

## 40 YAW

### Celebrating 40 Years of Actions on Mobile and Wireless Communications

#### *Propagation and Channel Modelling – Impact by 40 years of COST Actions*

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#### Abstract

Starting with COST 207 and its impact on standardizing GSM, the series of a total of 8 COST actions on Mobile and Wireless Communications have continuously accompanied and influenced the development of wireless systems until today. The speaker has participated in all actions since 1991 focussing on propagation aspects. The lecture will consist of a review on channel modelling and propagation activities focussing and their impact and application from 2G to 5G wireless systems. Famous examples for the sustainable output of the early COST actions are the COST 207 channel model, the COST 231-Hata Model and the COST 231 Walfisch-Ikegami Model which are still in widespread use. The COST 259 spatial channel model, COST 273 MIMO model and the COST 2100 channel model including its updates in COST IC1004 have paved the way for the success of multi-antenna systems. Among the more recent results is the COST IRACON Geometry-Based Stochastic Channel Model for V2V Communications in Intersections. COST IRACON has also led foundations towards channel models taking into account Massive MIMO, millimeter wave and THz communications. A key ingredient of the success story of all these results is the exchange of information, models and measured data among participating institutes, which have catalysed the development of novel propagation and channel models in Europe. The lecture will also provide examples on the successful sharing of research data among the COST participants.

#### Bio



Thomas Kürner (Fellow IEEE) received his Dipl.-Ing. degree in Electrical Engineering in 1990, and his Dr.-Ing. degree in 1993, both from University of Karlsruhe (Germany). From 1990 to 1994 he was with the Institut für Höchstfrequenztechnik und Elektronik (IHE) at the University of Karlsruhe working on wave propagation modelling, radio channel characterization and radio network planning. From 1994 to 2003, he was with the radio network planning department at the headquarters of the cellular operator E-Plus Mobilfunk GmbH & Co KG, Düsseldorf, where he was team manager radio network planning support responsible for radio network planning tools, algorithms, processes and parameters from 1999 to 2003. Since 2003 he is Full University Professor for Mobile Radio Systems at the Technische Universität Braunschweig. He was participating in many COST Actions on Wireless and Mobile Communications since 1991. In COST 259 he was chairing WG 3 Networks Aspects. In 2012 he was a guest lecturer at Dublin City University within the Telecommunications Graduate Initiative in Ireland. Currently he is chairing the IEEE 802.15 Standing Committee THz and the ETSI Industrial Specification Group THz. He was also the chair of IEEE 802.15.3d TG 100G, which developed the worldwide first wireless communications standard operating at 300 GHz. He was the project coordinator of the H2020-EU-Japan project ThoR (“TeraHertz end-to-end wireless systems supporting ultra-high data Rate applications”) and is Coordinator of the German DFG-Research Unit FOR 2863 Meteracom (“Metrology for THz Communications”). In 2019 and 2022 he received the Neal-Shephard Award of the IEEE Vehicular Technology Society (VTS) and also in 2022 the Best Teacher Award of the European School on Antennas and Propagation (ESoA).