Beamforming of rotating sources

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Project overview

Beamforming with microphone arrays has become a standard method for aeroacoustics measurements, when the sources of sound have to be investigated in difficult surroundings. In presence of fast rotating objects (e.g. helicopter, wind turbine rotors, fan blades and propellers) the ability to follow the motion of the sources is important. In particular, in presence of multiple noise sources (rotating and not), their correct detection is essential to define noise abatement strategies.

During this project, a urban ducted wind turbine will be experimentally investigated in the open-jet facility at TUDelft.

Project Goals

The following topics will be addressed:
- Implementation of a beamforming algorithm able to follow rotating noise source;
- Application of the algorithm to wind-tunnel experiments on a ducted wind turbine;
- Detection of the most relevant sources of noise;
- Identification of technological solution for noise abatement based on experimental evidences.

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Conventional Beamforming   Beamforming with rotating sources

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MSc Research Thesis Assignment