A posteriori estimates for incompressible viscous flow problems

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ABSTRACT

We discuss mathematical questions crucial for reliable quantitative analysis of viscous fluids and other incompressible media. The first principal question concerns the measure to be used. In the case of Navier–Stokes equation, we show that the measure is not a standard norm and can be reduced to a norm only in some special cases. Another question is related to the incompressibility condition. Arising difficulties are closely related to the stability lemma (LBB condition). In this context, the question on how to find the respective constant by means a unified mathematical machinery is of utmost importance.