



The 7th IEEE ICC Workshop on Optical Wireless Communications (OWC'22)

in association with

IEEE International Conference on Communications (ICC2022)
16-20 May 2022 // Seoul, South Korea



Workshop Co-chairs

Shinichiro Haruyama, Keio U, Japan
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Koji Kamakura, Chiba Inst. of Tech,
Japan

TPC Chairs

TPC Chair

Koji Kamakura, Chiba Inst. of Tech.

Vice Chairs

Shintaro Arai, Okayama U Science, Japan
Masayuki Kinoshita, Chiba Inst. of Tech.

Important Dates

Submission Deadline: **20 January, 2022**
Acceptance Notification: **06 March, 2022**
Camera Ready: **15 March, 2022**

Steering Committee Members

Takaya Yamazato, Nagoya U, Japan
Volker Jungnickel, Fraunhofer HHI, Germany
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Invited Talks

(TBA)

Webpage Link

<http://yamazato.ilas.nagoya-u.ac.jp/owc2022>

Scope: Future wireless networks will ensure low latency, high reliability, scalability, as well as enhanced quality-of-service and quality-of-experience in sophisticated scenarios arising from emerging multimedia applications and exponential increase in the number of smart sensors and devices. In such scenarios, optical wireless communication (OWC) gains importance where it can leverage the unique selling points of the light medium as opposed to RF, such as ultra-high capacity, immunity against electromagnetic interference, the possibility to communicate wirelessly through water, and the ability to provide additional security. There are synergies when combining OWC with radio technology, yielding a hybrid system having better properties than the individual technologies could offer. Because of the numerous operational and technical advantages offered by OWC, we have been witnessing increased research and development activities in the past two decades, covering visible-light communications (VLC) and free space communications (FSO) for indoor and outdoor (including underwater and satellite) applications. Nevertheless, there exist still several technical challenges that need addressing before a wide-spread deployment of OWC.

Topics: The workshop focusing on OWC covering ultraviolet, visible, and infrared bands will welcome submissions in areas of modeling, design, implementation, simulation, and standardization. The potential topics include, but are not limited to:

- Modulation, coding, and detection for OWC
- Beam divergence (diffusion) and focusing, and its modeling
- Mobile-to-infrastructure, m2m, v2v, and v2x OWC
- Multi-input multi-output optical communication techniques
- Free space optical (FSO) communication
- Optical wireless networks or sensor networks, LiFi
- OWCs in beyond 5G/6G networks
- Hybrid WiFi/mmW/THz/OWC links
- Visible Light Communication (VLC)
- VLC transceiver design and optimization
- VLC link duplexing and multiple access techniques
- Impact of lighting in concurrent VLC design
- Image sensor communications (or Optical camera communications)
- Underwater VLC (UVLC) and its communication performance
- Positioning and Sensing in VLC
- High-speed OWC systems (indoor and outdoor)
- Security in OWC
- Machine learning in OWC
- Software defined OWC
- Emerging application areas and market perspective
- New aspects of OWC and applications