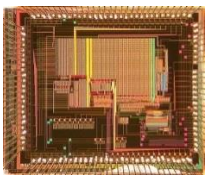

Master Thesis Offer #002 @ Universität der Bundeswehr

Design of an energy-efficient A/D converter reference network

Application area
Wireless body networks, wireless sensor networks, sensor front-ends, low-power RF transceivers

Objective
The objective of this master thesis is to propose, develop, and design an energy-efficient capacitive-resistive reference network for a very low-power A/D converter in CMOS technology. The reference network is one of the main building blocks of the ADC which will be integrated into an autonomous body sensor front-end.

Contents
The initial phase will contain investigation of the current state-of-the art in the most recent charge recycling reference networks in industry or scientific literature. The evaluation of the reference designs will lead to a novel topology which will be developed by the candidate. The selected network topology then will be designed full-custom (schematic to layout) in CMOS technology with the most recent industrial integrated circuit design tools (Cadence ADE) and will be optimized for the yield.

Duration
6 months.

Candidate profile
We are looking for a self-motivated, passionate, and not easily yielding candidate which strives for achieving results and has excellent analytical skills. The applicant ideally should have received the fundamental electronic design lectures, and should have practice and understanding of the basics of analog design. English knowledge is necessary to work in the field. Previous knowledge of Cadence ADE is a big advantage, but is not a must.

Deal
What we propose in return is an excellent support (both for the technical knowledge and for the available infrastructure) and guidance during your work which will prepare you for a future career in semiconductor industry or research in this domain.

Work place
This project is conducted in cooperation with Fraunhofer Institute for Modular Solid-State Technologies (EMFT). Most of the work will be performed at Universität der Bundeswehr with occasional visits to Fraunhofer EMFT for disseminating results and cooperating with excellent scientists.

Contact
Please send your inquiries or applications to: