

# GOAL-ORIENTED LOW-RANK APPROXIMATIONS FOR HIGH DIMENSIONAL STOCHASTIC PROBLEMS

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Low-rank tensor methods appear as an efficient way to solve high dimensional problems [2], especially those arising in the context of uncertainty quantification [6]. Different strategies have been proposed for the solution of equations in tensor format [5].

An approximation of the solution in low-rank tensor subsets can be obtained through the direct minimization of some residual norm. Here, we introduce an ideal minimal residual approach inspired from [3, 4], where the residual is measured in such a way that the resulting approximation is quasi-optimal with respect to a specified norm [1].

We then choose this norm such that the optimality of the approximation is achieved with respect to some quantity of interest. In particular, one may be interested in the expectation of a given output, in its variance or in some sensitivity index. The resulting method can be seen as an optimal goal-oriented model reduction method.

## REFERENCES

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