

MATHEMATICS DEPARTMENT
North Carolina State University

DIFFERENTIAL EQUATIONS SEMINAR

Monday, October 27, 2003
4:00 p.m. 330 Harrelson Hall

Kevin Zumbrun

Department of Mathematics
Indiana University

“Kreiss symmetrizers with crossing characteristics, and stability of MHD shocks”

We give a generalization of the Kreiss symmetrizer method to hyperbolic boundary problems for which characteristics do not have constant multiplicity and Majda’s block structure condition is violated. This situation occurs for MHD shocks, and has up to now prevented analysis by these techniques; the only nonlinear stability results, therefore, were obtained by the “direct method” of Blokhin (construction of an associated Lyapunov function involving dissipative integrals) and were limited to the special case of vanishing magnetic field. By our general theory, we immediately recover this result by perturbation, and many new results as well. This is joint work with G. Metivier.

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.