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INDIN 2023 Special Session on

SS 07 – Wireless Communications for Industry 4.0

organized by

Principal Organizer: Lisa Underberg (lisa.underberg@ifak.eu)

Affiliation: Institute for Automation and Communication, Germany



Lisa Underberg received M.Sc. in Electrical Engineering in 2013 and her PhD focussing on wireless communication systems for factory automation in 2019 from TU Dortmund University, Dortmund, Germany. She is currently with the Institute for Automation and Communication (ifak), Magdeburg, Germany, where she heads the "Wireless Automation" group. Her research interests include wireless communication networks, applications in process and factory automation and critical infrastructure and other Industry 4.0-related topics. She chairs 5G-ACIA's working group "Industrial 5G in Practice", participates in industrial radio-related groups of ZVEI, VDI and VDE and is part of the Automation Congress' program committee.

Organizer 1: Armin Dekorsy (dekorsy@ant.uni-bremen.de)

**Affiliation: University of Bremen, Department of Communications Engineering
(ANT), Bremen, Germany**



Armin Dekorsy received the B.Sc. degree in communications engineering from the University of Applied Sciences Konstanz, Konstanz, Germany, the M.Sc. degree in communications engineering from the University of Paderborn, Paderborn, Germany, and the Ph.D. degree in

communications engineering from the University of Bremen, Bremen, Germany, in 2000. He is distinguished by eleven years of industry experience in leading research positions, notably as DMTS at Bell Labs and as Research Coordinator Europe Qualcomm, and by conducting more than 50 (inter) national research projects. He is the Head of the Department of Communications Engineering, Founder and Managing Director of the Gauss-Olbers Space-Technology-Transfer-Center and has been a Board Member of the Technology Center for Informatics and Information Technology for the last ten years.

Organizer 2: Hans Schotten (schotten@eit.uni-kl.de)

**Affiliation: Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau,
Chair for Wireless Communications and Navigation, Kaiserslautern, Germany**



Hans D. Schotten received the Diploma and Ph.D. degrees in electrical engineering from the Aachen University of Technology RWTH, Germany, in 1990 and 1997, respectively. He held positions, such as senior researcher, project manager, and head of research groups at the Aachen University of Technology, Ericsson Corporate Research, and Qualcomm Corporate Research and Development, respectively. At Qualcomm, he was the Director for Technical Standards and a Research Coordinator for Qualcomm's participation in national and European research programs. He was a Company Representative with WWRF, EICTA, Bmco forum, and European Technology Platforms. Since 2007, he has been a Full Professor and the Head of the Institute of Wireless Communication and Navigation, University of Kaiserslautern. Since 2012, he has additionally been a Scientific Director with the German Research Center for Artificial Intelligence heading the Intelligent Networks Department.

Organizer 3: Philipp Schulz (philipp.schulz2@tu-dresden.de)

**Affiliation: Technische Universität Dresden, Vodafone Chair Mobile
Communications Systems, Dresden, Germany**



Philipp Schulz received the M.Sc. degree in Mathematics and the Ph.D. (Dr.-Ing.) degree in Electrical Engineering from Technische Universität Dresden, Germany, in 2014 and 2020, respectively. He was a Research Assistant with Technische Universität Dresden in the field of numerical mathematics, modeling, and simulation, where he joined the Vodafone Chair for Mobile Communications Systems in 2015 and became a member of the System-Level Group. His research there focused on flow-level modeling and the application of queuing theory on communications systems with respect to ultra-reliable low-latency communications. After more than one year at the Barkhausen Institut, Dresden, Germany, where he studied rateless codes in the context of multi-connectivity, he is currently a research group leader at the Vodafone Chair and focuses on resilience of wireless communications systems.

Call for Papers

Numerous industrial processes can be optimized in the context of Industry 4.0 by incorporating resilient and secure wireless technologies. Automated commissioning is conceivable through the use of radio systems, which enable flexible networking of systems with other machines and their environment. Today, sensor-actor systems, control and regulation of plants is carried out via wired systems, such as Ethernet, PROFINET, CAN or HART. Control tasks in particular place the highest demands on the communication system in terms of security, transmission robustness and latency, which in the state of the art can only be met by wired systems. However, the use of radio communication allows mobility and easier deployment in places that are difficult to access.

The organizers of this special session collaborate in the Industrial Radio Lab Germany (IRLG), which engages in research and development of current and future wireless technologies in industry.

We welcome both, academic researchers and industrial practitioners, to submit their new ideas, findings, approaches, frameworks or tools for handling these challenges in Industry 4.0 to this Special Session.

Topics of the Session include, but are not limited to:

- Resilient & dependable industrial campus networks
- Real time spectrum sensing & interference monitoring
- Protection against active & passive environmental influences
- Communication control co-design & cross-layer design
- Coexistence Management
- Artificial intelligence in industrial communications systems
- IT and network security
- Applications and requirements for industrial radio
- AAS for (wireless) communication networks
- Digital Twins including communication networks

Submissions Procedure: All the instructions for paper submission are included in the conference website <https://2023.ieee-indin.org/index.php>

Deadlines:

Deadline for submission of papers:	March 01, 2023
Notification of acceptance of papers:	April 15, 2023
Final manuscripts due:	June 05, 2023