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Model-robust designs for split-plot experiments. (English) Zbl 1255.62222
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Summary: Split-plot experiments are appropriate when some factors are more difficult and/or expensive to change than others. They require two levels of randomization resulting in a non-independent error structure. The design of such experiments has gained much recent attention, including work on exact D-optimal split-plot designs. However, many of these procedures rely on the a priori assumption that the form of the regression function is known. We relax this assumption by allowing a set of model forms to be specified, and use a scaled product criterion along with an exchange algorithm to produce designs that account for all models in the set. We include also a generalization which allows weights to be assigned to each model, though they appear to have only a slight effect. We present two examples from the literature, and compare the scaled product designs with designs optimal for a single model. We also discuss a maximin alternative.

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MSC:

[62K05](#) Optimal statistical designs
[62K25](#) Robust parameter designs
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