



Biomimetic Antenna Array with 360° Scan

Master Thesis

Theory and Motivation:

Localization is already a very established topic. Biomimetic antenna arrays however, promise more accurate angle estimation of an incident wave. An array of two antennas is capable of detecting the phase offset between the incident waves in both antennas. By using a Biomimetic Coupler, which “mimicks” the hearing system of insects, a better angle detection is to be expected. Such a System works for angles between 0° to 180°. To enable the possibility of distinguishing between both half-planes, meaning a coverage of 360°, the usage of more than two antennas has to be investigated.

Application:

- Radar and Object Localization

Tasks:

- Principles of localization and biomimetic couplers
- Investigation of operation performance (with Matlab)
- Design (by EM-simulation) of biomimetic coupler and of receiving antennas

Information:

- requires some knowledge of high-frequency circuit design and concepts
- thesis can be written in either German or English language
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