Asociación Argentina
de Mecánica Computacional

Mecánica Computacional Vol XXXIII, págs. 13-13 (resumen)
Graciela Bertolino, Mariano Cantero, Mario Storti y Federico Teruel (Eds.)
San Carlos de Bariloche, 23-26 Setiembre 2014

WHAT DO WE CALL LBB CONDITION? HISTORY AND RECENT RESULTS FOR THE STOKES PROBLEM

Ricardo G. Durán

Departamento de Matemática, Universidad de Buenos Aires, Buenos Aires, Argentina

Abstract. LBB (Ladyzhenskaya-Babuska-Brezzi) is a usual terminology to refer to a stability condition in the analysis of partial differential equations and their finite element approximations. However, there are several different arguments to prove stability, indeed, the contributions of the three authors mentioned above are related but not equal. First, we review some of the basic results and their relation in a general context. Second, we focus in the case of the Stokes equations modeling the displacement of an incompressible fluid. We analyze different equivalent forms of the stability condition. One of this forms is a result due to Lions, who seems to be the first in proving the stability condition. All this classic results are valid for Lipschitz bounded domains. Finally, we present recent generalizations, based on weighted Sobolev norms, which allows us to analyze well posedness and finite element approximations of the Stokes equations in some non-Lipschitz bounded domains.