A Primal-dual Active Set Strategy
for Optimal Experimental Design in the Framework of PDEs

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Abstract: In the last decades the application of optimal experimental design (OED) has been extended to various fields. Concurrently, the advances of the OED theory allowed treating more complex models based on partial differential equations (PDE). Although important developments have been made on the numerical methods, further progresses can be done applying the state-of-the-art approaches for optimization problems constrained with PDE systems.

We present a primal-dual active set strategy for the numerical solution of reduced OED problems with constraints on the design variables. The choice of the reduced formulation is preferable in case the PDE system can be solved only by an external tool to the optimization framework. Numerical examples with PDEs discretized by finite elements are presented.

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