

2018 IEEE International Symposium on Power Line Communications and its Applications (ISPLC 2018)

**Manchester, United Kingdom
8-11 April 2018**



**IEEE Catalog Number: CFP18843-POD
ISBN: 978-1-5386-1914-8**

**Copyright © 2018 by the Institute of Electrical and Electronics 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 is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18843-POD
ISBN (Print-On-Demand):	978-1-5386-1914-8
ISBN (Online):	978-1-5386-1913-1

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

CURRAN ASSOCIATES INC.
proceedings
.com

Program

2018 IEEE International Symposium on Power Line Communications and its Applications (ISPLC)

PLC Channel Estimation and Characterization

<i>A Bottom-Up PLC Channel Model That Includes Radiation Effects</i>	
Federico Passerini (University of Klagenfurt, Austria), Davide Righini (AAU Klagenfurt, Austria), Andrea M Tonello (University of Klagenfurt, Austria)	1
<i>Channel Estimation Based on Frame Control Symbol Re-encoding and Re-Mapping</i>	
Liset Martínez Marrero (Technological University of Havana, Cuba), Liz Martínez Marrero (Technological University of Havana, Cuba), Stephen Dominiak (Lucerne University of Applied Sciences and Arts, Switzerland), Leyna Sadamori (Lucerne University of Applied Sciences and Arts, Switzerland), Jorge Torres Gómez (Technological University of Havana, Cuba), Thomas Hunziker (Lucerne University of Applied Sciences and Arts, Switzerland)	7
<i>Electromagnetic Compatibility of Power Line Communications in Energy Storage Units</i>	
Gautham Prasad (University of British Columbia, Canada), Yinjia Huo (University of British Columbia, Canada, Canada), Lutz Lampe (University of British Columbia, Canada), Victor C.M. Leung (University of British Columbia, Canada)	14
<i>Channel Frequency Response for a Low Voltage Indoor Cable Up to 1GHz</i>	
Arnold De Beer (University of Johannesburg, South Africa), Ashraf Sheri (University of Johannesburg, South Africa), Hendrik C Ferreira (University of Johannesburg, South Africa), Han Vinck (University of Duisburg-Essen & University of Johannesburg, Germany)	20
<i>Influence of Cable Selection on Channel Frequency Response for Low Voltage Indoor Cables</i>	
Arnold De Beer (University of Johannesburg, South Africa), Ashraf Sheri (University of Johannesburg, South Africa), Hendrik C Ferreira (University of Johannesburg, South Africa)	26

Impedance Analysis for PLC Systems

<i>TX-Signal Optimization in Current Control State of PLC Transmitter by Low Access Impedance</i>	
George Hallak (University of Applied Sciences Ruhrwest, Germany), Gerd Bumiller (Hochschule Ruhr West & University of Applied Sciences, Germany)	32
<i>A New Method for Input Installation Impedance Measurement</i>	
Imene Elfeki (Tours University, France), Ismail Aouichak (Université de Tours, France), Jean-Charles Le Bunetel (University of François-Rabelais, Tours, France), Thierry Doligez (LAN, France), Yves Raingeaud (University of Tours, France)	38
<i>Time Variant Voltage and Current Modeling Corresponding to Access Impedance Measurements</i>	
George Hallak (University of Applied Sciences Ruhrwest, Germany), Gerd Bumiller (Hochschule Ruhr West & University of Applied Sciences, Germany)	44

Layer 2 and 3 Aspects in PLCs

<i>Artificial Intelligence Based Routing in PLC Networks</i>	
Francesco Marcuzzi (Alpen-Adria-Universitaet, Austria), Andrea M Tonello (University of Klagenfurt, Austria)	50
<i>Reliable Feedback Mechanisms for Routing Protocols with Network Coding</i>	
Ievgenii Anatolijovuch Tsokalo (Technische Universität Dresden, Germany), Frank Gabriel (Technische Universität Dresden, Germany), Sreekrishna Pandi (TU Dresden, Germany), Frank H.P. Fitzek (Technische Universität Dresden & ComNets - Communication Networks Group, Germany), Ralf J. Lehnert (Technische Universität Dresden, Germany)	56

<i>Wideband Digital Power Line Carrier with Packet Switching for High Voltage Digital Substations</i> Anton G. Merkulov (Siemens AG, Germany), Ralf Adelseck (Siemens AG, Germany), Jens Buerger (Siemens AG, Germany)	63
--	----

Full Duplex and Coding

<i>Feasibility of Full-Duplex Dynamic Spectrum Management for PLC-DSL Coexistence</i> Gautham Prasad (University of British Columbia, Canada), Lutz Lampe (University of British Columbia, Canada)	68
<i>Adaptive Hybrid Circuit for Enhanced Echo Cancellation in Full Duplex PLC</i> Federico Passerini (University of Klagenfurt, Austria), Andrea M Tonello (University of Klagenfurt, Austria)	74
<i>Non-Binary Trellis Codes on the Synthetic Statistical MIMO Power Line Channel</i> Wael Abd Alaziz (Newcastle University, United Kingdom (Great Britain)), Martin Johnston (Newcastle University, United Kingdom (Great Britain)), Stephane Le Goff (Newcastle University, United Kingdom (Great Britain))	79

PLC Noise Modeling and Mitigation

<i>Waveform Clipping in FSK Modulated Signal to Combat Impulse Noise</i> Thokozani Calvin Shongwe (University of Johannesburg, South Africa), Han Vinck (University of Duisburg-Essen & University of Johannesburg, Germany)	85
<i>Noise Determinism in Multi-conductor PLC Channels</i> Davide Righini (AAU Klagenfurt, Austria), Andrea M Tonello (University of Klagenfurt, Austria)	90
<i>An Enhanced Selected Mapping Technique for Joint PAPR Reduction and Impulsive Noise Suppression in Multi-carrier Powerline Communications Systems</i> Tomoya Kageyama (Kyushu University, Japan), Osamu Muta (Kyushu University, Japan), Haris Gacanin (Nokia Bell Labs, Belgium)	96
<i>The Effect of Coupling Circuits on Impulsive Noise in Power Line Communication</i> Tendai Samakande (University of Johannesburg, South Africa), Thokozani Calvin Shongwe (University of Johannesburg, South Africa), Arnold De Beer (University of Johannesburg, South Africa), Hendrik C Ferreira (University of Johannesburg, South Africa)	102

Narrow-band PLC and Smart Grid

<i>Grid Surveillance and Diagnostics Using Power Line Communications</i> Yinjia Huo (University of British Columbia, Canada, Canada), Gautham Prasad (University of British Columbia, Canada), Lazar Atanackovic (University of British Columbia, Canada), Lutz Lampe (University of British Columbia, Canada), Victor C.M. Leung (University of British Columbia, Canada)	107
<i>Large-scale PLC Gateway-based Architecture for Smart Metering Deployments</i> Alberto Sendin (Iberdrola, Spain), Juan Sebastian Gomez (Iberdrola, Spain), Iker Urrutia (Iberdrola, Spain), Marta Solaz (Iberdrola Spain, Spain), Manu Sharma (Neuron, Switzerland), Txetxu Arzuaga (ZIV, Spain), Francisco Guerrero (Teldat SA, Spain), Luis Molero (Ericsson, Spain)	113
<i>Facilities in Laboratory for the Benchmarking of Products for New Services over NB-PLC</i> Ibon Arechalde (TECNALIA Research & Innovation & TECNALIA, Spain), Noelia Uribe Perez (Tecnalia, Spain), Jaime Gandarias (TECNALIA, Spain), David De la Vega (University of the Basque Country (UPV/EHU), Spain), Amaia Arrinda (University of the Basque Country, Spain), Igor Fernandez (University of the Basque Country, Spain), Itziar Angulo (University of the Basque Country (UPV/EHU), Spain), Txetxu Arzuaga (ZIV, Spain)	119

Signal Processing for PLCs

PLC Applied to Fault Detection on In-Vehicle Powerline

Navish Lallbeeharry (University of Lille 1, France), Virginie Degardin (University of Lille & IEMN, France), Rose Mazari (University of Lille, France), Christophe Trebosc (Safran Electrical & Power, France) 124

PAPR Reduction of Wavelet-OFDM Systems Using Pilot Symbols

Kelvin Anoh (Manchester Metropolitan University, United Kingdom (Great Britain)), Khaled M. Rabie (Manchester Metropolitan University, United Kingdom (Great Britain)), Augustine Ikpehai (Manchester Metropolitan University, United Kingdom (Great Britain)), Bamidele Adebisi (Manchester Metropolitan University, United Kingdom (Great Britain)), Wasiu O. Popoola (University of Edinburgh, United Kingdom (Great Britain)) 129

Cyclic Bit Loading for Adaptive OFDM in Narrowband Power Line Communications

Cornelius Kaiser (Karlsruhe Institute of Technology (KIT), Germany), Norbert Mitschke (Karlsruhe Institute of Technology (KIT), Germany), Klaus M. Dostert (Karlsruhe Institute of Technology (KIT), Germany) 135