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Prof. Jianqing Wang

Professor in Nagoya Institute of Technology (NITech)
Vice Director of Center for Future Communications Research, Nagoya, Japan

Body Area Communications

Date: 06th Sep. 2024
Time: 16:00 -17:00 (UTC+2, CEST)
Location: Room 0.19, building A,
Am Schwarzenberg-Campus 1,
21073 Hamburg, Germany

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Hints: Online participation is possible upon request. Please **sign up in advance** (E-mail: cheng.yang@tuhh.de)



IEEE GEMC Event



EMC DL Talk by Prof. Jianqing Wang

Body Area Communications

Abstract: This talk will introduce the basic principle and mechanism of body area communications, and provide some examples of its application to on-body communication and in-body communication. It will involve body-area channel modeling, modulation and demodulation, and EMC aspects. The examples of applications include a wearable electrocardiogram and a wearable robotic hand by combining vital sensors and on-body communication technology. The basic EMI mechanism of external electromagnetic field to wearable devices will be clarified from the viewpoint of conversion from common mode to differential mode, and a countermeasure at the design stage will be shown. Another example is an in-body communication module with small antennas that use the 10-60-MHz band to enable 20 Mbps high-speed communication to the deep part of the human body.

Biography: **Jianqing Wang** is a Full Professor at Nagoya Institute of Technology (NITech) and Vice Director of Center for Future Communications Research, NITech, Japan. He received the B.E. degree in electronic engineering from Beijing Institute of Technology, Beijing, China, in 1984, and the M.E. and D. Eng. degrees in electrical and communication engineering from Tohoku University, Sendai, Japan, in 1988 and 1991, respectively. He was a Senior Engineer with Sophia Systems Company Ltd., Tokyo, Japan, before joining NITech, Nagoya, Japan, in 1997. His research interests include electromagnetic compatibility and biomedical communications. He authored *Body Area Communications* (Wiley-IEEE) in 2012 and received the Technical Achievement Award from the IEEE EMC Society in 2019. In 2021, he was elevated to IEEE Fellow for his contributions to EMC of biological and wearable/implant devices. Since 2020, he has been focusing his research on EMC aspects and international standardization of automobile Ethernet devices and components at the Center for Future Communications Research, NITech, which aims to evaluate the reliability of communication that contributes to the realization of a safe and secure autonomous driving system.