

TEMPLE UNIVERSITY  
Department of Mathematics

# Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

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## Multilevel Methods for Ill-posed Problems

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**Abstract.** Multilevel methods are popular for the solution of PDEs. However, little is known about the behavior of multilevel methods when applied to the solution of linear discrete ill-posed problems such as those arising from the discretization of Fredholm integral equation of the first kind. The difficulty in solving discrete ill-posed problems is the presence of noise on the right hand side of the linear system. In this talk we discuss properties of linear discrete ill-posed problems and give an introduction to multilevel methods. We present a wavelet based multilevel method and some results that indicate the promise of this approach on restoration of signals with edges.