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ETNA
Kent State University
etna@mcs.kent.edu

ALGEBRAIC MULTIGRID SMOOTHING PROPERTY OF KACZMARZ'S RELAXATION FOR GENERAL RECTANGULAR LINEAR SYSTEMS*

CONSTANTIN POPA†

Abstract. In this paper we analyze the smoothing property from classical Algebraic Multigrid theory, for general rectangular systems of linear equations. We prove it for Kaczmarz's projection algorithm in the consistent case and obtain in this way a generalization of the classical well-known result by A. Brandt. We then extend this result for the Kaczmarz Extended algorithm in the inconsistent case.

Key words. algebraic multigrid, smoothing property, Kaczmarz relaxation, inconsistent least squares problems

AMS subject classifications. 65F10, 65F20, 65N55

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†Faculty of Mathematics and Computer Science, Ovidius University of Constanta, Blvd. Mamaia 124, 900527 Constanta, Romania (`cpopa@univ-ovidius.ro`).