Bingham, D. R.; **Sitter, R. R.**

Some theoretical results for fractional factorial split-plot designs. (English) Zbl 0957.62065

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Summary: Fractional factorial (FF) designs are commonly used in industrial experiments to identify factors affecting a process. When it is expensive or difficult to change the levels of some of the factors, fractional factorial split-plot (FFSP) designs represent a practical design option. Though FFSP design matrices correspond to FF design matrices, the randomization structure of the FFSP design is different.

We discuss the impact of randomization restrictions on the choice of FFSP designs and develop theoretical results. Some of these results are very closely related to those available for FF designs while others are more specific to FFSP designs and are more useful in practice. We pay particular attention to the minimum aberration criterion (MA) and emphasize the differences between FFSP and FF designs.

MSC:

62K15 Factorial statistical designs
05B20 Combinatorial aspects of matrices (incidence, Hadamard, etc.)

Keywords:

defining contrast subgroup; Hadamard matrix; maximum resolution; minimum aberration; randomization restriction

Full Text: DOI

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