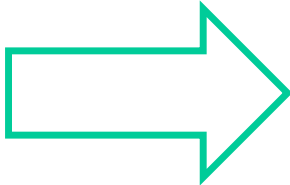

SIG on “Energy-Harvesting Cognitive Radio Networks”

Presentation at IEEE GLOBECOM 2019

Outline

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

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 papers submitted, 9 papers accepted → 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 papers submitted, 4 papers accepted.

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))

Next Activities

- Propose a Special Issue in JSAC (first semester of 2020) on the theme “Learning and AI for Energy Harvesting Communication Networks” (suggested title).
- Organize a Special Session/Workshop at GLOBECOM 2020 on the theme “Learning and AI for Energy Harvesting Communication Networks” (suggested title).

*Thank you for your
attention!!*