

INTEGRATED CIRCUIT DESIGN SEMINAR: TAIWAN

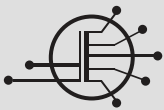
IC ROBUSTNESS: CHALLENGES – AND HOW TO IMPROVE IC TIMING USING TUNABLE COMPONENTS

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INTEGRATED CIRCUITS (ICs) AND SYSTEMS are the basic building blocks of the electronics industry, which continues to transform our lives every day.

Traditionally ICs were designed to optimize performance and minimize area and thus cost. But increasingly now, reliability and robustness are rapidly emerging as key challenges in IC design. In the past, reliability and robustness were handled on technology level. It was ensured that the individual devices (transistors, wires) were reliable enough. As we move to ever smaller manufacturing geometries, it becomes increasingly more difficult to ensure individual device reliability, however. At the same time, the number of devices keeps increasing exponentially due to Moore's Law. These two forces create a strong imperative for design to ensure reliability and robustness.

This talk will address reliability and robustness challenges. It will then demonstrate especially how tunable on-chip components can be utilized to improve the timing performance of chips individually after they have been manufactured. This opportunity, however, leads to a number of EDA challenges which will be discussed.



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THE SPEAKER



Ulf Schlichtmann is chair professor and head of the institute for Electronic Design Automation at TUM. His research addresses design, analysis and optimization of integrated circuits and systems – primarily digital, but also analog. His teaching broadly covers EDA. Ulf has a Dipl.-Ing. (MSc) degree and a doctorate from TUM. He also holds an MSc-level degree in technology business from the University of Hagen. From 1994-2003, he spent about 10 years at Siemens and Infineon in various engineering, management and executive positions, before joining TUM in 2003. He continues to cooperate closely with industry and advises both small and large industrial companies.

From 2008-2011, he was Dean of TUM's Department of Electrical, Electronic and Computer Engineering. Currently, he serves as Dean of Studies for international programs. He has initiated and continues to direct two MSc and one BSc program at TUM Asia in Singapore. Also, he co-chairs the Governing Board of TUM's research centre in Singapore, TUM CREATE

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