

Fast Multiscale Methods for Solving Ill-posed Integral Equations

Hongqi Yang

Department of Scientific Computing and Computer Applications

Sun Yat-Sen University, Guangzhou 510275, P. R. China

mcsyhq@mail.sysu.edu.cn.

Abstract

We describe fast multiscale methods for solving ill-posed integral equations by using the Tikhonov regularization. The methods lead to fast solutions of the discrete regularization methods. *A priori* and *a posteriori* parameter choice strategies are presented, and convergence rates of the regularized solutions are estimated. Numerical results are given to demonstrate the efficiency and accuracy of the proposed methods.