Temple University Mathematics Colloquium

Ermanno Lanconelli

Universita di Bologna

will speak on

An inverse property for evolution equations

ABSTRACT: Harmonic functions satisfy the mean value property on Euclidean balls and, vice versa, if a continuous function satisfies the mean value property on every Euclidean ball contained in its domain, then it is smooth and harmonic. Thus, we can say that the Euclidean balls characterize the harmonic functions. This property has the following converse - one of the many spherically symmetric results: Suppose D is a bounded open set in N-dimensional Euclidean space, and assume that, for a fixed point p in D, every integrable harmonic function in D is equal, at p, to its solid average on D. Then, D is an Euclidean ball. All these results have a counterpart in the context of caloric functions, i.e., the solutions to heat equations. The aim of this talk is to present a short review of this topic, and to show how the previous converse theorem extends to a general class of evolution equations.

Monday, October 22, 2012
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3:40 pm
Room 617, Wachman Building
Department of Mathematics