



Dielectric dimers for directional scattering

Master Thesis
or
Research Thesis

Theory and Motivation:

- high-permittivity ceramics particles of spherical geometry can be designed to steer the incident radiation towards an user-defined direction
- a combination of two such dielectric spheres, known as a dimer, can be engineered to increase the directivity of the angular scattering pattern

Application:

- non-invasive bio-sensing
- boosting antenna directivity
- near-field focusing

Tasks:

- full-wave EM simulations of Alumina ceramic based dimers around 30 GHz
- for measurements, a bistatic setup needs to be developed with over-the-air calibration

Information:

- requires some knowledge of high-frequency circuit design and concepts
- thesis can be written in either German or English language
- contact: Max Lippoldt, room 3.238, max.lippoldt@ihf.uni-stuttgart.de

