IEEE WiSEE 2016

Call for Papers: Wireless Optical Systems and Applications

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Traditionally, some Optical Wireless (OW) Applications have relied on high power solid-state infrared lasers for medium-to-long range optical communications, sensing and imaging. There have been tremendous advances in light emitting diodes, laser diodes, and photodiodes in visible light (VL) and ultraviolet (UV) wavelengths. Those semiconductor optical devices provide huge potentials for short/medium range wireless communications applications at small size and low cost. To make full use of the huge bandwidth available at Infrared (IR), visible and UV bands, the integration of optical and wireless access networks is a powerful solution for both high capacity and mobility services. Thus, future broadband wireless access networks based on optical wireless communications have emerged as affordable and promising solutions in diverse environments such as conference centers, schools, airports, hotels, shopping malls, hospitals, and ultimately homes and offices.

The Wireless Optical Systems and Applications workshop at WiSEE-2016 Conference aims to bring together researchers and engineers in emerging optical wireless communications, using Visible Light bands in addition to IR and UV communications or free space optics (FSO). It will primarily focus on short-to-medium range optical wireless systems and applications, with space and extreme environments in mind, including atmosphere to terrestrial and underwater. The Wireless Optical Systems and Applications Workshop is soliciting papers to address all aspects of enabling component technologies, system design, and networking technologies for optical wireless communications (OWC). The topics covered by this featured workshop for the following emerging and commercial optical wireless systems and applications:

- **Device and Link Level**

-Communications component design and optical device characterization
-Optical source radiation safety in communications design
-Noise modeling for optical wireless systems
-Modeling and characterization of indoor diffused and reflected light beams
-Atmospheric scattering, absorption, and turbulent channel modeling
-Underwater optical channel modeling and link design
-Beam diverging and concentrating techniques
-Optical/Electrical transceiver design, optimization and integration
-Modulation, coding and detection techniques adaptive to link environment
-MIMO, diversity, imaging receiver and advanced signal processing techniques
-Pointing, acquisition and tracking of FSO systems
-High performance and low-cost optical and RF components for OWC

- **Systems and Network Level**

-Convergence of super broadband optical and wireless access networks
-VL and UV systems design perspectives

-UV communications range/rate/BER performance tradeoffs
-New results of IR systems
-Link duplexing and channel access techniques
-Wavelength planning and spatial reuse
-Integration of lighting with VL communications and sensing
-OW Imaging systems
-Centralized and distributed OW network designs
-Coexistence and interoperability of VL communications with other communications networks
-Architectures for wireless over optical fiber communications
-Gigabit wireless over optical fiber system interface design and integration
-Integration of multi-gigabit/s wireless over optical transport in PONs

- **Applications**

-Geolocation, navigation and sensor networks
-Mobile-to-infrastructure and mobile-to-mobile communications
-Vehicle-to-vehicle and vehicle-to-traffic optical wireless communications
-Next generation wireless access networks
-Underwater communications and sensor networks
-Inter-satellite FSO links and deep space optical wireless
-Ground-to-air and air-to-air FSO links
-Ultra-high bandwidth home and office networking
-Delivering multi-gigabit/s WiFi, WiMax, and LTE-advanced services via optical wireless communications
-Optical wireless interconnects for high performance computers and data centers
-Multi-gigabit/s wireless over fiber access on high speed trains, aircraft, and vehicles