

PhD Programme in Computer Science and Mathematics

SEMINAR ANNOUNCEMENT

Prof. Gustaf Söderlind

Lund University, Sweden

Thursday – October, 17

Time: 3:10 p.m.

Room: Aula VI, Mathematics Department

Logarithmic norms and Quadratic forms, with applications to differential equations.

In this talk we give an introduction to the theory of logarithmic norms. The logarithmic norm was introduced in 1958 by Dahlquist and Lozinskij, but was only applied to matrices. After reviewing the classical theory we develop the modern theory in functional analysis, and point to the many applications in IVPs, BVPs and PDEs, showing that the concept has a great versatility, supporting a rich theory in differential equations. Many of these aspects will be developed in greater detail in a compact course to be held at the University of Bari in October - November.

Gustaf Söderlind is professor emeritus at [Mathematics, Faculty of Sciences](#), Numerical Analysis group, and professor at [eSSENCE: The e-Science Collaboration](#). He is visiting professor of the Department of Computer Science from 6 of October to 6 of December. His research activity is related to numerical analysis of differential equations, covering all aspects from theoretical analysis to applied problems and software construction. Special research topics include: adaptivity for ODEs, using control theory and digital signal processing; adaptivity in geometric integration, using splitting methods; adaptive grid generation in 2-point BVPs; stability analysis of nonlinear discretizations; discretization error analysis; dynamics of iterative methods; computational problems in physiology, especially cardiomodelling.