

SPECIAL COLLOQUIUM*
IN HONOR OF PROFESSOR BRYCE MCLEOD
ON THE OCCASION OF HIS RETIREMENT
UNIVERSITY OF PITTSBURGH
FRIDAY, APRIL 13, 2007
704 THACKERAY HALL
4:00 - 5:00 P.M.

SPEAKER: PROFESSOR JAMES SERRIN

**DEPARTMENT OF MATHEMATICS
UNIVERSITY OF MINNESOTA**

**TITLE: RADICAL SYMMETRY OF RADIALY INVARIANT
ELLIPTICAL DIFFERENTIAL EQUATIONS**

ABSTRACT: Consider the differential equation

$$\Delta u + f(u) = 0$$

in a ball B , with $u = 0$ on ∂B . By radial invariance of the operator, one can expect to have radially symmetric solutions. This leads to the classical question,

Are all positive solutions radially symmetric?

We shall show that the answer rather surprisingly depends only on the smoothness of the function f . We will also consider the same question when the Laplace operator Δu is replaced by radially invariant quasilinear elliptic operators, including the important case of the non-uniformly elliptic prescribed mean curvature equation.

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

*This is the Opening Lecture of the Meeting in Topics in Applied Analysis that continues on Saturday, April 14, 2007. See next page.