1125-65-1403   **Jangwoon Lee***, 1301 College Avenue, Fredericksburg, VA 22401, and **Lee** and **Hwang**. *An Optimization Based Domain Decomposition Method for Stochastic Optimal Control Problems.*

A nonoverlapping domain decomposition method for optimal control problems for partial differential equations with random inputs is presented. The domain decomposition is effected through a an auxiliary optimization problem. This results in an multi-objective optimization problem involving the given functional and the auxiliary functional. The existence of an optimal solution to the multi-objective optimization problem is proved as are convergence estimates as the parameters used to regularize the problem (penalty parameters) and to combine the two objective functionals tend to zero. An optimality system for the optimal solution is derived and used to define a gradient method. Convergence results are obtained for the gradient method and the results of some numerical experiments are obtained. (Received September 16, 2016)