2015 IEEE Online Conference on **Green Communications** (OnlineGreenComm 2015)

Piscataway, New Jersey, USA 10 – 12 November 2015



IEEE Catalog Number: CFP15GRN-POD ISBN:

978-1-4673-7200-8

Copyright © 2015 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: CFP15GRN-POD 978-1-4673-7200-8 ISBN (Print-On-Demand): ISBN (Online): 978-1-4673-7199-5

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

2015 IEEE Online Conference on Green Communications (OnlineGreenComm)

Optical transport and core network

• Energy Efficiency in Reliable Optical Core Networks

Francesco Musumeci (Politecnico di Milano, Italy), Ali Hmaity (Politecnico di Milano, Italy), Massimo Tornatore (Politecnico di Milano & University of California, Davis, Italy), Achille Pattavina (Politecnico di Milano, Italy) 1

Energy Efficient Data and Content Management

• Improving Energy Efficiency of Ethernet Switching with Modular Cuckoo Hashing

Pedro Reviriego (Universidad Antonio de Nebrija, Spain), Salvatore Pontarelli (University of Rome, Italy), Gil Levy (Mellanox, Israel) 7

Energy Harvesting and Management

• A Reservation Based Charging Management for On-the-move EV Under Mobility Uncertainty

Yue Cao (University of Surrey, United Kingdom), Ning Wang (University of Surrey, United Kingdom), Young Jin Kim (Bell Labs, Alcatel-Lucent, USA), Chang Ge (University of Surrey, United Kingdom) 11

Energy Efficient Data and Content Management

• Energy-Efficient Caching for Video-on-Demand in Fixed-Mobile Convergent Networks

Marco Savi (Politecnico di Milano, Italy), Omran Ayoub (Politecnico di Milano, Italy), Francesco Musumeci (Politecnico di Milano, Italy), Zhe Li (JCP-Connect, France), Giacomo Verticale (Politecnico di Milano, Italy), Massimo Tornatore (Politecnico di Milano & University of California, Davis, Italy) 17

• Energy Efficient Content Delivery in Service Provider Networks with Content Caching

Nadeem Abji (University of Toronto, Canada), Ali Tizghadam (University of Toronto, Canada), Alberto Leon-Garcia (University of Toronto, Canada) 23

Wireless Access

Lifetime-Aware Data Collection in Wireless Sensor Networks

Jingjing Fei (None, Australia), Hui Wu (University of New South Wales, Australia), Yongxin Wang (University of Technology, Sydney, Australia), Wenguang Zheng (The University of New South Wales, Australia) 30

• Optimal EE-Delay Relation in Wireless Systems

Changyang She (Beihang University, P.R. China), Chenyang Yang (Beihang University, P.R. China) 36

Wireless Access II

• Electromagnetic Emission-aware Scheduling for the Uplink of Coordinated OFDM Wireless Systems

Yusuf A. Sambo (University of Surrey & Institute for Communication Systems (ICS), United Kingdom), Fabien Héliot (University of Surrey, United Kingdom), Muhammad Ali Imran (University of Surrey, United Kingdom) 42

Optical Access

• Connectivity in IoT indoor lighting systems with visible light communications

Kevin Warmerdam (TU Delft, The Netherlands), Ashish Pandharipande (Philips Research Laboratories, The Netherlands), David Caicedo (Philips Research, The Netherlands) 47

Energy Harvesting and Management

• Out-of-Band Radiation: Opportunities for Antenna-Based RF Energy Harvesting in Wireless Devices?

Sean Rocke (The University of the West Indies, Trinidad and Tobago) 53

Optical transport and core network

• Energy Efficiency of Electronic and Optical QAM Signal Grooming

Mariya Bhopalwala (University of Arizona, USA), Houman Rastegarfar (University of Arizona, USA), Daniel Kilper (University of Arizona & Center for Integrated Access Networks, USA) 59

Wireless Access II

Basestation Antenna Pattern Reconfiguration for Minimum Transmit Power Network Planning
Ioannis Valavanis (University of Peloponnese, Greece), Dimitra Zarbouti (University of Peloponnese, Greece), George
Peloponnese, Greece), Georgia E. Athanasiadou (University of Peloponnese, Greece), George

Energy Harvesting and Management

Tsoulos (University of Peloponnese, Greece) 66

• Controlling Data Aggregation and Communication Periodicity in Energy Harvesting Networks

André Riker (University of Coimbra, Portugal), Eduardo Cerqueira (Federal University of Para & UCLA & UFPA & UCLA, Brazil), Marilia Curado (University of Coimbra, Portugal), Edmundo Monteiro (University of Coimbra, Portugal) 72

Wireless Access II

• Two-level Opportunistic Spectrum Management for Green 5G Radio Access Networks

Christian Vitale (Institute IMDEA Networks & Universidad Carlos III Madrid, Spain), Vincenzo Sciancalepore (NEC Europe Ltd. & Politecnico di Milano, Germany), Arash Asadi (IMDEA Networks Institute & University Carlos III of Madrid, Spain), Vincenzo Mancuso (IMDEA Networks Institute, Spain) 78