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Optimal two-level designs under model uncertainty

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Two-level designs are widely used for screening experiments where the goal is to identify a few active factors which have major effects. We apply the model-robust Q_B criterion for the selection of optimal two-level designs without the usual requirements of level balance and pairwise orthogonality. We provide a coordinate exchange algorithm for the construction of Q_B -optimal designs for the first-order maximal model and second-order maximal model and demonstrate that different designs will be recommended under different prior beliefs. Additionally, we study the relationship between this new criterion and the aberration-type criteria. Some new classes of model-robust designs which respect experimenters' prior beliefs are found.

Type of presentation

Talk

Classification

Mainly methodology

Keywords

factorial design; optimal design; model selection

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