

An Adaptive Procedure to Solve Stochastic Shape Optimization Problems

Tuesday 18 February 2025 14:00 (30 minutes)

In this talk, we present an adaptive based algorithm to solve a robust shape structural optimization problem governed by a linear elasticity model that accounts for uncertainties in the loading and material inputs. A posteriori error estimators are developed to adjust both the sample size and the spatial domain. Within the dual-weighted residual framework, a weighted goal functional is established to consider the errors arising from the approximation of the underlying PDE as well as the approximation of the domain geometry. Finally, the proposed estimation-based adaptive stochastic optimization procedure is tested on the well-known compliance minimization problem of cantilever beams under the load and material uncertainties.

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Session Classification: Contributed Talk