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Other

Numerical Techniques in Optimal Control**William Hager, University of Florida**

Professor, Co-Director of the Center for Applied Optimization

Johnston Hall 338

October 19, 2011 - 03:00 pm

Abstract:

The talk gives an overview of some discrete approximation techniques that have been developed for optimal control problems. We focus in particular on Runge-Kutta discretizations and more recent work on pseudospectral schemes. The numerical paradigm consistency + stability \Rightarrow convergence is explained in the context of these discretizations. Gradient techniques for solving the discretized problems will also be discussed.

Speaker's Bio:

William Hager is a Professor of Mathematics at the University of Florida and co-director of the Center for Applied Optimization. He received his BSc degree in Mathematics from Harvey Mudd College in 1970, and he received a PhD degree from the Massachusetts Institute of Technology in 1974 for a thesis concerning numerical methods in optimal control. His research has included finite element techniques for variational inequalities, numerical linear algebra techniques including the development of the generalized triangular decomposition and its application in signal processing, the modeling of lightning, image reconstruction, the design of anechoic coatings, and a multilevel technique for electronic structure computations. With all of these applications, there is an underlying optimization problem that must be solved. He is editor-in-chief of the journal Computational Optimization and Applications. In 2008 he was awarded a University of Florida Research Foundation Professorship. He is a member of the Society for Industrial and Applied Mathematics, the Mathematics Programming Society, and the American Geophysical Union.

Refreshments will be served.