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**Mahadevan Ganesh\*** ([mganesh@mines.edu](mailto:mganesh@mines.edu)), Department of Applied Mathematics and Statist,  
Golden, CO 80401. *A reduced basis method for multiple electromagnetic scattering.*

We consider a parameterized multiple particle wave propagation model in three dimensions. The parameters in the model describe the location, orientation, size, shape, and number of scattering particles as well as properties of the input source field such as the frequency, polarization, and incident direction. The need for fast and efficient (online) simulation of the interacting scattered fields under parametric variation of the multiple particle surface scattering configuration is fundamental to several applications for design, detection, or uncertainty quantification.

For such dynamic parameterized multiple scattering models, the standard discretization procedures are prohibitively expensive due to the computational cost associated with solving the full model for each online parameter choice. In this work, we propose an iterative offline/online reduced basis approach for a boundary element method to simulate a parameterized system of surface integral equations reformulation of the multiple particle wave propagation model.

(This is a joint work with J. Hesthaven and B. Stamm.) (Received August 23, 2011)