A convex approach to optimum design of experiments with correlated observations

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SUMMARY

Optimal design of experiments for correlated processes is an increasingly relevant and active research topic. Until now only heuristic methods were available without a possibility to judge their quality. In this work we complement the virtual noise approach by a convex formulation and an equivalence theorem comparable to the uncorrelated case. Hence, it is now possible to provide an upper performance bound against which alternative design methods can be judged. We provide a comparison on some classical examples from the literature.

Some key words: Correlated response; Design algorithm; Equivalence theorem; Gaussian processes.