs. Proc. All India Convention on Quality and Reliability. Indian Inst. Tech., Kharagpur 1972.
- [12] Shah, K. R., Sinha, B. K.: Theory of Optimal Designs. Springer-Verlag, Berlin 1989. · Zbl 0688.62043

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.