

Materials and Systems for Noise Control : Categorization and Challenges

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ABSTRACT

In this presentation, noise control materials will be discussed from several points-of-view. First, materials will be categorized in terms of their intended function: i.e., as dissipative materials, as barriers, and as media intended to modify some aspect of the sound field. Within each category, example implementations will be described as will modeling procedures. In the context of barrier materials, recent developments in the area of metamaterials will be described briefly, and problems with some recently suggested approaches will be highlighted. Acoustical cloaking will be described as a method of modifying a sound field in such a way that a sensitive area is shielded from noise exposure; the practical difficulties of this approach will also be described. Finally, within each category of material and approach, a series of suggested research challenges will be described.