Department of Mathematics

University of Houston

Scientific Computing Lectures

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Continuous and Discrete Adjoints

Friday, March 9, 2012 2:40 PM- 3:20 PM Room 232 PGH

Abstract: Adjoints are used in optimization to speed-up computations (e.g. optimal shape design), also when the system has to be solved a large number of time (Dupire's equation in finance), or simplify tocompute sensitivities. Because time is reversed in adjoint equations with first order time derivatives, boundary conditions and transmission conditions through singularities and shocks can be difficult to understand. The difficulties do not show in the discrete adjoints but it has not been proved that the discrete adjoint converges to the continuous adjoints. In this talk we shall show numerically on examples that even in the presence of singularities the discrete adjoints obtained by automatic differentiation or hand calculations converge to the continuous adjoints.

This seminar is easily accessible to persons with disabilities. For more information or for assistance, please contact the Mathematics Department at 743-3500.