

Adaptive Finite Elements for Output-Oriented Parameter Identification Problems

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Abstract: We consider parameter identification problems involving partial differential equations with finite number of unknown parameters. The quantity of interest (output) depends on the state variable as well as on the parameters. Finite elements on locally refined meshes are employed for discretization of the state equation. We develop an a posteriori error estimator, which aims to control the error in the quantity of interest and is used for the successive improvement of the accuracy by appropriate mesh refinement. Several examples illustrate the behavior of an adaptive mesh refinement algorithm based on our error estimator.

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