



SEMINARIO DE ANÁLISIS NUMÉRICO Y MODELACIÓN MATEMÁTICA

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Título de la Charla:

***Stabilized mixed finite elements for the approximation
of the axisymmetric generalized Stokes equations***

Fecha y Hora:

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Lugar:

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Resumen

This paper is devoted to the numerical analysis of an augmented finite element approximation of the axisymmetric Brinkman equation. Stabilization of the variational formulation is achieved by adding suitable Galerkin least-squares terms, allowing us to transform the problem into a saddle point formulation. The sought quantities (here vorticity, velocity and pressure) are approximated by piecewise linear and continuous, lowest order Raviart-Thomas, and piecewise constant finite elements, respectively. The well-posedness of the resulting continuous and discrete variational problems is derived by virtue of the classical Babuška-Brezzi theory. We further establish a priori error estimates in the natural norms, and we provide a few numerical tests illustrating the behavior of the proposed augmented scheme and confirming our theoretical findings regarding convergence of approximate solutions.