

# WICHITA STATE UNIVERSITY

Department of Mathematics and Statistics

*The Lecture Series in the  
Mathematical Sciences Presents Our Guest:*

**Dr. Lothar Reichel**

Kent State University

*“Multilevel Methods for Ill-Posed Problems”*

Abstract:

Multilevel methods are popular for the solution of well-posed problems, such as certain boundary value problems for partial differential equations and Fredholm integral equations of the second kind. However, little is known about the behavior of multilevel methods when applied to the solution of linear ill-posed problems, such as Fredholm integral equations of the first kind, with a right-hand side that is contaminated by error. We discuss properties of cascadic multilevel methods with a conjugate gradient-type method as basic iterative scheme. In particular, we consider applications to image deblurring and denoising using edge-preserving prolongation operators based on partial differential equations defined by Perona-Malik and total variation-type models. The talk presents joint work with Serena Morigi, Fiorella Sgallari, and Andriy Shyshkov.

Friday, April 11, 2008

3:00 PM in 372 Jabara Hall

*Please come join us for refreshments before the lecture*

*at 2:30 p.m. in room 353 Jabara Hall.*