

# THz Communications – A Candidate for Future 6G Systems

Thomas Kürner

*Professor, Technische Universität Braunschweig,  
Braunschweig, Germany*

## Abstract

Already a couple of years ago THz communications have not only become an attractive new research area on channel modeling but also triggered a couple of projects heading to develop appropriate technological solutions to enable the set-up of hardware demonstrators. In parallel discussions and activities in standardization and regulation already took off. In October 2017, IEEE published Std. IEEE 802.15.3d-2017 the worldwide first wireless communications standard operating in the 300 GHz frequency band. Regulatory activities wrt the World Radio Conference 2019 (WRC-2019) via a dedicated agenda item have taken off. The speaker has been actively involved in all those areas. The talk will provide a brief overview on the current status of the development of THz Communication systems focusing on the past and current activities at IEEE 802 and the WRC 2019, on recent results on advanced channel characterization at 300 GHz, hardware demonstrators operating in this frequency range and challenges on metrology for THz communications.

## 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 characterisation and radio network planning. From 1994 to 2003, he was with the radio network planning department at the headquarters of the GSM 1800 and UMTS 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. 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 TAG 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 is also the project coordinator of the H2020-EU-Japan project ThoR (“TeraHertz end-to-end wireless systems supporting ultra high data Rate applications”) and Coordinator if the German DFG-Research Unit FOR 2863 Meteracom (“Metrology for THz Communications”). In 2019 he received the Neal-Shephard Award of the IEEE Vehicular Technology Society (VTS). Since 2016 he is a member of the Board of Directors of the European Association on Antennas and Propagation (EurAAP) and since 2020 a Distinguished Lecturer of IEEE VTS.