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## SEMINARIO DE ANÁLISIS NUMÉRICO Y MODELACIÓN MATEMÁTICA

GIMNAP-Departamento de Matemática, UBB  
Centro de Investigación en Ingeniería Matemática (CI<sup>2</sup>MA), UDEC

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*Título de la Charla:*

***A finite volume method for a two-phase  
multicomponent polymer flooding***

*Fecha y Hora:*

**Martes 21 de Octubre de 2014, 15:30 Horas.**

*Lugar:*

**Sala Seminario, Facultad de Ciencias**

**Universidad del Bío-Bío.**

### **Resumen**

Multicomponent polymer flooding used in enhanced oil recovery is governed by a system of coupled non-strictly hyperbolic conservation laws. In the presence of gravity, the flux functions need not be monotone and hence designing Godunov type upwind schemes is difficult and computationally expensive. To overcome this difficulty, we use the basic idea of discontinuous flux to reduce the coupled system into an uncoupled system of scalar conservation laws with discontinuous coefficients. For these scalar equations we use the DFLU flux to construct a second order scheme. The scheme is shown to satisfy a maximum principle and the performance of the scheme is shown on both one and two dimensional test problems.