

EEI-KOLLOQUIUM

Teaching Analog CMOS in the DSM Era – Devices, Design and Tools

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Diskussionsleitung: Prof. Dr.-Ing. R. Weigel

This talk tries to cover a subject of daily importance - which is how to cover the ever growing topic of analog MOS electronics to undergraduate and graduate students. Not only that the complexity and number of devices increases, especially their analytical description becomes increasingly complex such that hand calculations are easy to understand, but appear more and more useless in practice. Simultaneously, the amount and complexity of design tools is also steadily increasing - when 25 years ago layout was done on sandwich paper, nowadays just teaching the tool-usage lasts for weeks.

Additionally, we face the problem that already the understanding of basics analog circuits remains the same myth to young students as decades ago.

Moreover, in a more and more digital world, where everything seems to be programmable, the motivation of students to study the analog topic is more important than ever.

So the question arises: where to start, what to teach?

In this presentation, the way from devices to tools over design methodologies to system design is covered with a special focus to teaching. The talk will finally present some of the undergraduate and graduate student projects in the field of neural interfaces for biomedical implants, transcutaneous energy and data transfer as well as A/D converters for communication.