PURDUE UNIVERSITY

Department of Mathematics
*Celebration of Women in Mathematics**

Jean E. Rubin Memorial Lecture

Tuesday, October 7, 2008
4:30 p.m.
MATH 175 (2nd and University Streets)

Refreshments will be served in the Math Library Lounge (3rd floor MATH Bldg.) at 4 p.m.

Speaker:

Jill Pipher

Professor of Mathematics
Brown University

Multi-parameter Fourier analysis

Abstract

Classical harmonic analysis, of the Calderón-Zygmund school, was originally driven by the desire to answer some questions about trigonometric series and to develop a calculus for the study of elliptic differential operators. The theory evolved into a study of broadly defined singular integral (and maximal) operators in $\mathbb{R}^n$ which have fundamental connections to operators arising in complex analysis and in linear and nonlinear partial differential equations. The basic operators are defined by kernels which are invariant under translations and a one parameter family of dilations, $x \to \rho x, \rho > 0$. In the multiparameter theory, one considers a different generalization to n dimensions in which the operators in question respect a multiparameter family of dilations, for example $x \to (\rho_1 x, \rho_2 x, ..., \rho_n x), \rho_i > 0$. Once again, there are connections to the theory of (multiple) Fourier series and to PDE. The talk is an introduction to and overview of some aspects of this theory.

Jean E. Rubin was Professor of Mathematics at Purdue University from 1967 until her death in 2002. She received a B.S. from Queen's College in New York City in 1948, an M.A. from Columbia in 1949, and a Ph.D. from Stanford in 1955. She taught at Oregon and Michigan State before coming to Purdue.

Professor Rubin was the author of more than 40 papers and five books in set theory and questions related to the axiom of choice.

Partially supported by Purdue's Women in Academia program.

For additional information about Women in Mathematics events on October 7, see http://intranet.math.purdue.edu/news/2008/09/26/women-in-mathematics-day/.