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**Daniel T Onofrei\*** (onofrei@math.uh.edu). *Active control for fields Modelled by Helmholtz equation.* Preliminary report.

In this presentation we study the problem of active control of fields in the context of scalar Helmholtz equation. Given a source region  $D_a$  and  $\{v_0, v_1, \dots, v_n\}$ , a set of solutions of the homogeneous scalar Helmholtz equation in  $n$  mutually disjoint "control" regions  $\{D_0, D_1, \dots, D_n\}$  of  $\mathbb{R}^2$  or  $\mathbb{R}^3$  respectively, the main objective of the paper is to characterize the necessary boundary data on  $\partial D_a$  so that the solution to the corresponding exterior scalar Helmholtz problem will closely approximate  $v_i$  in  $D_i$  respectively for each  $i \in \{0, \dots, n\}$ . We will present the existence of a class of solutions to the problem, discuss the existence of a minimal energy solution and provide numerical support of the results in 2D and 3D as well. We will also present a sensitivity analysis of the approach where questions such as stability and feasibility of the proposed scheme will be discussed (Received July 21, 2014)