

Technical University of Dresden and Tohoku University Symposium 2012

On "Ultra High Speed Wireless Communications Technologies"

Sakura Hall, Katahira Campus, Tohoku University, November 2, 2012

Sponsored by Technical University of Dresden and
2012 RIEC Supporting for International Symposium

2012 RIEC Collaboration Project Research (Unlicensed Band Wireless Communications)

This Symposium will offer an opportunity to exchange information on ultra high speed wireless communications focusing on Millimeter wave (60 GHz) and Terahertz communications. This is a dream come true for wireless communications engineers/researchers since these systems can provide higher speed communications than the current FTTH can provide. Many ideas on implementing low power terminals and improving capacity further will be presented.

- Date: November 2, 2012
- Time: 10:30 – 17:40
- Place: Sakura Hall, Katahira Campus, Tohoku University
(Sakura hall: <http://www.dais.is.tohoku.ac.jp/~hj07/access2.html>)
- Working language: English (Questions in Japanese are welcome)
- Participation fee: free

Agenda

10:30 - Opening: Prof. Masataka Nakazawa, Director General, RIEC, Tohoku University

10:35 - 12:00 Keynote speeches

- Prof. Gerhard P. Fettweis, Collaborative Research Project at TU Dresden on "High-Speed Wireless Interconnects and Intraconnects for Future Electronics"
- Prof. Shu Kato, Tohoku University on "60 GHz (Millimeter Wave) Applications and Future"

Lunch

13:00 – 15:05 Invited speeches 1

- Dr. Tuncer Baykas, Tohoku University on "60 GHz Single Carrier Systems and IEEE Standardization"
- Prof. Hirokazu Sawada and Dr. Lawrence Materum, Tohoku University on "60 GHz Indoor Radio Channel Models and Measurements for Beam Tracking Systems"
- Prof. Masahiro Umehira, Ibaraki University on "Orthogonal Polarization based MIMO Transmission for Advanced 60GHz WLAN"
- Dr. C. W. Pyo, NICT on "MAC Enhancement for 60 GHz Systems"
- Dr. Stefan Krone, Vodafone Chair – TU Dresden (Cooperation Project at TU Dresden) on "60GHz Short-Range Transmission: A Multi-Gbit/s Wireless Data Link Using 1-Bit Data Converters"

Coffee break

15:30 – 17:35 Invited speeches 2

- Mr. Yosuke Sato, Tohoku University on "60 GHz Beam Forming Antenna Systems"
- Prof. Suguru Kameda, Tohoku University on "A 60 GHz-band 2x4 Dipole Array Antenna Module Using 3-D SiP Technology"
- Prof. Wei Peng, Tohoku University on "Single-carrier Frequency Domain Equalization and its Application to Multi-user Detection"
- Dr. Emil Matus, TU Dresden on "Parallel Architectures for High Throughput Baseband Processing"
- Prof. Taichi Otsuji, Tohoku University on "Terahertz Wave Generation Using Graphene toward New Types of Terahertz Lasers"

17:35 - Closing: Prof. Masafumi Yano, Ex-Director General, RIEC, Tohoku University

Reception (at Sakura Hall) 18:00-19:30 Fee: ¥2,000 (¥1,000 for a student)

Registration/参加申込: Ms. Naomi Aizawa (相澤なお美, 東北大学通信研究所 加藤研究室)

Tel: 022-217-5477 E-mail: katolab@riec.tohoku.ac.jp (Registration by 10/31 recommended)

Speakers

Prof. Gerhard Fettweis earned his Ph.D. from RWTH Aachen in 1990. Thereafter he was at IBM Research and TCSI Inc., California. Since 1994 he is Vodafone Chair Professor at TU Dresden with main research interest on wireless transmission and chip design. He is IEEE Fellow and an honorary doctorate of TU Tampere.

Prof. Shu Kato graduated from Tohoku University and joined NTT Laboratory in 1977. In 1995, he established Pacific Communications Research Inc. and became President of Uniden in 1996. In 2006, he joined NICT (National Institute of Information and Communications Technology) to help Japanese wireless industry in global competition, and lead a millimeter wave standardization to success as Vice Chair, IEEE802.15.3c that became the first millimeter global standard in 2009. In 2008, he joined RIEC, Tohoku University as a Professor.

Dr. Tuncer Baykas received his Ph.D. degree in electrical engineering from the University of Ottawa, Canada in 2007. In 2007 he joined NICT as an expert researcher. He served as secretary and subeditor for the IEEE 802.15.3c Task Group, Millimeter Wave Alternative PHY group, as well as the chair of IEEE 802.19 Task Group 1, Wireless Coexistence in the TV White Space. He currently works at Tohoku University as a research fellow. His research interests include receiver design, interference mitigation and cognitive radio systems.

Prof. Hirokazu Sawada graduated from Gifu University and joined Tohoku Institute of Technology in 2002. He joined NICT in 2005 and Tohoku Institute of Technology in 2007. In 2009, he joined Tohoku University as an assistant professor. His main research area is millimeter-wave antenna and propagation.

Dr. Lawrence Materum received the Ph.D. degree in international development engineering major in electrical/electronics engineering from Tokyo Institute of Technology in 2009. He taught in De La Salle University in 2010. Since 2011 he has been conducting his postdoctoral research at the Research Institute of Electrical Communications of Tohoku University. His current research interests include radio propagation channel measurements and analysis, and adaptive antenna arrays.

Prof. Masahiro Umehira received the B.E., M.E. and Ph.D. degrees from Kyoto University in Japan in 1978, 1980 and 2000. He joined NTT in 1980, where he was engaged in the research and development of satellite communications and broadband wireless access systems. Since 2006, he has been a Professor of Ibaraki University, Hitachi-shi, Japan. His research interest includes broadband wireless access networks, cognitive radio technologies and future satellite communication systems.

Dr. C. W. Pyo received his Ph.D. degree in Computer Sciences from University of Tsukuba, Japan in 2005. Since he joined the National Institute of Information and Communications Technology (NICT) in 2005, he has been engaged in wireless and mobile communications researches on heterogeneous networks, wireless personal communication networks (WPAN) on millimeter wave, and wireless regional area network (WRAN) on TV whitespace. In current, he works on the system design for WRAN on TV whitespace as well as serves as the chair of IEEE 802.22 task group b (802.22b).

Dr. Stefan Krone received his Ph.D. degree in 2012 from TU Dresden, Germany. He is now with the Vodafone Chair at TU Dresden, working as a research group leader and technical project coordinator. His research interests include wideband communications under hardware constraints as well as 5G cellular PHY design, both from a signal processing perspective and from an information-theoretic point of view. He is a recipient of the Best Student Paper Award at IEEE PIMRC 2012.

Mr. Yosuke Sato received the M.E. degree in Electrical Engineering from Tohoku University, Japan in 2011. From October 2011 to March 2012, he studied at the University of Ottawa as a visiting researcher. Currently he is working toward Ph.D. degree at Tohoku University specializing 60 GHz beam forming antennas.

Prof. Suguru Kameda received the Ph.D. degree in Electronics Engineering from Tohoku University in 2001. In 2001, he joined the Research Institute of Electrical Communication (RIEC), Tohoku University. His main research area is heterogeneous wireless network that includes cellular, wireless LAN/PAN and satellite communication systems.

Prof. Wei Peng received her Ph.D. degree from Hong Kong University in 2007. She joined Tohoku University in Dec. 2007 and now she is serving as an assistant professor in the Department of Communication Engineering. Her current research is focusing on single carrier frequency domain signal processing for distributed antenna networks.

Dr. Emil Matus is a senior scientist at Vodafone Chair Mobile Communication Systems of TU Dresden where he is leading HW research group. He received his MS and Ph.D. degrees in Electrical Engineering from University of Technology in Kosice. Prior to joining Vodafone chair he was research associate at TU Kosice and FAU Erlangen focused on wavelet transform and image compression. His current research interests include algorithms and parallel architectures for wireless baseband signal processing.

Prof. Taiichi Otsuji received the Dr. Eng. degree from Tokyo Institute of Technology, Japan in 1994. He has been a professor at the Research Institute of Electrical Communications, Tohoku University, Sendai, Japan since 2005 after working for Kyushu Inst. Tech. and NTT Laboratories, Japan. He has authored and co-authored more than 150 peer-reviewed journals. His current research interests include terahertz electronic and photonic materials/devices and their applications.

