

MATHEMATICS DEPARTMENT
North Carolina State University

DIFFERENTIAL EQUATIONS SEMINAR

Wednesday, September 10, 2003
2:35 p.m. 330 Harrelson Hall

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“Blowup of solutions for hyperbolic conservation laws”

Hyperbolic conservation laws are a class of partial differential equations with finite speeds of propagation, *e.g.*, the Euler equations for gas dynamics. We consider simple examples showing that the solutions of these equations typically lose regularity as time evolves, leading to formation of shock waves and to solutions in a weak (generalized) sense. While the theory for a single equation is well developed (existence, uniqueness, qualitative behavior), the same is not true for systems of equations. I will briefly review Glimm’s basic existence result for systems and demonstrate that it is a small data result in an essential way. This last part of the talk will deal with recent results on blowup of the solution.

Graduate students are invited to attend.

For questions, comments, and offers to talk, contact Steve Schechter, schechter@math.ncsu.edu.
Please visit the DE Seminar web page at www.math.ncsu.edu/seminars.html.