POLITECNICO MILANO 1863

MODELLISTICA E CALCOLO SCIENTIFICO
MOX
MODELING AND SCIENTIFIC COMPUTING

MOX Seminar

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Stabilized methods and inf-sup conditions

4 October 2017, 2:00 pm
Aula Seminari "F. Saleri", MOX .

Abstract:
Stabilized methods provide a procedure to stabilize the various sources of instabilities that arise in the numerical simulation of incompressible fluid flows with reduced computational cost. It consists in adding to the standard Galerkin formulation specific terms aiming at stabilizing the possible sources of instabilities (convection dominance, pressure discretization,…). We shall describe an analysis technique for Navier-Stokes equations, in which the stability of the pressure discretization is based upon the existence of an underlying inf-sup condition between an augmented velocity space and the pressure space. We will next apply this kind of techniques to the discretization of the Primitive Equations of the Ocean. We will end by presenting an application to reduced-order modeling of turbulence.
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