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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:*

***Improved finite-difference component-wise WENO  
schemes for hyperbolic systems of conservation laws***

**Fecha y Hora:**

**Martes 14 de Abril de 2015, 15:30 Horas.**

**Lugar:**

**Sala Seminario, Facultad de Ciencias  
Universidad del Bío-Bío.**

### **Resumen**

Component-wise High-Resolution Shock-Capturing schemes were developed as an alternative to the use of characteristic-wise schemes, based on the use of the spectral decomposition of the Jacobian matrix of the fluxes for upwinding. Unfortunately, the results obtained when using a component-wise scheme tend to be too diffusive and oscillatory. In an attempt to improve the results obtained using a component-wise finite-difference WENO scheme, we analyze different strategies as using different split upwind fluxes, the use of a high-order reconstruction method with a control of the oscillations, to reduce the oscillatory behavior while maintaining the high resolution of the scheme, or the use of adaptivity, in order to speed up computing times.