



**The Institute of Electrical and Electronics Engineers  
(IEEE)**



**Galveston Bay Section Meeting**

**Communication Society Chapter and Joint Societies Chapter**

**April 20<sup>th</sup>, 2017 (Thursday) Luncheon Meeting**

**TOPIC: “RF Energy Harvesting Network”**

**SPEAKER: Prof Zhu Han**, University of Houston

IEEE Communication Society Distinguished Speaker

**PRESENTATION:** Radio frequency (RF) energy transfer and harvesting techniques have recently become alternative methods to power the next-generation wireless networks. As this emerging technology enables proactive energy replenishment of wireless devices, it is advantageous in supporting applications with quality-of-service requirements. In this talk, we present a literature review on the research progresses in wireless networks with RF energy harvesting capability, which is referred to as RF energy harvesting networks (RF-EHNS). First, we present an overview of the RF-EHNS including system architecture, RF energy harvesting techniques, and existing applications. Then, we present the state-of-the-art circuitry implementations and what our group in University of Houston has done in circuit design. Next, we also explore various key design issues in the development of RF-EHNS according to the network types, i.e., single-hop networks, multi-antenna networks, relay networks, and cognitive radio networks. Finally, we provide a detailed example on RF-EHNS optimization.

**Speaker:** Zhu Han received the B.S. degree in electronic engineering from Tsinghua University, in 1997, and the M.S. and Ph.D. degrees in electrical engineering from the University of Maryland, College Park, in 1999 and 2003, respectively. From 2000 to 2002, he was an R&D Engineer of JDSU, Germantown, Maryland. From 2003 to 2006, he was a Research Associate at the University of Maryland. From 2006 to 2008, he was an assistant professor in Boise State University, Idaho. Currently, he is a full Professor in Electrical and Computer Engineering Department as well as Computer Science Department at University of Houston, Texas. His research interests include security, wireless resource allocation and management, wireless communications and networking, game theory, and wireless multimedia. Dr. Han is an NSF CAREER award recipient 2010. Dr. Han has several IEEE conference best paper awards, and winner of 2011 IEEE Fred W. Ellersick Prize, 2015 EURASIP Best Paper Award for the Journal on Advances in Signal Processing and 2016 IEEE Leonard G. Abraham Prize in the field of Communications Systems (Best Paper Award for IEEE Journal on Selected Areas on Communications). Dr. Han has been IEEE fellow since 2014 and IEEE Distinguished Lecturer since 2015.

**Gilruth Recreation Center NASA-JSC, Discovery Room (downstairs)**

Free parking. No security processing required. Easy drive in off Space Center Blvd. See website below for map.

Interested non-IEEE engineers, technicians, scientists, IEEE Members and guests alike are welcome!

**12:00 PM – 1:00 PM - Program and Q&A**

**11:30 AM - Light Lunch with reservation (\$10.00 donation). Please RSVP Before Noon Monday, April 10<sup>th</sup>, 2017**

**Number of lunches is limited. Please reserve early**

Reservations for lunch or to attend this meeting should be made by email to:

[d.k.rutishauser@ieee.org](mailto:d.k.rutishauser@ieee.org)

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