

## **Two-step Algorithm for Spatial Sampling Design**

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### **Abstract**

Gaussian random fields (GRFs) can be used to model many physical processes in space. We study spatial sampling design for prediction of stationary isotropic GRFs with estimated parameters of the covariance function. The key issue is how to incorporate the parameter uncertainty into the design criteria. Several possible design criteria are discussed. A simulated annealing algorithm is used to search for optimal designs of small sample size and a two-step algorithm is proposed for moderately large sample sizes. Simulation results are presented for the Matérn class of covariance functions.