2016 Australian Communications Theory Workshop (AusCTW 2016)

Melbourne Australia
20-22 January 2016

IEEE Catalog Number: CFP16845-POD
ISBN: 978-1-5090-0134-7

Copyright © 2016 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP16845-POD
ISBN (Print-On-Demand): 978-1-5090-0134-7
ISBN (Online): 978-1-5090-0133-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

Program

Time	Lecture Theatre E7	Rooms G29 And G33

Wednesday, January 20

09:00 am-10:00 am	*Research Overview 1*	
10:30 am-12:30 pm		*Poster Session 1*
02:00 pm-03:00 pm	*Technical Talks 1*	
03:30 pm-04:30 pm	*Technical Talks 2*	

Thursday, January 21

09:00 am-10:00 am	*Research Overview 2*	
10:30 am-12:30 pm		*Poster Session 2*
02:00 pm-03:00 pm	*Technical Talks 3*	
03:30 pm-04:30 pm	*Best student paper session*	

Friday, January 22

09:00 am-10:00 am	*Research Overview 3*	
10:30 am-12:30 pm		*Poster Session 3*

Wednesday, January 20

Wednesday, January 20, 09:00 - 10:00

Research Overview 1

Tad Wysocki
Room: Lecture Theatre E7
Chair: Phee Lep Yeoh (University of Melbourne, Australia)

Wednesday, January 20, 10:30 - 12:30

Poster Session 1

Room: Rooms G29 and G33
Chair: Wibowo Hardjawana (The University of Sydney, Australia)

Multi-pair Two-way Relay Networks: Interference Management Using Lattice Codes and Amplify and Compute Relaying 1
Shama N. Islam, Salman Durrani and Parastoo Sadeghi (The Australian National University, Australia)

Using Channel State Information for Low-Latency Applications in Free-Space Optical Communication 7
Ginige Singithi De Silva, William G Cowley and Gottfried Lechner (University of South Australia, Australia)

Density Evolution Analysis of Spatially Coupled LDPC Codes Over BIAWGN Channel 13
Md Noor-A-Rahim, Gottfried Lechner and Khoa D. Nguyen (University of South Australia, Australia)

Repeat-Accumulate Codes for Reconciliation in Continuous Variable Quantum Key Distribution 18
Sarah J Johnson and Vikram Arkalgud Chandrasetty (University of Newcastle, Australia); Andrew Lance (QuintessenceLabs Pty. Ltd., Australia)

Hyperbolic Mapping Method for Turbo Compressive Sensing 24
Amin Movahed, Mark C Reed and Neda Aboutorab (University of New South Wales, Australia)

Wireless-Powered Communications with Two-Way Information Flow: Protocols and Throughput Regions 29
Zihao Gao and He Chen (The University of Sydney, Australia); Yonghui Li and Branka Vucetic (University of Sydney, Australia)

Effect of Retroactivity on the Performance of Molecular Communication Networks 35
Hamdan Awan (University of New South Wales, Australia)

On Bandwidth of Broadband Wavefields Observed Over Spatial Regions 41
Farhana Bashar, Thushara D. Abhayapala and S. M. Akramus Salehin (Australian National University, Australia)

Provably Near Optimal Link Scheduling and Power Control for Wireless Device-to-Device Networks 47
Ali Hesammohseni and Oussama Damen (University of Waterloo, Canada)

Game Theoretic Framework for Studying WBAN Coexistence: 2-player Game Analysis and n-player Game Estimation 53
Yinyue Qiu, David Haley, Terence H. Chan and Linda M. Davis (University of South Australia, Australia)

Wednesday, January 20, 14:00 - 15:00

Technical Talks 1

Room: Lecture Theatre E7
Chair: Jinhong Yuan (University of New South Wales, Australia)

Speakers: 2:00pm Zixiang Xiong (TAMU); 2:20pm Kerry Hinton (Unimelb); 2:40pm Zhe Wang (Unimelb)

Wednesday, January 20, 15:30 - 16:30

Technical Talks 2

Room: Lecture Theatre E7
Chair: Sarah J Johnson (University of Newcastle, Australia)

Speakers: 3:30pm Gottfried Lechner (UniSA); 3:50pm Parastoo Sadeghi (ANU); 4:10pm Mahyar Shirvanimogaddham (UON)

Thursday, January 21

Thursday, January 21, 09:00 - 10:00

Research Overview 2

Antonio Cantoni
Room: Lecture Theatre E7
Chair: Emanuele Viterbo (Monash University, Australia)

Thursday, January 21, 10:30 - 12:30

Poster Session 2

Room: Rooms G29 and G33
Chair: Lawrence Ong (The University of Newcastle, Australia)

Allocation of Licensed and Unlicensed Spectrum in Heterogeneous Networks 59
Zhiyi Zhou, Dongning Guo and Michael Honig (Northwestern University, USA)

BER Performance Analysis and Optimization for Energy Harvesting Two-way Relay Networks 65
Chuling Huang (Australian National University, Australia); Parastoo Sadeghi (The Australian National University, Australia); Ali A Nasir (National University of Sciences and Technology (NUST), Pakistan)

Power allocation for estimation outage minimization with secrecy outage constraints 71
Xiaoxi Guo (University of Melbourne, Australia); Alex Leong (Paderborn University, Germany); Subhrakanti Dey (Uppsala University, Sweden)

Using Gaussian Pulses in Physical-layer Network Coding with Symbol Misalignment 77
Bao Nguyen (University of South Australia & Institute for Telecommunications Research, Australia); Terence H. Chan, David Haley and Robby G. McKilliam (University of South Australia, Australia)

Physical Layer Split for User Selective Uplink Joint Reception in SDN Enabled Cloud-RAN 83
Dora Boviz (Alcatel Lucent Bell Labs, France); Aravinthan Gopalasingham (Alcatel-Lucent Bell Labs, France); Chung Shue Chen (Bell Labs, France); Laurent Roullet (Alcatel-Lucent Bell Labs, France)

Robust Cooperative Relay Beamforming For Cognitive Radio Networks 89
Sudhir Singh (Callaghan Innovation, New Zealand); Paul D Teal and Pawel A. Dmochowski (Victoria University of Wellington, New Zealand); Alan J Coulson (Industrial Research Ltd, New Zealand)

A Game-theoretic Perspective on Communication for Omniscience 95
Ni Ding (The Australian National University, Australia); Chung Chan (The Chinese University of Hong Kong, Hong Kong); Tie Liu (Texas A&M University, USA); Rodney Andrew Kennedy and Parastoo Sadeghi (The Australian National University, Australia)

Information Flow in Stochastic Computers 101
Adriel Kind (University of Canterbury, New Zealand)

Optimizing Downlink Coverage Performance in Two-Tier Heterogeneous Cellular Networks 107
Vahid Naghshin, Mark C Reed and Neda Aboutorab (University of New South Wales, Australia)

Beamforming for Total Energy Maximization in MISO Networks 112
Amanthi Ratnayake Thudugalage, Saman Atapattu and Jamie S Evans (University of Melbourne, Australia)

Thursday, January 21, 14:00 - 15:00

Technical Talks 3

Room: Lecture Theatre E7
Chair: Parastoo Sadeghi (The Australian National University, Australia)

Speakers: 2:00pm Wibowo Hardjawana (USYD); 2:20pm Diep Nguyen (Macquarie); 2:40pm Nan Yang (ANU)

Thursday, January 21, 15:30 - 16:30

Best student paper session

Room: Lecture Theatre E7
Chair: Yi Hong (Monash University, Australia)

Speakers: 3:30pm Muhammad Yasir (UniSA); 3:50pm Chenxi Liu (UNSW); 4:10pm Xuepeng Xiao (Monash)

Uncoordinated Multiple Access Scheme for VLC Systems with Positioning Capability 118
Muhammad Yasir (University of South Australia, Australia); Saed Abdullah (UniSA, Australia); Siu-Wai Ho (University of South Australia, Australia)

Location-Based Beamforming for Rician Wiretap Channels 124
Chenxi Liu and Robert Malaney (University of New South Wales, Australia)

Joint Optimization Scheme and Sum Constellation Distribution for Multi-User Gaussian Multiple Access Channels with Finite Input Constellations 130
Xuepeng Xiao (Monash University, Australia); Qin Huang (Beihang University, Beijing, P.R. China); Emanuele Viterbo (Monash University, Australia)

Friday, January 22

Friday, January 22, 09:00 - 10:00

Research Overview 3

Room: Lecture Theatre E7
Chair: Jamie S Evans (University of Melbourne, Australia)

Friday, January 22, 10:30 - 12:30

Poster Session 3

Room: Rooms G29 and G33
Chair: Nan Yang (Australian National University, Australia)

Graphical Generalization of Power Control in Multiuser Interference Channels 136
Yifei Huang (The Australian National University, Australia); Ali A Nasir (National University of Sciences and Technology (NUST), Pakistan); Salman Durrani and Xiangyun Zhou (The Australian National University, Australia)

Channel Estimation and Data Detection for Insufficient Cyclic Prefix SIMO-OFDM with Pilot Sub-carriers 141
Tri Pham, Graeme K Woodward and Philippa A. Martin (University of Canterbury, New Zealand)

Robustness of the Least Squares Range Estimator 147
Assad Akhlaq (University of South Australia & Institute for Telecommunications Research (ITR), Australia); Robby G. McKilliam and André Pollok (University of South Australia, Australia)

Distribution of Number of Users per Cell in a Poisson Wireless Network with Shadowing 153
Bhathiya Pilanawithana (Monash University, Australia); Saman Atapattu and Jamie S Evans (University of Melbourne, Australia)

Measurements and Analysis of Multiuser MIMO-OFDM Channels in Campus Environment 157
Min Li and Chunshan Liu (Macquarie University, Australia); Hajime Suzuki (CSIRO, Australia); Stephen Hanly, Iain B. Collings and Philip Whiting (Macquarie University, Australia)

Law of Large Numbers Analysis of Antenna Selection aided Downlink Beamforming in Massive MISO under RF Chains Constraint 163
Stephen Hanly, Iain B. Collings, Zeeshan Shaikh and Philip Whiting (Macquarie University, Australia)

A Fair Spectrum Sharing Framework Based on Topological Sort and Max Weight for Femtocells 169
Huiyang Wang (Macquarie University & Australia, Australia); Eryk Dutkiewicz (University of Technology Sydney, Australia); Gengfa Fang (Macquarie University, Australia); Markus Dominik Mueck (Intel Mobile Communications, Germany)

Coding Architecture for Optical eU-OFDM Transmission over AWGN 175
Ronald Mulinde (University of South Australia & University of Trento, Australia); Khoa D. Nguyen, William G Cowley and Md Noor-A-Rahim (University of South Australia, Australia)

Constellation Shaping for Non-Uniform Signals in Bit-Interleaved Coded Modulation Combined with Multi-Stage Decoding 181
Gou Hosoya and Hiroyuki Yashima (Tokyo University of Science, Japan)

SIR Coverage in an Uplink Poisson Cellular Network with LoS Massive MIMO 187
Yeqing Hu and Yi Hong (Monash University, Australia); Jamie S Evans (University of Melbourne, Australia)