
Designs for factors with many levels

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Abstract

We consider designs for f factors each at m levels, where f is small but m is large. Main effect designs with $m \times f$ experimental points are presented. For $f = 2$, two types of designs are considered, termed *sawtooth* and *dumbbell* designs. For three factors, cyclic sawtooth designs are considered. The designs are compared using various criteria. We compare our designs with others using a dataset arising in screening for drug discovery with $f = 2$ and $m = 50$, and find that the dumbbell design outperforms others.