

COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY APRIL 17, 2009
704 THACKERAY HALL
4:00 P.M.

PROFESSOR MICHAEL WESTDICKENBERG
SCHOOL OF MATHEMATICS
GEORGIA INSTITUTE OF TECHNOLOGY

ISENTROPIC EULER EQUATIONS

ABSTRACT: The isentropic Euler equations are a model for compressible fluid flows, based on the simplifying assumption that the thermodynamical entropy is constant in space and time. They have the form of a system of hyperbolic conservation laws. We will discuss some of the inherent difficulties of this class of first order partial differential equations and present a new global existence result for spherically symmetric solutions with finite energy to the isentropic Euler equations. We will also discuss a new “steepest descent” interpretation of this system, using ideas from optimal transport theory.

Refreshments served at 3:30 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705