

2013 International Workshop on Emerging ICT

29-30 October, 2013

Graduate School of Engineering, Tohoku University, Sendai, Japan



Sponsored by

Department of Information and Intelligent Systems, Faculty of Engineering, Tohoku University
Department of Electrical Engineering, Graduate School of Engineering, Tohoku University
Department of Communication Engineering, Graduate School of Engineering, Tohoku University
Department of Electronic Engineering, Graduate School of Engineering, Tohoku University

Scope

2013 International Workshop on Emerging ICT is organized by the three universities (Tohoku University, University of Electronic Science and Technology of China, and Yeungnam University). This workshop aims at a good mutual understanding of educational and research activities of the three universities. Undergraduate students and graduate students gather to present their university lives and research topics in the area of electronics and communications. The first workshop was held at Yuengnam University in Nov. 2004. This year's workshop will be held at Tohoku University, Sendai, during 29 (Tuesday) to 30 (Wednesday), Oct. 2013.

Welcome Message from General Co-Chair

On behalf of organizing committee of 2013 International Workshop on Emerging ICT, I would like to express my sincere welcome to all of participants to this conference. This workshop covers wide area of technologies falling into fields of information and communication technology (ICT). ICT is very important to enhance the infrastructure of our society to support the safe and enriched life and also to contact and communicate with other people living in far distant places. I hope that each technical presentation generates other new ideas to advance the related technologies.



Education and research are equally important. This workshop provides not only opportunity of presentations and exchanging of latest research outcomes and ideas, but also opportunity of exchanging the student life in different universities and knowing each other to make a good friendship. The main part of conference is one-day long, and it is followed, on next day, by culture exploration in Sendai historic places and laboratory tour at Tohoku University. This workshop offers a good opportunity for us to keep a close collaboration among participants from three universities and to enhance our educational and research activities in the ICT fields.

Two and half years ago, the great earthquake seriously damaged the Aobayama-campus of our University. Recovery from the damage is rapidly ongoing. Reconstruction of our damaged No.1 building will be completed in spring 2014. The autumn weather in Sendai is perfect. I hope that all of participants can enjoy the workshop and meeting together in a beautiful and pleasant environment.

October, 2013

A handwritten signature in black ink that reads "Fumiya Adachi". The signature is written in a cursive style.

Prof. Fumiya Adachi, Co-Chair
Tohoku University, Japan

Committee Members

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Fumiyuki Adachi, Tohoku University, Japan
Jin Pan, University of Electronic Science and Technology of China
Byoungchul Ahn, Yeungnam University, South Korea

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Shiori Kawamura, Tatsunori Tsuchiya,
Yosuke Nozue, Koh Motoyama, Tohoku University, Japan

Technical Program

Opening Address (9:30 -9:40) Room: Center Hall

9:30 - 9:40 **Fumiyuki Adachi**, *Tohoku University, Japan*

Session 1 (9:40 - 10:40) Room: Center Hall Session Chair: Jin-Ghoo Choi

9:40-10:10 [Invited Talk] "Space" The final frontier
[1-1] **Hirohito Yamada**, *Tohoku University, Japan*

10:10-10:40 [Invited Talk] Ultra Wide Band (UWB) Based Precise Positioning and Its Applications
[1-2] **Jin Pan**, *University of Electronic Science and Technology of China, China*

Session 2 (10:50 - 11:50) Room: Center Hall Session Chair: Jin Pan

10:50-11:20 [Invited Talk] 5G in Korea
[2-1] **Yongwan Park**, *Yeungnam University, Korea*

11:20-11:50 [Invited Talk] Active Plasmonics in Graphene for Terahertz Applications
[2-2] **Alexander Dubinov**, *Institute for Physics of Microstructures of Russian Academy of Sciences (RAS), Russia*

Session 3 (13:00 - 14:45) Room: 1A Session Co-Chairs: Tatsunori Tsuchiya, Zeyu Hao

13:00-13:15 Evaluation of English Pronunciation Proficiency in a Singing Voice
[3-1] **Kazumichi Yoshida, Akinori Ito**, *Tohoku University*

13:15-13:30 Controlling Switching Pause using AR Agent for Interactive CALL System
[3-2] **Naoto Suzuki, Yutaka Hiroi, Akinori Ito**, *Tohoku University*

13:30-13:45 Intelligibility of Spoken Easy Japanese by non-native Japanese Speakers
[3-3] **Hafiyah Prafianto, Akinori Ito**, *Tohoku University*

13:45-14:00 The Separate Chaining Hashing Scheme with NAND Flash Memory
[3-4] **WK Park, Gyu Sang Choi**, *Yeungnam University*

14:00-14:15 The Matrix Transpose Scheme with NAND Flash Memory
[3-5] **SC Kim, Gyu Sang Choi**, *Yeungnam University*

14:15-14:30 Design of a Low-Voltage Logic Gate Based on Differential-Pair Circuitry
[3-6] **Kiyohiro Kashiuchi, Masanori Natsui and Takahiro Hanyu**, *Tohoku University*

14:30-14:45 Design of a Energy-Efficient Inter-Chip Data Transmission Circuit for an Asynchronous NoC Platform
[3-7] **Yuma Watanabe, Hirokatsu Shirahama, Akira Mochizuki and Takahiro Hanyu**, *Tohoku University*

Session 4 (13:00 - 14:45) Room: 2A Session Co-Chairs: Bunka Nishina, Masaki Nara

13:00-13:15 Duobinary Partial Response Filtered Single-Carrier Transmission
[4-1] **Kohei Abo, Amnart Boonkajay, Fumiyuki Adachi**, *Tohoku University*

13:15-13:30 Single-carrier STBC Diversity Combined with CDP-CE And Linear Inter/Extra-polation
[4-2] **Shohei Yoshioka, Shinya Kumagai, Fumiyuki Adachi**, *Tohoku University*

13:30-13:45 Analog Signal Transmission using Frequency-domain Equalization
[4-3] **Thanh Hai Vo, Shinya Kumagai, Tatsunori Obara, Fumiyuki Adachi**, *Tohoku University*

13:45-14:00 A Mobile Data Collection Method for Clustered WSNs
[4-4] **Mamur Djuraev, Byoungchul Ahn, Chong Gun Kim**, *Yeungnam University*

14:00-14:15 Locating Access Point (AP) using Mobile Sensors in 802.11 WLAN
[4-5] **YH Hur, KW Lee, Seung Yeob Nam**, *Yeungnam University*

14:15-14:30
[4-6] Study on In-Band Spurious Suppression using Magnetic Thin Film Integrated onto RFIC
Peng Fan, Sho Muroga, Yasushi Endo, Tetsuo Ito, Satoshi Tanaka, Motoki Murakami, Kazuaki Hori, Satoru Takahashi, Naoya Azuma, Makoto Nagata, Masahiro Yamaguchi,
Tohoku University

14:30-14:45
[4-7] Evaluation of Receiving Performance of Modulated Scattering Antenna
Masatoshi Saitoh, Keisuke Konno, Qiang Chen, *Tohoku University*

Session 5 (15:00 - 16:45) Room: 1A Session Co-Chairs: Kiyohiro Kashiuchi, Thanh Hai Vo

15:00-15:15
[5-1] GPS Based on Prediction Methods of Traffic Lights Detection Region
CH Choi, Yongwan Park, *Yeungnam University*

15:15-15:30
[5-2] Distance Mapping by Comparing the Image Feature Points Using Database and Single Camera
JS Song, Hyun-Yeol Chung, Yongwan Park, *Yeungnam University*

15:30-15:45
[5-3] Automatic Generation of Kanji Fonts from Small-Size Samples
Tatsunori Tsuchiya, Tomo Miyazaki, Yoshihiro Sugaya, and Shinichiro Omachi, *Tohoku University*

15:45-16:00
[5-4] A Video Coding Method for Preserving Character Region Quality
Yosuke Nozue, Tomo Miyazaki, Yoshihiro Sugaya, and Shinichiro Omachi, *Tohoku University*

16:00-16:15
[5-5] A Study on Dimensionality Reduction for Similarity Search in Distributed Network
Koh Motoyama, Yoshihiro Sugaya, and Shinichiro Omachi, *Tohoku University*

16:15-16:30
[5-6] An Improved Branch Cut Phase Unwrapping Algorithm for InSAR Data Processing
Chaomeng Zhu, Xiaoling Zhang, Lei Zeng, *University of Electronic Science and Technology of China*

16:30-16:45
[5-7] A High-Accuracy Phase Unwrapping Algorithm for Multi-Baseline InSAR
Daiqi Shi, Xiaoling Zhang, Jun Shi, Lei Zeng, *University of Electronic Science and Technology of China*

Session 6 (15:00 - 16:45) Room: 2A Session Co-Chairs: Kohei Abo, Peng Fan

15:00-15:15
[6-1] Construction of Equivalent Source for Imaging Modulated Electromagnetic Radiation
Bunka Nishina, Qiang Chen, *Tohoku University*

15:15-15:30
[6-2] Numerical Analysis of Power Transfer Efficiency in Near-Field Power Transfer Using Multi-Port Scattering Parameters
Yuki Ojiri, Wu Mingda, Qiang Chen, *Tohoku University*

15:30-15:45
[6-3] Development of the Experimental Teaching Equipment for Electromagnetic Field and Wave
Jianmin Zhu, Jin Pan, Deqiang Yang, Xiaoyan Yang, *University of Electronic Science and Technology of China*

15:45-16:00
[6-4] Designing of Circularly Polarized RFID Antenna with a High Gain
Jinwen Zhou, Jin Pan, Chaofeng Jia, Xiaoyan Yang, *University of Electronic Science and Technology of China*

16:00-16:15
[6-5] Multispectral Imaging in Visible Wavelength Utilizing Photonic Crystal
Satoru Ito, Yasuo Ohtera, and Hirohito Yamada, *Tohoku University*

16:15-16:30
[6-6] Vertical Coupling Optical Interface for Single Lithography Silicon Photonics
Masaki Nara, Tomohiro Kita, and Hirohito Yamada, *Tohoku University*

16:30-16:45
[6-7] Array Near-Infrared Spectroscopy Imaging Utilizing Photonic Crystal Wavelength Filters
Masahiro Mitsuhashi, Yasuo Ohtera, and Hirohito Yamada, *Tohoku University*

Map

