

Seminar in Nonlinear Systems

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*An interconnection between quasilinear hyperbolic equations
and infinite linear systems of PDE's*

Thursday, February 27, 2003

3:30 pm

Morton 101

Abstract: We establish an interconnection between the solutions of a wide class of quasilinear hyperbolic equations (scalar conservation laws) and linear systems of partial differential equations. Besides an interesting analytic correspondence and related well-posedness results, such a connection allows us to develop new computational methods to find approximate solutions of the original quasilinear equations via the solutions of truncated linear systems. We demonstrate the results for several cases including the new results regarding the Hopf equation.

This is joint work with D. Chae.

Dr. Dubovski's research interests are in the general area of mathematical physics and mathematical modeling. Much of his work has focused on the theoretical and computational analysis of differential and integral equations, particularly kinetic and transport equations arising in physics and chemistry.

Dr. Dubovski received a M.S. in Applied Mathematics from the Moscow Engineering Physics Institute, a Ph.D. in Mathematics from Moscow State University, and Doctor of Science in Mathematical Physics & Mathematical Modeling from the Institute of Numerical Mathematics, Russian Academy of Sciences (INM RAS). He has held research and teaching positions at the Obninsk Institute of Nuclear Power Engineering, the Moscow Institute of Physics and Technology, and INM RAS.

Refreshments at 3:15pm