Position: Master Thesis - Development of an RFIC Reference Design Flow

Location: Cadence office, Feldkirchen, Munich

Position description:

The expansion of the market for wireless communication devices has given a tremendous push to the development of RFIC products where more and more functions are integrated on the same chip. In addition to a process technology that ensures high performance at very high frequencies a good design methodology, innovative CAD tools and a well-integrated design environment are key factors to success.

To address this market need IHP and Cadence Design Systems advertise a position for a Master student to jointly develop a dedicated RFIC reference flow. The objective of the assignment is the development, implementation and documentation of a modern design flow based on the IHP SiGe BiCMOS technology using a leading-edge RF-design.

You will be required to perform:

- Specialized time and frequency domain analysis methods to optimize and verify circuit performance
- Functional verification and system-level analog-mixed-signal validation
- Layout implementation using a constraint-driven parasitic-aware design flow
- Parasitic extraction and signal integrity analysis for system-level sign-off verification
- Development of a modular workshop to exemplary guide through the whole RFIC design process (design specification, verification planning, system-level analysis using advanced RF simulation and optimization techniques, system-level sign-off verification)

The different elements of the design flow will have to be presented in individual workshop modules. The student is expected to set up the design environment, simulation testbenches and verification scripts for each of the modules, and finally document all steps in a comprehensive user manual.

Position requirements:

Potential candidates are expected to have profound RF design knowledge. Hands-on experience with Cadence tools is beneficial.

The development of the flow and the compilation of the workshop will take 6 months and is financially supported by Cadence Design Systems. Cadence engineers will support the student in defining the flow and developing the final workshop.

If you are interested in the position contact Prof. Dr.-Ing. habil. Dietmar Kissinger: kissinger@tu-berlin.de

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