

PhD Programme in Computer Science and Mathematics

SEMINAR ANNOUNCEMENT

Prof. Higinio Ramos

University of Salamanca, Spain

Wednesday – October, 30

Time: 3:10 p.m.

Room: Aula VI, Mathematics Department

Block methods versus Runge-Kutta methods, what is the most efficient approach?

*Runge-Kutta (RK) methods are well-known schemes for anyone that has needed some numerical method for solving initial value problems in ordinary differential equations. There are thousands of articles on Runge-Kutta type methods. Those methods are usually expressed using the Butcher tableau, which contains the coefficients of the particular method considered. Some of these methods are implicit and based on the zeros of orthogonal polynomials as those of Legendre, Chebyshev, Laguerre or Gegenbauer.*

*This work aims at presenting the relation between block methods and RK implicit methods and how to try to reformulate these RK methods as optimized block methods, which in fact will result in a more efficient performance.*

Higinio Ramos completed in 2004 his PhD from University of Salamanca (Spain), obtaining the Extraordinary Award of the Faculty of Sciences for his Thesis in Chebyshev spectral methods for solving second order initial value problems. He is currently Associate Professor of Applied Mathematics at the Department of Applied Mathematics at the University of Salamanca and responsible of the Scientific Computer Group at this University. His scientific interests include numerical solution of initial value problems, techniques of approximation, and in general, topics related with numerical analysis.