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**Yassine Boubendir\*** (boubendi@njit.edu), Maths. Sci dept. Univ. Heights, 323 Dr. M. L. King Jr Blvd., Newark, NJ 07102. *Local adaptive radiation condition and overlapping domain decomposition methods for Helmholtz equation.*

The model problem addressed in this paper concerns the analysis and computation of a radiated or scattered time-harmonic acoustic solution, where the obstacle is composed of dielectric and metal. A new adaptive radiation condition method, that localizes the artificial interface only around the dielectric object, is introduced. An appropriate algorithm coupling finite and boundary element methods is solved iteratively using an overlapping domain decomposition method. Convergence and stability of the resulting algorithm are established. Numerical results are presented validating the theoretical results. (Received February 15, 2010)