1043-90-113   **Dennis Leventhal*** (`leventhal@orie.cornell.edu`), Cornell University, Rhodes Hall 292, Ithaca, NY 14853, and **Adrian Lewis** (`aslewis@orie.cornell.edu`), Cornell University, Rhodes Hall 234, Ithaca, NY 14853. *Randomized Methods for Linear Constraints: Convergence Rates and Conditioning.*

Conditioning issues naturally arise in the convergence analysis of a variety of algorithms. We examine randomized variants of two classical algorithms–coordinate descent for linear equations and iterated projections for linear inequality systems–and show that, under appropriate probability distributions, the linear rates of convergence (in expectation) can be bounded by natural linear-algebraic condition measures for the underlying problems. Generalizations to iterated projection algorithms for convex systems are then considered under metric regularity assumptions. (Received August 22, 2008)