# Master Thesis

## Local Diffuseness Estimation in the Plane-Wave-Domain

**Description**
In recent works by Politis et al., a framework for a sector based higher order Ambisonics (HOA) parametric encoding-decoding scheme was presented. The sound-field parameters, such as the diffuseness, are estimated per sector, where a sector is derived by applying a certain beam-pattern to the input signal. However, for the parameter estimations, only the signal of one sector is used. Analogously, one can decompose an HOA signal into 'sectors' via the plane-wave decomposition. The idea of this work would be:
a) Relate sector decomposition by Politis et al. to plane-wave decomposition
b) Estimate local (per plane-wave direction) diffuseness in plane-wave domain.
c) Evaluate local diffuseness estimator.

**Related topics**
- Microphone array processing
- Higher order Ambisonics
- Acoustic Signal Processing

**Recommended prerequisites**
- MATLAB programming skills.
- Solid math background (engineering level).
- Courses: Speech Enhancement, Speech and Audio Signal Processing, Statistical Signal Processing.

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