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**Akhtar A. Khan\*** (aaksma@rit.edu), School of Mathematical Sciences, 85 Lomb Memorial Drive, Rochester, NY 14623. *Stochastic approximation framework for inverse problems of identifying random parameters in stochastic partial differential equations.* Preliminary report.

The primary objective of this work is to study the inverse problem of identifying a parameter in partial differential equations with random data. We explore the nonlinear inverse problem in a variational inequality framework. We propose a projected-gradient-type stochastic approximation scheme for general variational inequalities and give a complete convergence analysis under weaker conditions on the random noise than those commonly imposed in the available literature. The proposed iterative scheme is tested on the inverse problem of parameter identification. We provide a derivative characterization of the solution map, which is used in computing the derivative of the objective map. By employing a finite element based discretization scheme, we derive the discrete formulas necessary to test the developed stochastic approximation scheme. Preliminary numerical results show the efficacy of the developed framework. (Received September 15, 2020)