



## Project Works, Topics for Master and Bachelor Theses

The department of Microwave Electronics offers various topics – with and without – reference to microwaves. In addition to topics in the field of microwave antennas, radar, meta-materials, 3D-filter or modelling of microwave semiconductors, we also offer topics in the area of power supply, controlling of measurement set-ups, signal-processing and microcontroller programming. Also, parts of any topic can be offered as project work.

- Design and characterization of a phase shifter for electronically scanning antennas at K-band
- Design, realization and characterization of a 1-dimensional electronically scanning antenna at 24 GHz
- Design, realization and characterization of a 24 GHz FMCW radar front end for imaging applications
- Development of an algorithm to analyze the raw data from an FMCW radar using Scilab or Python
- Investigation of the accuracy of the starting values for different small-signal Models for HEMTs taking into account the Bias-dependency of access resistances.
- Design of coupled-resonator microstrip filter using simulation tool HFSS driven by an optimization python routine
- Multi-Temperature optimization for extracted small-signal parameters
- Development and implementation of beam steering technique for reconfigurable antennas at K-band
- Proposals for topics are highly appreciated, at any time

Please find further information here:  
<https://www.uni-kassel.de/eecs/micel>

