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**Computational enhancements to Bayesian design of experiments using Gaussian processes.**  
(English) [Zbl 1359.62322](#)  
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Summary: Bayesian design of experiments is a methodology for incorporating prior information into the design phase of an experiment. Unfortunately, the typical Bayesian approach to designing experiments is both numerically and analytically intractable without additional assumptions or approximations. In this paper, we discuss how Gaussian processes can be used to help alleviate the numerical issues associated with Bayesian design of experiments. We provide an example based on accelerated life tests and compare our results with large-sample methods.

**MSC:**

[62K05](#) Optimal statistical designs  
[62F15](#) Bayesian inference  
[62K20](#) Response surface designs  
[62L05](#) Sequential statistical design

Cited in **5** Documents

**Keywords:**

Bayesian design of experiments; Gaussian processes; accelerated life tests; posterior expectation; expected quantile improvement

**Software:**

[DiceKriging](#); [DiceOptim](#); [EGO](#); [SPLIDA](#)

**Full Text:** [DOI](#) [Euclid](#)

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