Seminario del Departamento de Matemática y Física Aplicadas
Facultad de Ingeniería

Stabilised finite element methods in anisotropic quadrilateral meshes

Prof. Gabriel Barrenechea

Dept. of Mathematics and Statistics
University of Strathclyde
Scotland

Viernes 08 de abril 2016, 12:00 hrs.

Auditorio San Lucas - Facultad de Medicina - UCSC

Resumen

In this talk I will review some recent results on the stabilisation of finite element methods in anisotropic quadrilateral meshes. Our first attempt is the family $Q_{k+1} \times P_{k-1}$. This pair is inf-sup stable, but their stability constant depends on the aspect ratio of the triangulation. Then, we identify the minimal amount of pressure modes which are responsible for this behaviour, and we propose a method that penalises them in such a way that the resulting scheme is stable independently of the aspect ratio. Next, we move to the, optimal and not inf-sup stable, $Q_1 \times P_0$ pair, and the Oseen equation.