

Topics

Visible Light Communications (VisC)

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OVERVIEW

The rapid adoption of LED lighting, and the ability to modulate LEDs faster than other lighting systems is creating a new communications infrastructure. Visible light communications originated in Asia more than a decade ago. Since then, there has been rapid technical progress, with data rates of Gb/s achievable using standard lighting LEDs.

There are still many research challenges associated with the transmitter and receiver devices (energy efficiency, modulation bandwidth, scalability), Transmission techniques (the use of MIMO, modulation schemes), Network architectures (Integration with RF systems, backhaul) and applications (navigation, data communication, security etc.).

The use of plastic optical fibre, and low-cost multimode waveguides has created the potential to use GaN micro-LEDs and other sources operating in the visible region of the spectrum for high-speed data communications. The development of complex modulation schemes has allowed impressive rates to be demonstrated. There is much academic and industrial research in this area.

We invite submissions in the broad area of guided wave and free-space VLC, including, but not limited to

- **devices, including sources, detectors, modulators, integrated devices and future concepts**
- **systems, including systems demonstrations, concepts, systems optimisation, and co-existence with illumination**
- **networks, including integration with existing wired and wireless networks**

PRESENTATIONS



Domenico Giustiniano

IMDEA Networks Institute, Spain

Invited Speaker

OpenVLC, an Open-Source Platform for the Internet of Light



Robert Karlicek Jr.

Rensselaer Polytechnic Institute, USA

Invited Speaker

Rafael Pérez Jiménez

Universidad de Las Palmas de Gran Canaria, Spain

Invited Speaker

CHAIRS



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University of Oxford, UK



Topic Co-Chair Zhengyuan Xu

University of Science and Technology of China and Optical-Wireless Communication Key Lab of Chinese Academy of Sciences, China



Topic Co-Chair Thomas DC Little

Boston University, USA

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Tufts University, USA

Shinichiro Haruyama

Keio University, Japan

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VLC systems for Real-Time Indoor Location

Suat Töpsü

University of Versailles, France

Invited Speaker

Takaya Yamazato

Nagoya University, Japan

Invited Speaker

Image sensor based visible light communication for V2X

Pavlos Manousiadis

Organic Semiconductor Centre, SUPA, UK

Invited Speaker

Demonstration of 2.3 Gb/s RGB White-light VLC using Polymer based Colour-converters and GaN micro-LEDs



Steve Collins

University of Oxford, UK

Invited Speaker

Single Photon Avalanche Diodes (SPADs) in Future Free Space VLC

Robert Henderson

University of Edinburgh, UK

Invited Speaker

Avalanche Diode Devices and Circuits for Integrated CMOS VLC Receivers

Nan Chi

Fudan University, China

Invited Speaker

Advancing the capacity of LED based visible light communication network

Olaf Ziemann

Institute of the University of Applied Sciences Nünberg, Germany

Invited Speaker

Status of high speed data transmission over large core Polymer Fibers



Mohsen Kavehrad

Pennsylvania State University, USA

Invited Speaker

Indoor Positioning by Light

Anagnostis Tsiatmas

Eindhoven University of Technology, Netherlands

Invited Speaker

Combining Illumination with Visible-Light Communications: From Today's Technology to Future Possibilities



Lutz Lampe

University of British Columbia, Canada

Invited Speaker

Enhancing the Security of VLC Links: Physical-Layer Approaches

Zhaocheng Wang*Tsinghua University, China***Invited Speaker**

Optical OFDM for Visible Light Communications

Chen Gong*University of Science and Technology of China, China***Invited Speaker**

Visible Light Communication System Optimization under Lighting

**Zhengyuan Xu***University of Science and Technology of China and Optical-Wireless Communication Key Lab of Chinese Academy of Sciences, China***Invited Speaker**

Opportunities and Challenges in Ultraviolet Communications

Peter Parbrook*Tyndall National Institute, Ireland***Invited Speaker****CONFERENCE PLANNER****Ingrid L. Donnelly, CMP
Senior Conference Planner**Phone +1 732 562 5597
Fax +1 732 562 8434
i.donnelly@ieee.orgIEEE Photonics Society
445 Hoes Lane
Piscataway, NJ 08855-1331 USA
www.photonicsociety.org

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