



Goal-oriented error estimation for reduced basis method, with application to certified sensitivity analysis

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The reduced basis method is a powerful model reduction technique designed to speed up the computation of multiple numerical solutions of parameterized partial differential equations (PDEs). We consider a quantity of interest, which is a linear functional of the parameterized PDE solution. Compared to the original quantity of interest, the quantity of interest computed using the reduced model is tainted by a reduction error. We present a new, efficiently and explicitly computable bound for this error, and we show on different examples that this error bound is more precise than existing ones. We also present an application of our work to certified sensitivity analysis studies.

Subjects: **Analysis of PDEs (math.AP)**; Numerical Analysis (math.NA); Computation (stat.CO)

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