
SEMINARIO DE ANÁLISIS NUMÉRICO Y MODELACIÓN MATEMÁTICA

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Título de la Charla:

*High order in space and time schemes through
an approximate Lax-Wendroff procedure*

Fecha y Hora:

Martes 21 de Junio de 2016, 15:30 Horas.

Lugar:

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Resumen

In this talk we present an extension of the scheme developed by Chi-Wang Shu and Jianxian Qiu in 2003 to numerically solve hyperbolic conservation laws, with arbitrarily high order both in space and time, based on the Lax-Wendroff procedure, using the finite difference Shu-Osher's scheme and the WENO spatial reconstruction technique. The aforementioned extension mainly consists in some improvements based on simplifications in the computation of high order terms. On the one hand, a technique which avoids the computation of the derivatives of the flux (which commonly requires symbolic manipulation tools, in addition to being computationally expensive) is developed. On the other hand, an additional discontinuity detection is implemented in order to avoid a propagation of fluctuations at the approximations of the derivatives.