Active Noise Shielding with Uncertainties

The problem of noise reduction appears in many engineering applications. In the active noise shielding, additional sound sources are introduced in such a way that the total acoustic field in the protected domain is equivalent to noise attenuation. In industrial applications, this approach often requires too many secondary sources and their implementation becomes unrealistic. In the project the number of controls should be significantly reduced with the use of probabilistic and stochastic methods. The key idea is that preliminary measurements can be used to calculate basis functions adapted to each specific problem. These functions can be used to predict and approximate the most probable noise under uncertainties. This approach can be especially efficient with the use of the novel potential-based approach to active sound control [1-3]. The results of the project can be used for the reduction of noise propagating from plants.

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