Research unit Intelsig (Signal and image exploitation)
Department of Electrical Engineering and Computer Science
Liege university ULg

Master thesis subject 2016-17

Analysis of the sound field's diffusivity in a reverberant chamber

Description

The absorption coefficients of acoustic materials are measured in laboratory in a reverberation chamber. The standardized method (described in an ISO document) requires that the sound field in this chamber must be diffuse (as far as possible), i.e. with a random incidence of the sound waves at any location in the room.

Diffusivity in reverberant rooms is not easy to achieve, in particular when absorbing samples are present.

The objective of this master project is to analyse the diffusivity of the sound field in the reverberant chamber of our laboratory. This analysis can be based on:

- a state-of-the-art (previous similar studies),
- propagation models (finite elements methods, ray-tracing methods),
- sound pressure level measurements made at several positions in the room,
- frequency response measurements highlighting the possible existence of modal frequencies,
- experiments with diffusing surfaces inside the room.

The expected conclusions of this work will be a "diagnostic" of the sound field's diffusivity in our reverberation chamber and possibly some recommendations to improve it, if necessary.

Student's profile

Master in engineering (electrical, mechanical, or any other who is interested by applied acoustics).

Contacts

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