

Industry-Academic Forum on EMC 2020

Academic Participants and Contributions



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EMC Challenges at GHz Frequencies

Different technologies advance at different speeds and, hence, often face similar challenges albeit at different times. What is common EMC knowledge nowadays in high-end server design was partially rediscovered in consumer electronics recently, most notably smart phones, and – so it seems – is a “new challenge” currently e.g. in automobile electronics. The term “EMC knowledge” in this contribution refers to measurement, modeling, and mitigation techniques for electromagnetic interference (EMI), signal integrity (SI), and power integrity (PI) problems that have their spectral footprint at multiple GHz or even tens of GHz frequencies. Examples in this regard are the radiation from connected printed circuit boards and the high-speed fan-out of a connector or package footprint. At the same time technologies that push EMC such as high-speed digital design and radar application keep developing and are in need of novel approaches. This contribution will take a closer look at such EMC challenges, new and old, and will provide some suggestions on how to approach these more efficiently.

Christian Schuster received the Diploma degree in physics from the University of Konstanz, Germany, in 1996, and the Ph. D. degree in electrical engineering from the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, in 2000. Since 2006 he is full professor and head of the Institute of Electromagnetic Theory at the Hamburg University of Technology (TUHH), Germany. Prior to that he was with the IBM T. J. Watson Research Center, Yorktown Heights, NY, where he was involved in high-speed optoelectronic package and backplane interconnect modeling and signal integrity design for new server generations. His current interests include signal and power integrity of digital systems, multiport measurement and calibration techniques, and development of electromagnetic simulation methods for communication electronics. Christian Schuster is a Senior Member of the IEEE and an Associate Editor for the Transactions on EMC.