

# Bachelors/Master thesis

## Near Field to Far Field Transformation



### Motivation

For far-field estimation of antennas, near-field scanning has been used extensively. Applied to electromagnetic compatibility (EMC) problems, near-field scanning has been used to estimate emissions from both integrated circuits (ICs) and printed circuit boards (PCBs). Recently, there has been growing interest in applying near-field far-field predictions to electromagnetic interference EMI/EMC problems.

### Research topic

To predict far-field emissions from a PCB in the upper half of the room, near-field data from a planar surface above the PCB is usually sufficient. However, near-field measurements on a single planar surface may not be sufficient to predict the far-field radiation of three-dimensional structures. Both near-field electric (E) and magnetic (H) fields on an enclosed Huygens surface may be preferred for near-field scanning when predicting the far-field radiation associated with the EMI problems of some complex structures. However, an H-only method could be a good alternative due to the difficulties of E-field measurement. Since phase measurement is usually difficult, phase-less algorithms and time-domain measurement algorithms are also good candidates.

### Your Profile

You are eager to learn. Prior knowledge and experience in the field of Electromagnetics is highly appreciated. You will learn about different method for near field to far field transformation. You will learn a lot about the measurements, probing from kHz to GHz range, phase measurements using an oscilloscope etc.

### Organizational matters

- Start: ---
- Workplace: at the institute

### Contact/Supervision

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