

2014 Asia-Pacific Conference on Communications

(APCC 2014)

**Pattaya, Thailand
1-3 October 2014**



IEEE Catalog Number: CFP14790-POD
ISBN: 978-1-4799-6436-9

The 20th Asia-Pacific Conference on Communication (APCC2014)

Table of Contents

A Message from the General Chair and Program Chair.....	xv
Organizing Committee.....	xvi
Steering Committee.....	xvii
Sponsors.....	xviii
<hr/>	
Session 1: Emerging Technologies for Next Generation Ambient Intelligence and Sensor Networks I - Chair: Bing Zhang and Naoki Wakamiya	
Retransmission Control Method Using Location Information in MANET.....	1
<i>Joji Fujikawa, and Shigeki Shiokawa</i>	
Outage Probability Analysis in Bidirectional Full-Duplex SISO System with Self-Interference.....	6
<i>Ajib Setyo Arifin, and Tomoaki Ohtsuki</i>	
Design and Implementation of Dual-Purpose Normal and Disaster Situations Systems Based on Delay and Disruption Tolerant Bluetooth MANETs.....	9
<i>Yuya Minami, Yuya Kitaura, Yuri Tsutsui, Eitaro Kohno, Shinji Inoue, Tomoyuki Ohta, and Yoshiaki Kakuda</i>	
Multi-path Routing Considering Inter-path Interference Using a Mobile Agent In the Ad-hoc Networks.....	15
<i>Fumihisa Yamanobe, and Shigeki Shiokawa</i>	
Session 2: Broadband Wireless Access –Chair: Chaiyod Pirak	
Integrated Access Selection Considering Wired and Wireless Resources.....	20
<i>Wenqi Sun, Hewu Li, and Jianping Wu</i>	
A Peak to Average Power Ratio Reduction Scheme to Increase Power Efficiency in Broadband Communication Systems.....	26
<i>Mohsen Kazemian, Pooria Varahram, and Borhanudin Mohd Ali</i>	

Energy Efficient RSSI-based 60GHz WLAN Discovery for Multi-band WLAN.....	30
<i>Sho Wada, Masahiro Umehira, Shigeki Takeda, Teruyuki Miyajima, and Kenichi Kagoshima</i>	
A Cross-Layer Opportunistic MAC/Routing Protocol to Improve Reliability in WBAN.....	36
<i>Umer Fiaz Abbasi, Azlan Awang, and Nor Hisham Hamid</i>	
Session 3: Circuits & Systems / Signal & Image Processing – Chair: Akara Prayote	
Low power LVDS Transmitter Design and Analysis.....	42
<i>Ravindra Ayyagari, and Kiran Gopal</i>	
A Micro-Architecture Design for the 32-bit VLIW DSP Processor Core.....	46
<i>Khoi-Nguyen Le-Huu, Anh-Vu Dinh-Duc, and Tin T. Nguyen</i>	
A Port Expander Using Protocol-independent Link-aggregation Technologies for Large-scale Data-center Networks.....	52
<i>Masashi Kono, Satoshi Tsutsumi, and Hidehiro Toyoda</i>	
Office Workers Syndrome Monitoring Using Kinect.....	58
<i>Pujana Paliyawan, Chakarida Nukoolkit, and Pornchai Mongkolnam</i>	
An Experimental Comparison of Vector Quantization Techniques for Thai Text Image.....	64
<i>Manthana Tiawongsuwan, and Wilaiporn Lee</i>	
Session 4: Emerging Technologies for Next Generation Ambient Intelligence and Sensor Networks II – Chair: Bing Zhang and Yoshiaki Kakuda	
Multi-channel MAC Protocol with Channel Grouping in Wireless Ad-hoc Network.....	68
<i>Nobuyoshi Komuro, Ryo Manzoku, Kosuke Sanada, Jing Ma, and Hiroo Sekiya</i>	
Energy Efficient Construction Algorithm for Mobile Mesh Networks.....	73
<i>Naoki Tatebe , Kiyohiko Hattori, Toshinori Kagawa, Yasunori Owada, and Kiyoshi Hamaguchi</i>	
Experimental Test-Bed and Safety Confirmation System of Peer Aware Communications.....	78
<i>Lin Shan, Huan-Bang Li, Takashi Matsuda, and Ryu Miura</i>	

A Wearable Biosensing System via Sheet Medium Communication.....	83
<i>Takashi Matsuda, Bing Zhang, Yasushi Naruse, and Ryu Miura</i>	
Session 5: Adhoc and Sensor Networks I – Chair: Enqing Dong	
Lifetime Prolongation of PARC-based Wireless Sensor Networks by Mobile Sink Method.....	88
<i>Takumi Watanabe, Taiju Mikoshi, and Toyofumi Takenaka</i>	
An Efficient Bypassing Void Routing Protocol based on Virtual Coordinate Mapping for WSN.....	94
<i>Dejing Zhang, Enqing Dong, Zhulou Cao, and Peng Qian, Juan Xu</i>	
MPDF: Movement Predicted Data Forwarding Protocol for Underwater Acoustic Sensor Networks.....	100
<i>Nusrat Nowsheen, Gour Karmakar, and Joarder Kamruzzaman</i>	
Predicting the Network Throughput of Wide Area WSN in Rural Areas.....	106
<i>Prihadi Murdiyat, Kah Seng Chung, and King Sun Chan</i>	
Session 6: Antennas and Propagations - Chair : Chuwong Phongcharoenpanich	
An Extended Calculation Model for Shadowing Loss Caused by a Moving Human Body in 60GHz WLAN.....	112
<i>Masahiro Umehira, Shigeki Takeda, Teruyuki Miyajima, and Kenichi Kagoshima</i>	
New Development of an Approximate UTD Ray Solution for Diffraction of an Oblique Incident Plane Wave by a Planar Material Junction.....	117
<i>Montree Saowadee, Titipong Lertwiriyaprapa, and Suramate Chalermwisutkul</i>	
Analytical and Experimental Investigation of Substrate Permittivity and Loss up to 67 GHz.....	123
<i>Patrick Seiler, Bernhard Klein, and Dirk Plettemeier</i>	
Singular Value Decomposition Based Adaptive Transmission Scheme for Misalignment Cross Polarized MIMO System.....	129
<i>Maung Sann Maw, Aye Mon Htun, and Iwao Sasase</i>	

Horizontally Polarized Omnidirectional Antenna Using Octagonal Dipole Array for Digital Television Reception.....	135
<i>Pracha Osklang, Bancha Luadang, Chuwong Phongcharoenpanich, and Suthasinee Lamultree</i>	

Session 7: LTE –Chair: Chaiyod Pirak

A Fuzzy Q-Learning Approach for Enhanced Intercell Interference Coordination in LTE-Advanced Heterogeneous Networks.....	139
<i>Ameneh Daeinabi, and Kumbesan Sandrasegaran</i>	

Performance Analysis for Mobile Relay Station with Beam Steerable Antenna.....	145
<i>Bei Jia, Qiang Liu, Qianru Li, and Wei Wang</i>	

A New Channel Structure and Power Control Strategy for D2D Discovery in LTE Cellular Network.....	150
<i>Wonjun Hwang, Donghoon Lee, and Hyung-Jin Choi</i>	

Session 8: RF/Microwave Technologies – Chair: Suramate Chalermwisutkul

Frequency Band and Operating Class Reconfigurable GaN HEMT Power Amplifier for Sustainable Wireless Communications and Energy Applications.....	156
<i>Vasan Jantarachote, Nattapong Sirivech, and Suramate Chalermwisutkul</i>	

A Methodology of Fault Detection using Design for Testability of CP-PLL.....	161
<i>Lanhua Xia, Jianhui Wu, and Meng Zhang</i>	

Characteristics of an RFID Sensor for a Different Number of Reinforced Metal Bars in lossy Light Weight Concrete.....	166
<i>Rattapong Suwalak, Chuwong Phongcharoenpanich, and Danai Torrungrueng</i>	

A Folded SIR Filter with Embedded Feed Slot for Wide Spurious Suppression.....	170
<i>Wichai Krongkitsiri</i>	

Session 9: Multiple Antenna and Multiuser –Chair: Tanapong Khumyat

Robust and Fair Multiuser Downlink Precoding Scheme Based on Weighted Generating Interference.....	175
<i>Wentao Cui, Kai Niu, Weiling Wu, and Enqing Dong</i>	

Inter-Cell Interference Coordination by Joint Employment of ABSF and Power Control in Heterogeneous Networks.....	180
<i>Sangheon Lee, Hojin Kim, Younghoon Jo, Daehyoung Hong, Young-Jun Chung, and Jaechan Lim</i>	
Radio Resource Management for Multi-Beam Operating Mobile Communications.....	184
<i>Eun Soo Bae, Jun Suk Kim, and Min Young Chung</i>	
Simple Resource Allocation Scheme for Heterogeneous Traffic in MU-MIMO-OFDMA Systems.....	189
<i>Yoshinori Sakata, Fumiaki Maehara, Tomoki Murakami, Yasushi Takatori, and Masato Mizoguchi</i>	
Near-Optimality of the One-Step-Max-Sum-Rate Precoder with MMSE Initialization for Large Downlink Multi-User MIMO Systems.....	194
<i>Kavin Yongvanit, Prapun Suksompong, Chalie Charoenlarpnopparut, Attaphongse Taparungssanagorn , and Kazuhiko Fukawa</i>	
Session 10: Satellite and Space Communications –Chair: Sarawuth Chaimool	
Performance Analysis of Frequency Hopping Satellite Communication System Reducing the Transient Response of Polyphase DFT filter	199
<i>Daeil Lee, Do Sun Kim, and Chul Min Lim</i>	
A Robust Signal Estimation Method for Satellites and Spacecrafts in the Radio Science Receiver.....	203
<i>Jifei Tang, Qiao Meng, Quanta Yu, Yu Shen, Meng Liu, Yezi Lei, and Yuhao Xi</i>	
Waveguide Iris Simulation Tool using Wave Iterative Method for Microwave Engineering Course.....	208
<i>Somsak Akatimagool, and Pinit Nuangpirom</i>	
Session 11: Space Technology Development Trends in Asia-Pacific Region – Chair: Sompob Purivigraipong	
Development of Mission Planning Tool including Optimization Module.....	213
<i>Thanawach Nilnarong, and Panwadee Tangpattanakul</i>	
Optimal Online Station-Keeping Strategy for Communication Satellites in Geosynchronous Orbit.....	219
<i>Manop Aorpimai, and Pornthep Navakitkanok</i>	

High-Fidelity Orbit Propagator for Precise Antenna Pointing in LEO Satellite Operation.....	223
<i>Manop Aorpimai, Veerachai Malayavej, and Pornthep Navakitkanok</i>	
RSSI/IMU Sensor Fusion-Based Localization Using Unscented Kalman Filter.....	227
<i>Veerachai Malayavej, and Prakasit Udomthanatheera</i>	
Session 12: OFDM and Coding – Chair: Iwao Sasase	
Single-Carrier Transmission with Frequency-Domain based Code-Division Multi-Access.....	233
<i>Amnart Boonkajay, and Fumiayuki Adachi</i>	
Automatic Gain Control for Multi Carrier in OFDM Systems.....	239
<i>Hyungu Hwang, and Daeho Kim</i>	
Performance Analysis of 2×2 STBC in DFT-Spread PDM-CO-OFDM Communication Systems.....	243
<i>Kidsanapong Puntsri, and Masanori Hanawa</i>	
Low-PAPR Joint Transmit/Received SC-FDE Transmission using Time-Domain Selected Mapping.....	248
<i>Amnart Boonkajay, and Fumiayuki Adachi</i>	
Scaling Method to Increase Data Rate with No Degradation in Vector Symbol Decoding Performance.....	254
<i>Usana Tuntoolavest, and Kraiwee Limchaikit</i>	
Session 13: Quality of Services & Security – Chair: Chaiyod Pirak	
Improvement of Consumer Satisfaction Level by Energy Storage System in Smart Houses.....	260
<i>Taiju Mikoshi, Kouki Soeda, Koudai Takahashi, and Toyofumi Takenaka</i>	
Evaluation of Relationship between QoS and QoE for Web Services Considering the Hierarchical Structure with Principal Component Analysis and Path Analysis.....	266
<i>Ryosuke Koshimura, Yoshihiro Ito, and Yosuke Nomura</i>	
A Framework for Building Trust in Business to Consumer E-Commerce in Thailand.....	271
<i>Anusorn Panya, and Lachana Ramingwong</i>	

Session 14: Adhoc and Sensor Networks II – Chair: Gour Karmakar

Analysis of BER and Energy Efficiency of Raptor Codes under BEC for Wireless Sensor Network.....	277
<i>Varadarajan Nithya, Balasubramaniam Ramachandran, and Subramanian Subhashini</i>	
Implementation and Evaluation of Efficient One-To-Many Content Distribution Method in Wireless LAN with High Node Density.....	283
<i>Bounpadith Kannhavong, Norio Yamagaki, Shunichi Kinoshita, Kazumine Ogura, Hirofumi Ueda, Norihito Fujita, and Kazuaki Nakajima</i>	
The Effect of Transmission Range in Multi-hop Wireless Networks.....	289
<i>Kunagorn Kunavut</i>	
Adaptive Usage of Polarization and Physical Carrier Sensing in Wireless Ad Hoc Networks.....	294
<i>Maung Sann Maw, Aye Mon Htun, and Iwao Sasase</i>	
Performance Comparison between UWB and NB Propagation Models for an Indoor Localization.....	299
<i>Wipassorn Vinicchayakul, and Sathaporn Promwong</i>	

Session 15: Communication Protocols –Chair: Hisaya Hadama

An Efficient Method of Reselecting Grand Master in IEEE 802.1AS.....	303
<i>Younghwan Jeon, Juho Lee, and Sungkwon Park</i>	
INCUS: A Communication Protocol for Safety Critical Distributed Real Time Systems.....	309
<i>David Chen, Rene Hexel, and Fawad Riasat Raja</i>	
Dual Transmission Protocol for Video Signal Transfer for Real-Time Remote Vehicle Controls.....	315
<i>Naoki Chiba, Masaki Ogura, Ryohei Nakamura, and Hisaya Hadama</i>	
Dynamic Enhancement of Internode Transmission Capacity in IP over AWG-STAR Network.....	321
<i>Osanori Koyama, Ryo Higashiyama, Minoru Yamaguchi, Ken Toyonaga, and Makoto Yamada</i>	

Session 16: Communication Circuits & Channel Estimation –
Chair: Sathaporn Promwong

Performance Enhancement for AF Relay MIMO/OFDM with Complex HTRCI Pilot Signal.....	325
<i>Yuta Ida, Takahiro Matsumoto, Hinya Matsufuji, and Chang-Jun Ahn</i>	
A Method to Quasi-model In-line Devices in Power Line Communications Networks.....	331
<i>Chainarong Thanatthee, Thanakorn Khongdeach, Wachira Chongburee, and Denchai Worasawate</i>	
A Voltage-Mode Three-Input One-Output Multifunction Filter Using Single FDCCII.....	336
<i>Montree Kumngern, and Piya Supavarasuwan</i>	

SINR Performance Using MIMO-CMA Algorithms for RFID 2.45 GHz Channel Measurement.....	340
<i>Sarun Duangsawan, and Sathaporn Promwong</i>	

Session 17: Signal Processing – Chair Akkarat Boonpoonga

PAPR Reduction for Visible Light Communication OFDM using FSS and PPS.....	345
<i>Yosuke Fujii, Chang-Jun Ahn, Tatsuya Omori, and Ken-ya Hashimoto</i>	

Fast and Efficient Detection of Buried Object for GPR Image.....	350
<i>Pongsathorn Chomdee, Akkarat Boonpoonga, and Akara Prayote</i>	

Gain Equalizer Approximation by using q-Bessel Polynomials.....	356
<i>Vanvisa Chutchavong, and Kanok Janchitrapongvej</i>	

All Optical Packet Routing TWDM PON System Architecture using 2.5GBps WDM to 10GBps OTDM XGM to Support Coexistence GPON and XG-PON Network.....	360
<i>M. Salleh, A.S.M.Supa'at, S.M. Idrus, Z. M. Yusof, and A. K. Zamzuri</i>	

Session 18: Mobile Network Architecture –Chair: Peerapong Uthansakul

A Timing Synchronization Method for D2D Communication in Asynchronous Cellular System.....	366
<i>Wonjun Hwang, Dongjun Lee, Donghoon Lee, and Hyung-Jin Choi</i>	

System Coverage of MmWave Based 5G Mobile Communication System.....	372
<i>Jung Sok Bae, Hyun-Seo Park, Sok Jin Le, Yong Seouk Choi, Jun Suk Kim, Min Young Chung</i>	
Session 19: Communication Technology for Smart Grid – Chair: Chaiyod Pirak	
Timeout Notification Method for Efficient V2G Communication.....	376
<i>Bohyun Kwon, Chulsun Park, Joohan Lee, and Sungkwon Park</i>	
Experimental Performance Analysis of Powerline Communication Technologies in AMI Systems.....	382
<i>Tanayoot Sangsuwan, Somchai Thepphaeng, and Chaiyod Pirak</i>	
A Novel Security Key Recovery Framework for Smart Grid Applications.....	387
<i>Prachya Huadpaknam, Chaiyod Pirak, and Rudolf Mathar</i>	
Packet Transfer of DLMS/COSEM Standards for Smart Grid.....	391
<i>Adisorn Kheaksong, Wilaiporn Lee</i>	
On the Performance of Channel Estimation in Cooperative Wireless Communications.....	397
<i>Mongkol Somrobru, Chaiyod Pirak, and Gerd Ascheid</i>	
Session 20: Relay Network – Chair: Kunakorn Kunavut	
Selection of UE Relay Considering QoS Class for Public Safety Services in LTE-A Network.....	401
<i>Daniyal Munir, Jaheon Gu, and Min Young Chung</i>	
Probability-based Spray-and-Wait Protocol with Buffer Management in Delay Tolerant Networks.....	406
<i>Eung-Hyup Kim, Won-Kyeong Seo, Jae-Choong Nam, Jae-In Choi, and You-Ze Cho</i>	
Opportunistic Routing Protocol with Grid-based Relay Slot Selection in Energy Harvesting WSNs.....	412
<i>Ryota Negishi, Kentaroh Toyoda, and Iwao Sasase</i>	
Energy-Efficient Design for Combined Relay Selection and Power Allocation AF-Relay Network.....	417
<i>Muhammad I. Khalil, Stevan. M. Berber, and Kevin W. Sowerby</i>	

Selecting Basic Safety Messages to Verify in VANETs using Zone Priority.....	423
<i>Sam Banani, and Steven Gordon</i>	

Session 21: Antenna and Microwave Devices – Chair: Sarawuth Chaimool

Metasurface Characteristic of Fractal Fishnet Structure and Closed Ring Resonator.....	429
<i>Tanan Hongnara, Prayoot Akkarakthalin, and Sarawuth Chaimool</i>	
EMC Applications for Military: Reverberation Chamber Tests.....	434
<i>Pakorn Rattanakreep, Chittawan Choeyakul, Franz Schlagenhauf, and Peter Hall</i>	
Dual-band Dual-pattern Truncated-corners Microstrip Antenna for GPS and WiFi Applications.....	438
<i>Patthareeya Chan-arpas, Sitthichai Dentri, and Chuwong Phongcharoenpanich</i>	
Study of a Repeater Tx Antenna Concept of a Portable Device Wireless Battery Charging System.....	442
<i>Kittisak Phaebua, Titipong Lertwiriyaprapa, and Chuwong Phongcharoenpanich</i>	

A Multiband Slot CPW Antenna using Capacitive Feed and Interdigital Capacitor for GSM, WiMAX and WLAN Systems.....	446
<i>Pongsathorn Chomtong, and Prayoot Akkarakthalin</i>	

Session 22: 5G Technology – Chair: Peerapong Uthansakul

A Study on AF Two-way Relaying Networks with Imperfect Channel Estimation.....	450
<i>Dinh Thuan Do</i>	
Switching Transmission Mode in Multiuser-MIMO systems.....	454
<i>Tanapong Khomyat, Peerapong Uthansakul, Monthippa Uthansakul, and Soong Boon Hee</i>	
Remaining Time Improvement of V2V Communication Based GPS Direction Detection.....	458
<i>Terut Boonphoka, Peerapong Uthansakul, and Monthippa Uthansakul</i>	

Performance Analysis of MB-MIMO under 120 Degree Sector Consideration for 5G Communications.....	463
<i>Kamoltip Narongrit, Peerapong Uthansakul, and Monthippa Uthansakul</i>	
GPS-Aided Opportunistic Space-Division Multiple Access for 5G Communications.....	468
<i>Phimchan Chaichana, Peerapong Uthansakul, and Monthippa Uthansakul</i>	