## Construction of Optimized Reduced Models with respect to Quantities of Interest

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## ABSTRACT

The subject of the talk will be concerned with a mathematical formulation for constructing reduced-order models optimized with respect to quantities of interest. The main idea is to formulate a minimization problem that includes an equality or inequality constraint on the error in the goal functional so that the resulting model is capable of delivering predictions of the quantity of interest within some prescribed tolerance [1]. The formulation will be applied and tested to the so-called Proper Generalized Decomposition (PGD) method [2]. Such a paradigm represents a departure from classical goal-oriented approaches in which a reduced model is first derived by minimization of the energy, or of residual functionals, and then adapted via a greedy approach by controlling the error with respect to quantities of interest using dual-based error estimates. Numerical examples will be presented in order to demonstrate the efficiency of the proposed approach. In particular, we will consider the case of a delaminated composite material simulated in terms the Proper Generalized Decomposition approach [3].

## REFERENCES

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