SEMINARIO DE ANÁLISIS NUMÉRICO Y MODELACIÓN MATEMÁTICA

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Título de la Charla:

Discontinuous finite volume element methods and its applications to miscible displacement problems

Fecha y Hora:

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Lugar:

Auditorio Alamiro Robledo, FCFM

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Resumen

In this talk, first we would like to discuss advantages of discontinuous finite volume element methods (DFVEM) over the standard finite volume element methods (FVEM). Then, we discuss applications of DFVEM in approximation of miscible displacement problems. The mathematical model which describe the miscible displacement of one incompressible fluid by another in a porous medium is modeled by two coupled nonlinear partial differential equations; one is pressure-velocity equation and other is concentration equation. In this talk, we discuss a mixed FVEM for the approximation of the pressure-velocity equation and a DFVEM for the concentration equation. Also, a priori error estimates for velocity, pressure and concentration will be discussed. Some Numerical experiments will be presented to substantiate the validity of the theoretical results.