



The 24th Wireless and Optical
Communication Conference (WOCC 2015)
October 23 – 24, 2015
Howard International House, Taipei, Taiwan

The 24th Wireless and Optical Communication Conference (WOCC 2015) Daily Program

October 23rd (Friday)

Opining Ceremony

Conference Room

09:40-09:50

Opining Ceremony

Plenary Speech

Conference Room

Chair: Liang-Gee Chen

IEEE Fellow

Vice-President, National Taiwan University

09:50-10:40

PN-01

Big Data and Potential Government Applications

Yi-Bing Lin

Deputy Minister, MOST

IEEE & ACM Fellow

Chair Professor, CSIE, NCTU

Keynote Speech

Conference Room

Chair: Phone Lin

Professor, National Taiwan University

10:40-11:40

KN-01

Energy Informatics for Smart Interaction of Energy and Information (Einstein)

Zhisheng Niu

Professor, Department of Electronic Engineering, Tsinghua University

Tsinghua National Laboratory for Information Science and Technology (TNList)

Session 1 : Multi-antenna Communication

Conference Room

Session Chair: Sen-Hung Wang

13:00-13:20

SO-01

Optimal linear Precoding Scheme for Multibeam Satellite Systems Based on Partial Channel Information

Song Gaojun, Liu Xiaogang, Zhang Xiaolin

Nanchang Hangkong University, P.R. China

13:20-13:40

SO-02

Superimposed Channel Training Algorithm for Time-Varying MIMO Relay Systems

Choo Chiong¹, Yue Rong¹, Yong Xiang²

¹*Curtin University, Australia*, ²*Curtin University of Technology, Australia*

13:40-14:00

SO-03

Transceiver Optimization for Interference MIMO Relay Systems Using the Structure of

Relay Matrix

Khoa Nguyen¹, Yue Rong¹, Nordholm Sven²

¹ Curtin University, Australia, ² Curtin University of Technology, Australia

14:00-14:20

SO-04

An Improved Relative Channel Reciprocity Calibration Method in TDD Massive MIMO Systems

Qiang Liu¹, Xin Su¹, Jie Zeng¹, Hui Gao², Tiejun Lv², Xibin Xu¹, Chiyang Xiao¹

¹ Tsinghua University, P.R. China, ² Beijing University of Posts and Telecommunications, P.R. China

14:20-14:40

SO-05

Performance of Relay with Multi-Layered STBC Uplink Wireless Communication for Multiple Access Channel

M M Kamruzzaman, Wenqi He, Xiang Peng

Shenzhen University, P.R. China

Session 2 : Fiber-Wireless Communication Systems and Modules

Room 103

Session Chair: Chi-Wai Chow

13:00-13:20

SO-06

Integration of Multiple Automotive Radar Modules Based on Fiber-Wireless Network

Jau-Jr Lin

National Changhua University of Education, Taiwan

13:20-13:40

SO-07

Design of Voltage Controlled Oscillator for Fiber Lasers Application in Microwave Generation

Wen Cheng Lai

National Taiwan University of Science and Technology, Taiwan

13:40-14:00

SO-08

A Bidirectional 60-GHz/30-GHz/15-GHz Wireless-over-Fiber Transmission System

Chung-Yi Li, Hai-Han Lu, Peng-Chun Peng, Ting-Chien Lu, Bo-Rui Chen, Dai-Hua Lin

National Taipei University of Technology, Taiwan

14:00-14:20

SO-09

SNR Requirement for OOK Modulation in Satellite-to-Ground Optical Downlink Channel According to Zenith Angle

Selami Şahin

TUBITAK-BILGEM-UEKAE, Turkey

14:20-14:40

IO-01

Visible Light Communications (VLC) – Possibilities and Challenges for Future Wireless Communications

Chi-Wai Chow¹, Chien-Hung Yeh², Yang Liu³

¹Department of Photonics and Institute of Electro-Optical Engineering, National Chiao Tung University, ²Department of Photonics, Feng Chia University, ³Philips Electronics Ltd

Session 3 : Resource Allocation**Room 101****Session Chair: Hung-Yu Wei**

- 13:00-13:20** SO-10
An On-Demand QoE Resource Allocation Algorithm for Multi-flow LTE eMBMS
Hsiang-Yun Meng, Ching-Chun Chou, Rafael Kaliski, Hung-Yu Wei
Nation Taiwan University, Taiwan
- 13:20-13:40** SO-11
Admission Control Strategy in LTE-A and WLAN Integrated Network
Jie Zeng¹, Rongrong Xing², Xin Su¹, Hui Gao², Tiejun Lv², Xibin Xu¹
¹*Tsinghua University, P.R. China*, ²*Beijing University of Posts and Telecommunications, P.R. China*
- 13:40-14:00** SO-12
A Field-tested QoS Scheduler for Diverse Traffic Flows over Mobile Networks
Sheng-Chia Tseng¹, Chih-Wei Huang¹, Tung-Lung Lu², Chiu-Ti Chiang¹, Wen-Hsin Wei³
¹*National Central University, Taiwan*, ²*Research Assist, Taiwan*, ³*Institute for Information Industry, Taiwan*
- 14:00-14:20** SO-13
An Atomic Routing Game for Multi-class Communication Networks with Quality of Service Requirements
Chia-Hung Wang¹, Chia-Jung Lee¹, Mu-En Wu², Wei-Ho Chung³
¹*Fujian University of Technology, P.R. China*, ²*Soochow University, Taiwan*, ³*Academia Sinica, Taiwan*
- 14:20-14:40** SO-14
Efficient Mode Selection for D2D Communication: An Interference Upper Bound Approach
Yao-Ting Chang, Kuang-Hao (Stanley) Liu
National Cheng Kung University, Taiwan

Session 4 : Data Analytics**Room 203****Session Chair: Pu-Jen Cheng**

- 13:00-13:20** SO-15
Modelling Item Sequences by Overlapped Markov Embeddings
Cheng-Hsuan Tsai, Yen-Chieh Lien
National Taiwan University, Taiwan
- 13:20-13:40** SO-16
Deep Belief Networks for Predicting Corporate Defaults
Shu-Hao Yeh¹, Chuan-Ju Wang¹, Ming-Feng Tsai²
¹*University of Taipei, Taiwan*, ²*National Chengchi University, Taiwan*
- 13:40-14:00** SO-17
Contextual Restaurant Recommendation Utilizing Implicit Feedback
Wei-Ti Kuo¹, Yu-Chun Wang¹, Richard Tzong-Han Tsai², Jane Hsu¹

¹National Taiwan University, Taiwan, ²National Central University, Taiwan

14:00-14:20

SO-18

A Novel Feature Selection Method for Nearest Neighbor Search in Binary Embedding Codes

Chih-Yi Chiu, Yu-Cyuan Liou

National Chiayi University, Taiwan

14:20-14:40

IO-02

Web User Stance Classification through User Posting Behavior Analysis

Wei-Fan Chen, Lun-Wei Ku

Academia Sinica, Taiwan

Keynote Speech

Conference Room

Chair: Kai-Ming Feng

Professor, National Tsing Hua University

15:00-16:00

KN-02

Fiber Wireless Convergence for the Benefits of Next Generation Heterogeneous Mobile Data Communications

Gee-Kung Chang

Georgia Research Alliance and Byers Eminent Scholar Chair Professor

Director, NSF Center for Fiber Wireless Integration and Networking

School of Electrical and Computer Engineering, Georgia Institute of Technology

Panel Discussion

Conference Room

Moderator: Hsuan-Jung Su

Professor, National Taiwan University

16:00-17:00

PD-01

Convergence of 5G and IoT

Panelist:

Dr. I-Kang Fu, *Mediatek*

Dr. Yi Hsuan, *Google*

Dr. Howard Huang, *Alcatel Lucent*

Dr. Shin-Ming Liu, *Intel*

Dr. Russell Sun, *Alcatel Lucent*

Prof. Hung-Yu Wei, *National Taiwan University*

October 24th (Saturday)

Keynote Speech

Conference Room

Chair: Pu-Jen Cheng

Professor, National Taiwan University

09:50-10:40

KN-03

Not-So-Big Clinical Data Predictive Analytics

Edward Chang

President, HTC Healthcare

Adjunct Professor, Hong Kong University of Science and Technology

Keynote Speech

Conference Room

Chair: Hsuan-Jung Su

Professor, National Taiwan University

10:40-11:40

KN-04

Internet of Things: The Next Evolution

Yucheun Kevin Jou

Senior Vice President and the Chief Technology Officer, MediaTek

Session 5 : Multicarrier Communication

Conference Room

Session Chair: Hsuan-Jung Su

13:00-13:20

SO-19

A Novel Timing Synchronization Method for U-OFDM-Based Visible Light Communication

Du Zhiyuan, Xian Zhou, Keping Long

University of Science and Technology Beijing, P.R. China

13:20-13:40

SO-20

Iterative Decoding of Precoded Multichannel System with PAPR Reduction

Tsung-Sheng Tang, Chung-Pi Lee, Hsuan-Jung Su

National Taiwan University, Taiwan

13:40-14:00

SO-21

Interleaved FDMA and Single Carrier with Frequency Domain Equalization SC/FDE: IFDMA-SC/FDE with Low Signal Fluctuation and low complexity

Tufik M. Buzid

Algabel Algharbi University, Tripoli, Libya

14:00-14:20

SO-22

A Power Allocation Algorithm to Maximize Capacity in a Full-Duplex Multi-Carrier System

Cheng Feng, Chang Liu, Yongchao Xin, Meng Ma, Bingli Jiao

Peking University, P.R. China

14:20-14:40

SO-23

Energy-Aware Subchannel Assignment in OFDMA System with Proportional Rate Constraints

Su Fong Chien¹, Mau-Luen Tham¹, Tiew On Ting², Kyeong Soo Kim²

¹MIMOS Berhad, Malaysia, ²Xi'an Jiaotong-Liverpool University, P.R. China

14:40-15:00

SO-24

Analysis of Channel Estimation in Mobile Communication Systems with Users Moving at Various Speeds

Cheng Feng, Yingyang Chen, Hongyu Cui, Meng Ma, Bingli Jiao

Peking University, P.R. China

Session Chair: Kai-Ming Feng

- 13:00-13:20** IO-03
300-nm Broadband Cr-Doped Fiber Amplifier for Next-Generation Fiber Communications
Wood-Hi Cheng
Graduate Institute of Optoelectronic Engineering, National Chung Hsing University, Taichung, Taiwan.
- 13:20-13:40** IO-04
Recent Progress in Fiber Orbital Angular Momentum Communication
Jian Wang
Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, Hubei, China
- 13:40-14:00** IO-05
Beyond PDM - Utilization of More Polarization States to Transmit Optical Signals
Lianshan Yan
Center for Information Photonics & Communications, Southwest Jiaotong University, Chengdu, Sichuan, China
- 14:00-14:20** IO-06
Compensation of Common Phase Error in Coherent Optical OFDM Systems using Image Processing Techniques
Calvin C.K. Chan
The Chinese University of Hong Kong
- 14:20-14:40** SO-25
An Iterative SSBI Reduction DSP for Spectral Efficiency Enhancement in a Multiband DDO-OFDM system
Kai-Ming Feng, Jih-Heng Yan, You-Wei Chen, Bing-Chang Tsai
National Tsing Hua University, Taiwan
- 14:40-15:00** IO-07
Optical Performance Monitoring in Fiber Communication Systems
Changyuan Yu^{1,2,3}, Yi Yu¹, Xiaodong Fu⁴
¹*Department of Electrical & Computer Engineering, National University of Singapore, Singapore*
²*A*STAR Institute for Infocomm Research (I²R), Singapore, Singapore*
³*National University of Singapore (Suzhou) Research Institute, China*
⁴*Zhongtian Broadband Technology Corporation, 226463, China*

Session Chair: Chih-Hsien Lai

- 13:00-13:20** SO-26
Design and Performance Analysis of a Hybrid Multi-slot Optical CDMA/WDMA System with the Position Code
 Po-Hao Chang
National Dong Hwa University, Taiwan
- 13:20-13:40** SO-27
Analysis and Demonstrate of G/EPON Coexisting with NG-PON
 Feng-Ming Hsu, Hai-Lin Wang, Yin-Hsun Huang, Ho-Chun Lin, Tsung-Mou Chen, Rong-Ruey Lee
Telecommunication Laboratories, Chunghwa Telecom Co., Ltd., Taiwan
- 13:40-14:00** SO-28
Virtual-Topology Design for Mixed-Line-Rate Optical WDM Networks under Multi-Hour Traffic
 Der-Rong Din, Guan-Bin Jhang
National ChangHua University of Education, Taiwan
- 14:00-14:20** SO-29
Optical Layer Modulation Format Conversion in OFDM-based Flexible Optical Networks
 Hejun Zhu^{1,2}, Heyan Huang³
¹Computer College of Beijing Institute of Technology, P.R. China, ²Beijing Esafenet Network Security Technology Company Limited, P.R. China, ³Computer College of Beijing Institute of Technology, P.R. China
- 14:20-14:40** SO-30
Design of a Multicast Optical Ethernet Switch Based on SOA Technology
 Yuh Jiuh Cheng¹, Yhi Shiau², Shu-Ying Cheng²
¹ Chunghwa Telecom Labs & Chunghwa Telecom Company, Taiwan, ² Telecommunication Laboratories, Chunghwa Telecom Co., Ltd., Taiwan
- 14:40-15:00** SO-31
Evaluations for Transponder Configuration in CD-ROADM Optical Networks using Intra-Node-Contention-Free RWA Algorithm
 Min Zhu¹, Dongpeng Wang¹, Jiao Zhang¹, Yu Zheng¹, Hehong Fan¹, Xiaohan Sun¹, Junmin Wu², Zhang Xiaojian³, Gang Zhang², Peng Wu⁴
¹Southeast University, P.R. China, ²State Grid Electric Power Research Institute, P.R. China, ³EPRI, P.R. China, ⁴China Electric Power Research Institute, P.R. China

Session 8 : Social Network

Session Chair: Phone Lin

- 13:00-13:20** SO-32
Predicting Personality Traits of Chinese Users Based on Facebook Wall Posts
 Kuei-Hsiang Peng, Li-Heng Liou, Cheng-Shang Chang, Duan-Shin Lee

- National Tsing Hua University, Taiwan*
- 13:20-13:40** SO-33
Mining Location-based Social Networks for Criminal Activity Prediction
 Yu-Yueh Huang¹, Cheng-Te Li², Sk Jeng¹
¹*National Taiwan University, Taiwan*, ²*Academia Sinica, Taiwan*
- 13:40-14:00** SO-34
Towards an Efficient Platform for Social Big Data Analytics
 Jenq-Haur Wang, Kuan-Ting Chen
National Taipei University of Technology, Taiwan
- 14:00-14:20** SO-35
Identify Implicit User Interests on Social Networks
 Shao-Chen Wu, Elvis Saravia, Yi-Shin Chen
National Tsing Hua University, Taiwan
- 14:20-14:40** IO-08
How to Take Snapshot of Facebook Efficiently?
- Curate the Most Update Social Behavior in Facebook with Limited Resources
 Shih-En Chou, Chien-Kang Huang
National Taiwan University, Taiwan
- 14:40-15:00** IO-09
Multi-state Open Opinion Model based on Positive and Negative Social Influences
 Jen-Wei Huang, Yuan-Chang Chen, Hao-Shang Ma
National Cheng Kung University, Taiwan

Session 9 : Spectrum Sharing

Conference Room

Session Chair: Phone Lin

- 15:20-15:40** SO-36
Weighted Reliability Cooperative Spectrum Sensing Algorithm
 Zhihua Bao, Danyan Ni, Shibing Zhang
Nantong University, P.R. China
- 15:40-16:00** SO-37
Energy Detector Based Spectrum Sensing by Adaptive Threshold for Low SNR in CR Networks
 Manobendu Sarker
Bangladesh University of Engineering & Technology, Bangladesh
- 16:00-16:20** SO-38
Adaptive Signature Waveforms Design for Cognitive Radio System
 Wei-Chin Li, Jui-Lin Yen, Hsuan-Jung Su
National Taiwan University, Taiwan
- 16:20-16:40** SO-39
Utility Based Resource Allocation Algorithm with Carrier Aggregation on Unlicensed Band
 Jiahui Liu, Xiaofeng Tao, Xiang Zhou, Qimei Cui
Beijing University of Post and Telecommunication, P.R. China

16:40-17:00 SO-40
Power Control and Beamforming Design for Receivers with Inter-Cell Interference Cancellation in Heterogeneous Networks
Yi-Yao Lan¹, Wen-Hao Chiang¹, I-Wei Lai², Tzi-Dar Chiueh¹
¹National Taiwan University, Taiwan, ²Chang Gung University, Taiwan

Session 10 : Integrated Optics and Silicon Photonics

Room 103

Session Chair: Chih-Hsien Lai

15:20-15:40 SO-41
Fabrication of Microtoroid Resonators on LiNbO₃
Tzyy-Jiann Wang¹, Po-Ting Chen¹, Wen-Chieh Hsiao¹, Ying-Che Lin, Huan Niu²
¹National Taipei University of Technology, Taiwan, ²National Tsing Hua University, Taiwan

15:40-16:00 SO-42
Influences of Cladding Index and Cladding Thickness on the Bandwidth of Terahertz Pipe Waveguide
Yu-Kun Wang, Chih-Hsien Lai, Yi-Siang Yeh
National Yunlin University of Science and Technology, Taiwan

16:00-16:20 IO-10
Numerical Modeling of Periodic Waveguides
Ya Yan Lu
Department of Mathematics, City University of Hong Kong, Hong Kong

16:20-16:40 IO-11
Integrated Si/Ge/Sn Photodetectors via Rapid Melt Growth Method
Ming-Chang M. Lee
Institute of Photonics Technologies and Department of Electrical Engineering, National Tsing Hua University, Taiwan

16:40-17:00 IO-12
Anatomy of SOI Micro-ring Resonator
Yung Jui Chen, Chun Yen Chen, Cheng-Yu Wang, Wei Kang Liu
Department of Photonics, National Sun Yat-sen University, Taiwan

Session 11 : Applications

Room 101

Session Chair: Chih-yu Wang

15:20-15:40 SO-43
Quickest Change Detection via Fault Tolerant Decision Fusion for Multiple Power Quality Events
Shih-Tang Su¹, Cheng-Guan Hou², Shih-Chun Lin², Chan-Nan Lu³, Wei-Ho Chung¹
¹Academia Sinica, Taiwan, ²National Taiwan University of Science and Technology, Taiwan, ³National Sun Yat-sen University, Taiwan

15:40-16:00 SO-44
Application of Shielding Textile Materials in Electric Vehicles
Marek Neruda¹, Lukas Vojtech¹, Matej Rohlik^{1,2}, Jiri Hajek¹, Radek Holý¹, Marek Kalika¹
¹Czech Technical University in Prague, Czech Republic, ²Faculty of Electrical Engineering, Czech Republic

16:00-16:20 SO-45
Applying Internet of Things for Personalized Healthcare in Smart Homes
Soumya Kanti Datta¹, Christian Bonnet², Amelie Gyrard³, Rui Pedro Ferreira da Costa¹,
Karima Boudaoud⁴
¹EURECOM, France, ²Institut Eurecom, France, ³Insight, France, ⁴University of Nice Sophia
Antipolis, France

16:20-16:40 SO-46
Prospect Theoretic User Satisfaction in Wireless Communications Networks
Chia-Han Lee
Academia Sinica, Taiwan

16:40-17:00 SO-47
An Energy-efficient Scheme for Data Collection in Wireless Sensor Networks
Qiuling Tang¹, Guoshun Tong¹, Xi Wang¹; Xian Li²
¹Guangxi University, P.R. China, ²Southeast University, P.R. China

Session 12 : New Trends

Room 203

Session Chair: Shin-Ming Cheng

15:20-15:40 SO-48
Cross-Layer Error Recovery Scheme for Data Transmission over 4G Wireless Networks
Wen-Chih Yang, Ming-Dao Chen, Hsu-Feng Hsiao
National Chiao Tung University, Taiwan

15:40-16:00 SO-49
**The Design of Big Data Analytics for Testing & Measurement and Traffic Flow on an
Experimental 4G/LTE Network**
Bao-Shuh Lin, Li-Ping Tung, I-Ching Hsieh, Shu-Yuan Chou
National Chiao Tung University, Taiwan

16:00-16:20 IO-13
Using Hidden Feature Expansion for Large-Scale Location Search
Hsien-Hui Lee, Wen-Hsiang Lu
National Cheng Kung University, Taiwan

16:20-16:40 IO-14
**Stochastic Geometry for Modeling and Analysis for Handover in Heterogeneous
Cellular Networks**
You-Jing Lien, Shin-Ming Cheng
National Taiwan University of Science and Technology, Taiwan

16:40-17:00 IO-15
Performance Evaluation of Centrality Attacks in Complex Networks
Ko-Hsuan Hsu, Shin-Ming Cheng
National Taiwan University of Science and Technology, Taiwan