Résolution et calcul d'erreurs a posteriori des équations de Navier-Stokes paramétrés par la méthode des bases réduites

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After a brief introduction to the Reduced Basis Method, a Galerkin projection method suited for the approximation of parametrized partial differential equations, we present an *a posteriori* error estimation for the Navier–Stokes equations.

We rely on natural norms — *local* parameter-dependent norms — to provide a sharp and computable lower bound of the inf-sup constant. We reformulate the Brezzi–Rappaz–Raviart existence and uniqueness theorem to allow the presence of two distinct norms.

With respect to previous works, the existence condition is relaxed and the field variable error bound sharpened. We apply our method to a steady natural convection problem in a closed cavity, with Grashof number varying from 10 to 10^7.