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## Diplomarbeit / Masterarbeit

Aufgabe der Abschlussarbeit im  
ISE Bachelor/Masterstudiengang

**für:** Herrn Bahram **Sanadgol**  
**gestellt von:** Prof. Dr.-Ing. K. Solbach  
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**Aufgabenstellung:** **Control and prediction of scan blindness effects in printed planar antenna systems**

### Description of Problem:

In many practical applications of antenna arrays, the appearance of scan blindness needs to be observed. This phenomenon occurs under special scan angles and significantly affects the element input impedance at these angles. It will not be possible anymore to feed the particular antenna element with the initially specified power. So, the antenna array in this direction is not functioning anymore. Therefore, the prognosis of blind angles or the minimization of their effects is of great practical interest.

The assignment of this work is to predict these crucial angles and, if possible to control or minimize its effects. Furthermore, different types of element and their positioning grid spacing in the array are to be investigated concerning the scan blindness. Here, the mutual coupling and radome effects and the appearance of grating lobes play an important roll. In order to analyze the different effects several FDTD simulations need to be carried out.

Additionally, one classical verification method, e.g., the waveguide simulator, is to be dimensioned and optimized. This method needs to be implemented and realized.

Finally, the results of FDTD simulations and verification method are to be compared and evaluated.

On completion of the thesis, a presentation will be held in the Hochfrequenztechnik department.