Institute of Fundamentals and
Theory in Electrical Engineering

BA-Thesis/TI-Project/MA-Thesis

Room Acoustic Improvments for Office Rooms

Motivation

The new office spaces of the Acoustics Group at IGTE located in Inffeldgasse 16c/I need room acoustic improvements. In order to achieve these improvements, the current situation should be measured (according to EN ISO 3382-2) and problematic frequency ranges should be identified. Following that, a Finite Element Model of the room should be generated in the software openCFS which matches the measured room for low frequencies. A meaningful absorber configurations should be suggested and simulated using openCFS. Depending on the acoustic demands, also edge absorbers can be applied in the office room. The absorber configuration should be realised in the office room, and acoustic measurements of the new situation should be made.

The work should ideally be done by 2-3 students in cooperation! It is scalable between bachelor thesis, TI-project, and master thesis.

Research Questions

- Literature review: Standards, usage analysis, and recent theses in room acoustics at TU Graz
- Development of an acoustic requirements profile
- Room acoustic measurements and determination of actual status
- How can the Finite Element software openCFS be utilized for room acoustic applications?

Tasks

- Measure and assess the current acoustic situation and simulate it in openCFS
- Suggest a meaningful absorber configuration and extend your openCFS-model with the absorbers
- Realize the absorber configurations in the office room
- Measure and assess the new acoustic situation and compare measurements and simulations

Organisation

- Language: English (preferred), or German
- Start: immediately possible

Contact/Supervisor

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