

THE MATHEMATICS DEPARTMENT PRESENTS

A MATHEMATICS COLLOQUIUM

THURSDAY, May 3, 2007

BOND HALL 227

4:00 pm

Title: Distributions and Fundamental Solutions of Differential Equations

Speaker: Anna Barry, Western Washington University

Abstract: Partial differential equations are often difficult or even impossible to solve when restricted to the framework of classical analysis. The development of the theory of distributions during the 20th century granted access to a wider class of possible solutions to such problems. In this newer theory, fundamental solutions are distributions which allow one to write down solutions to some differential equations. Moreover, in many cases the existence of a fundamental solution guarantees the existence of solutions.

During my presentation, I will introduce some key concepts of the theory of distributions and fundamental solutions. I will give several examples of fundamental solutions to particular linear differential operators and show how a fundamental solution can be used to solve differential equations. Throughout my presentation, I will use familiar types of functions to illustrate definitions and examples, showing that the theory is actually a generalization of that which we have learned in undergraduate courses.

Refreshments will precede the talk at 3:30pm in Bond Hall 300
courtesy of David Hartenstine.