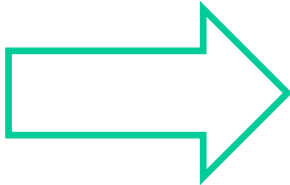

SIG on “Energy-Harvesting Cognitive Radio Networks”

Presentation at IEEE ICC 2020

Outline

- Introduction
- Chair, Vice-Chairs, and Senior Advisors
- Founding Members
- Activities (Years 2018-2019)
- Current and Next Activities (2020-2021)

Introduction

- This SIG was created at the beginning of 2018.
 - Cognitive Radio + Energy Harvesting:
 - Cognitive Radio:
 - Spectrum scarcity
 - Energy Harvesting:
 - Energy efficiency
- 
- Spectrum and energy-efficient communications systems*
- This SIG aims to sponsor and promote technical publications, workshops, tutorials, journal special issues, student activities, and other related activities in the areas relevant to energy-harvesting cognitive radio networks (EHCRNs).

Team

Chair:

- Daniel Benevides da Costa, Federal University of Ceará (UFC), Brazil.

Vice-Chairs:

- Octavia Dobre, Memorial University, Canada
- Trung Q. Duong, Queen's University Belfast, UK
- Minghua Xia, Sun Yat-sen University, China
- Phee Lep Yeoh, University of Sydney, Australia

Senior Advisors:

- Mohamed Slim-Alouini, KAUST, Saudi Arabia
- George K. Karagiannidis, Aristotle University of Thessaloniki, Greece
- Arumugam Nallanathan, Queen Mary University of London, UK

Founding Members

Founding Members:

- Prabhat K. Upadhyay, India Institute of Technology (IIT) Indore, India.
- Georges Kaddoum, École de Technologie Supérieure (ETS), Canada
- Nan Yang, Australia National University, Australia
- Jules Moualeu, University of the Witwatersrand, South Africa
- Marco Di Renzo, CNRS, France
- Alexandros-Apostolos A. Boulogeorgos, Aristotle University of Thessaloniki, Greece
- Haiyang Ding, Xidian University, China
- Ugo Silva Dias, University of Brasília, Brazil
- Zhiguo Ding, Lancaster University, UK
- Petros Bithas, University of Pirineus, Greece
- Athanasios G. Kanatas, University of Pirineus, Greece
- Mustapha Benjillali, INPT, Morocco

Activities (Year 2018)

IEEE PIMRC 2018: 1st Workshop on Energy Harvesting Communication Networks

- Workshop Organizers:
 - Daniel Benevides da Costa (Lead)
 - Himal A. Suraweera
 - Derrick Wing Kwan Ng
 - Minghua Xia
 - Prabhat K. Upadhyay
 - Haiyang Ding
 - Bruno Clerckx
- $\frac{3}{4}$ -day workshop
 - 1 Technical Session, 2 Keynote Speakers, 1 Panel Session

Activities (Year 2018)

W-K 1st Workshop on Energy Harvesting Communication Networks

Time	EDAS Number	Title	Authors with Affiliations
9.00			
9:00-9:22	1570460059	Time Reversal Scheme Using Multiple Transmit Antennas for SWIPT in Indoor Channel	Hongsun An and Hyuncheol Park (KAIST, Korea)
9.23-9.45	1570459781	Exploitation of Time Modulated Arrays for Multisine Power Transmission	Francesco Mani (Università degli studi di Bologna, Italy); Diego Masotti (University of Bologna, Italy); Alessandra Costanzo (DEI, University of Bologna, Italy)
9.46-10.08	1570463000	Hybrid Satellite-Terrestrial Spectrum Sharing Systems with RF Energy Harvesting	Vibhum Singh and Prabhat Kumar Upadhyay (Indian Institute of Technology Indore, India); Daniel Benevides da Costa (Federal University of Ceara (UFC) & Area: Telecommunications, Brazil); Ugo Dias (University of Brasilia, Brazil)
9.09-10.30	1570463308	Positive Impact of Interference on RF Energy Harvesting for IoT Devices	Sandy Saab (Notre Dame University, Lebanon); Nour Kouzayha, Joseph Costantine and Zaher Dawy (American University of Beirut, Lebanon)
10.30 - 11.00: coffee			
11:00-11:45	Keynote	Wirelessly Powered Sensing: Backscatter, Learning, and Computing	Kaibin Huang, The University of Hong Kong
11:46-12:30	Panel	Recent Advances and Challenges on Energy Harvesting Circuit and Communication Systems Design	Moderator: Daniel Benevides da Costa - Federal University of Ceará (UFC), Brazil. Panelists: Deniz Gunduz - Imperial College London, UK, Subhrakanti Dey - Uppsala University, Sweden, Alessandra Costanzo - University of Bologna, Italy
12.30 - 14.00: lunch			
14.00-14.45	Keynote	Signal and System Designs for Wireless Information and Power Transfer: From Theory to Prototyping and Experimentation	Bruno Clerckx; Imperial College London, UK

Activities (Years 2018-2019)

Special Issue on “Energy-Harvesting Cognitive Radio Networks”

- IEEE Transactions on Cognitive Communications and Networking
- Guest Editors:
 - Daniel Benevides da Costa (Lead)
 - George G. Karagiannidis
 - Haiyang Ding
 - Minghua Xia
 - Octavia Dobre
 - Prabhat K. Upadhyay
 - Robert Schober
- 19 submitted papers, 9 accepted papers → Acceptance Rate $\approx 47\%$
- Publication Date: June 2019

Activities (Year 2019)

IEEE PIMRC 2019: Special Session on Energy Harvesting Communication Networks

- Organizers:
 - Daniel Benevides da Costa (Lead)
 - Himal A. Suraweera
 - Bruno Clerckx
- 8 submitted papers, 4 accepted papers.

SS4: Energy Harvesting

Room: Yıldız 1

Chair: Daniel Benevides da Costa (Federal University of Ceara (UFC) & Area: Telecommunications, Brazil)

A Distributed User-Cell Association for Spectral and Energy Efficiency Tradeoff in Massive MIMO UDHNs

Sinasi Cetinkaya (University of South Florida, USA); Huseyin Arslan (University of South Florida & Istanbul Medipol University, USA)

Decision Fusion Rules in Ambient Backscatter Wireless Sensor Networks

Domenico Ciuonzo (University of Naples Federico II, IT, Italy); Giacinto Gelli (University of Napoli – Federico II, Italy); Antonio Pescapé (University of Napoli Federico II, Italy); Francesco Verde (University of Napoli Federico II & National Inter-University Consortium for Telecommunications, Italy)

SWIPT-based Mobile Edge Computing Systems: A Stochastic Geometry Perspective

Ayse Ipek Akin (Université Catholique de Louvain, Belgium); Hamed Mirghasemi (Université Catholique de Louvain-la-Neuve, Belgium); Luc Vandendorpe (Université catholique de Louvain, Belgium)

Weighted Tradeoff Between Spectral Efficiency and Energy Efficiency in Energy Harvesting Systems

Arooj Mubashara Siddiqui (5GIC, Institute for Communication Systems, University of Surrey & COMSATS University Islamabad, United Kingdom (Great Britain)); Leila Musavian (University of Essex, United Kingdom (Great Britain)); Sonia Aïssa (INRS, University of Quebec, Canada); Qiang Ni (Lancaster University, United Kingdom (Great Britain))

Activities (Year 2020)

Workshop Proposal - IEEE GLOBECOM 2020



Daniel Benevides da Costa <dbcieee@gmail.com>

IEEE GC20 Workshop Proposal "Energy-Efficient Schemes for Beyond 5G"

2 messages

Petar Popovski <petarp@es.aau.dk>

Sun, May 17, 2020 at 4:19 AM

To: "jules.moualeu@wits.ac.za" <jules.moualeu@wits.ac.za>, "Daniel B. da Costa" <danielbcosta@ieee.org>, "Dobre, Octavia" <odobre@mun.ca>, "alagan@ee.ryerson.ca" <alagan@ee.ryerson.ca>, Zhiguo Ding <zhiguo.ding@manchester.ac.uk>

Dear Dr. Moualeu, Dr. da Costa, Dr. Dobre, Dr. Anpalagan, and Dr. Ding:

Thank you for submitting your workshop proposal "Energy-Efficient Schemes for Beyond 5G" to IEEE Globecom 2020. This year, we received a large number of workshop proposals. All proposals underwent a rigorous review and discussion process. After careful consideration of the review scores, topics, and consultation with the TPC chairs, we regret to inform you that your proposal could not be accepted for inclusion in the IEEE Globecom 2020 Workshops.

Thank you again for submitting your proposal to IEEE Globecom 2020, and hope that you will be able to attend the conference in Taipei in December 2020!

Sincerely,

Y.-W. Peter Hong, Petar Popovski, and Rath Vannithamby
IEEE Globecom 2020 Workshop Co-Chairs

Activities (Year 2020)

Workshop Proposals – To Be Submitted in IEEE ICC 2021 (Deadline: 3 Aug), IEEE WCNC 2021 (Deadline: 31 July) and IEEE VTC Spring 2021 (Deadline: TBD)

- Organizers:

Jules M. Moualeu (Lead), University of Witwatersrand, South Africa

Daniel Benevides da Costa, Federal University of Ceará, Brazil

Octavia Dobre, Memorial University, Canada

Alagan Anpalagan, Ryerson University, Canada

Zhiguo Ding, University of Manchester, UK

Activities (Year 2020)

Call for Workshop Papers Energy-Efficient Schemes for Beyond 5G

The aim of this workshop is to bring together researchers and practitioners from both academia and industry with interest in energy efficiency in the context of key emerging technologies for beyond 5G. The workshop will provide a platform to share new ideas on the emerging state-of-the-art, and have a forum for discussion and technical presentations on fundamental and practically relevant questions related to the many challenges in this area. Accepted and presented papers will be published in the conference proceedings and submitted to IEEEXplore and other Abstracting and Indexing databases.

Keynote Speakers:

Denis Gunduz, Imperial College London, UK

Talk: confirmed

Ioannis Krikidis, University of Cyprus

*Talk: Wireless Powered Communications:
Overview, Recent Results and Challenges*

Activities (Year 2020)

- Intelligent Reflecting Surface (IRS)-aided simultaneous wireless information and power transfer
- Energy Harvesting (EH) in Terahertz communications
- Machine learning and Artificial Intelligence (AI)-enabled networks
- EH for massive machine-type communications (mMTC)
- EH and low-power networks operations
- Ambient backscattering communications for hyper low-power nodes
- EH in self-sustaining networks (SSN)
- Energy-efficient multi-purpose convergence of communications, computing, control, Localization and Sensing (3CLS)
- 3D spectral and energy efficiency characterization
- Characterization of energy needs for rate-reliability-latency targets
- Large-scale heterogeneous EH Communication Networks (EHCNs)
- Cloud-based implementation of radio access networks (RANs)
- Energy efficient visible light communications
- EH strategies for low-power consumption network operations
- Network planning and deployment of infrastructure nodes
- Interference exploitation and management in EHCNs
- Resource allocation in B5G networks
- Emerging techniques and new energy models for B5G
- Energy harvester (linear/nonlinear) modelling and impact on signal/system design

Activities (Year 2020)

Special Issue on “Energy-Efficient Schemes for Beyond 5G”

- IEEE Transactions on Cognitive Communications and Networking

*Thank you for your
attention!!*