

Kaczmarz Methods for Regularizing Nonlinear Ill-posed Equations

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Abstract:

In this talk we develop and analyze novel iterative regularization techniques for the solution of systems of nonlinear ill-posed operator equations. The basic idea consists in considering separately each equation of this system and incorporating a loping strategy. The first technique is a Kaczmarz-type method, equipped with a novel stopping criteria. The second method is obtained using an embedding strategy, and again a Kaczmarz-type approach. We prove well-posedness, stability and convergence of both methods.