



Αθήνα, 23/1/2018

ΔΙΑΔΕΞΗ

Ομιλητής: Gabriel Barrenechea
(Strathclyde, UK)

Τίτλος: «Nonlinear edge diffusion and the discrete maximum principle»

Περίληψη: In this talk I will review recent results on the analysis of shock-capturing-type methods applied to convection-dominated problems. The method of choice is a variant of the Algebraic Flux-Correction(AFC) scheme. This scheme has received some attention over the last two decades due to its very satisfactory numerical performance. Despite this attention, until very recently there was no stability and convergence analysis for it. Thus, the purpose of the works reviewed in this talk was to bridge that gap. The first step towards the full analysis of the method is a rewriting of it as a nonlinear edge-based diffusion method. This writing makes it possible to present a unified analysis of the different variants of it. So, minimal assumptions on the components of the method are stated in such a way that the resulting scheme satisfies the Discrete Maximum Principle (DMP) and is convergence. One property that will be discussed in detail is the linearity preservation. This property has been linked to the good performance of methods of this kind. We will discuss in detail its role and the impact of it in the overall convergence of the method. Time permitting, some results on a posteriori error estimation will also be presented.

This talk will gather contributions with A. Allendes (UTFSM, Chile), E. Burman (UCL, UK), V. John (WIAS, Berlin), F. Karakatsani (Chester, UK), P. Knobloch (Prague, Czech Republic), and R. Rankin (U. of Nottingham, China).

Η ομιλία θα δοθεί την **Παρασκευή 26 Ιανουαρίου 2018** και **ώρα 13:35**, στην Αίθουσα Σεμιναρίων του Τομέα Μαθηματικών, κτ. Ε΄, 2ος όροφος.

Η Επιτροπή Σεμιναρίων