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Special Session on Efficient Communication Techniques for Non-Conventional Media.

Wireless communication through the non-conventional media (underwater and underground) has been a challenging research area for more than a century. This type of communication is very useful for a wide variety of applications, e.g., soil condition monitoring, water and oil pipeline monitoring, border patrolling and earthquake prediction amongst others. Radio frequency (RF) waves encounter high amount of attenuation and path losses, rendering them fruitless in non-conventional media. The most widely researched and implemented mode of communication for underwater communication is acoustic waves. This is well researched, but possesses disadvantages like low data rate, limited bandwidth, Doppler spreading of the waves, and energy inefficiency. Also, compared to their terrestrial counterparts, the acoustic waves have less conduction velocity in underwater medium and consume ten times more energy. Additionally, wireless communication in non-conventional media through electromagnetic (EM) waves face major problems like high path loss, dynamic channel condition and large antenna size. Since, underground WSN devices have very limited radio power, transmission range between the two sensors using EM waves is very small.

Topics:

- Acoustic, EM, FSO and MI based communication
- Artificial intelligence for wireless communications
- Channel modeling and propagation
- Compressive sensing and communications
- Ad-hoc networks
- Near-field communication (NFC)
- Security of WSNs
- Wireless power transfer
- Wireless system standards
- Wireless communications testbeds, field tests, and measurements
- Physical-layer network coding
- Physical-layer security
- Interference management, alignment, cancellation
- Interference modeling and performance analysis
- Hybrid communication systems
- Cross-layer design and physical-layer based network issues
- Underground and Underwater WSN
- Unmanned Aerial Vehicles (UAV) with sensor networks
- Molecular communication
- Nano network
- Wireless body area network based on magnetic induction.

Important Dates:

Submission Deadline: June 30, 2019

Paper Notification Date: August 15, 2019

Camera-Ready: August 30, 2019

Organizers:

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Paper Submission Guidelines:

Papers submitted for special sessions need to be peer-reviewed in the same way as submissions to the regular tracks. Papers should conform to the IEEE format and specifications. Authors are to be invited to submit full paper (Maximum 6 pages, double-column US letter size) as PDF using the IEEE templates. The submission and review process are to be done through the TENCON website www.tencon2019.org.