PURDUE UNIVERSITY

Department of Mathematics

8th Annual Women in Mathematics Day

Jean E. Rubin Memorial Lecture

Tuesday, September 30, 2014
4:30 p.m.
MATH 175

Refreshments will be served at 4:00 p.m. in the Math Library Lounge (3rd floor MATH Bldg.).

Introduction to Synthetic-Aperture Radar Imaging

Abstract

Radar imaging is a technology that has been developed, very successfully, within the engineering community during the last 50 years. Radar systems on satellites now make beautiful images of regions of our earth and of other planets such as Venus. One of the key components of this impressive technology is mathematics, and many of the open problems are mathematical ones.

This lecture will explain, from first principles, some of the basics of radar and the mathematics involved in producing high-resolution radar images.

Speaker:

Margaret Cheney

Colorado State University

Albert C. Yates Endowment Professor of Mathematics

Dr. Cheney also holds an appointment in the Department of Electrical and Computer Engineering at Colorado State University. After receiving her Ph.D. in 1982 from Indiana University, she was a postdoc Stanford University (1982-84), an assistant professor at Duke University (1984-88), and a professor at Rensselaer Polytechnic Institute (1988-2012) before moving to Colorado State in 2012.

Professor Cheney has served on the SIAM Board of Trustees and various other SIAM committees, and currently serves on the editorial boards of two journals. She has received various awards, including most recently an Honorary Doctor of Science from Oberlin College in 2011. She is a Fellow of the Institute of Physics and a Fellow of SIAM.

Most of her work has been on the inverse problems that arise in acoustics and electromagnetic theory; since 2001, she has been working on radar imaging.

Jean E. Rubin was Professor of Mathematics at Purdue University from 1967 until her death in 2002. She earned 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 the University of 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.

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