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Massimiliano Lupo Pasini* (mlupopa@emory.edu), **Michele Benzi** (benzi@mathcs.emory.edu), **Thomas M. Evans** (evanstm@ornl.gov), **Steven P. Hamilton** (hamiltonsp@ornl.gov) and **Stuart R. Slattery** (slatterysr@ornl.gov). *Monte Carlo Acceleration of Iterative Solvers for Sparse Linear Systems.*

We consider hybrid deterministic-stochastic iterative algorithms for the solution of large, sparse linear systems. Starting from a convergent splitting of the coefficient matrix, we analyze various types of Monte Carlo acceleration schemes applied to the original preconditioned Richardson (stationary) iteration. These methods are expected to have considerable potential for resiliency to faults when implemented on massively parallel machines.

We establish sufficient conditions for the convergence of the hybrid schemes, and we investigate different types of preconditioners including sparse approximate inverses. Numerical experiments on linear systems arising from the discretization of partial differential equations are presented. (Received January 05, 2016)