

Bachelor-Thesis

Tunable/programmable transmission-lines and their limits at high RF

Transmission-lines have been an essential part of integrated circuits since their inception. In many circuits e.g. for communication or RADAR systems, they are not only used for the transmission of signals but also for matching. Here, tunable/programmable transmission lines allow to change the matching during operation, which can be very helpful to e.g. address the various frequency bands used in communication standards like our WiFi.

However, with increased frequency, the required length, losses and sensitivity become hard to manage. In this bachelor thesis, the limitations of programmable transmission-lines will be investigated using modern EM-simulation tools. Through this study, their applicability to future systems in 6G will be shown.

Anforderungen:

- Erfahrungen mit CAD-Programmen von Vorteil
- Kenntnisse in Python oder MATLAB von Vorteil

Nach Abschluss der Arbeit bestehen gute Berufsaussichten in den folgenden Bereichen:

- Automotive-Radar
- Kommunikationstechnik
- Materialforschung

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