

Is Optical Wireless Still Relevant for 6G or Will Fiber-radio be Enough?

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Sunday, 06 March 13:00 - 15:30

Organizers:Chi-Wai Chow, *National Yang Ming Chiao Tung Univ., Taiwan*Anthony Ng'oma, *Corning Inc., USA*Eduward Tangdiongga, *Eindhoven Univ. of Technology, Netherlands***Description:**

Optical-Wireless Communications (OWC) has evolved in many significant ways recently and is now employed in a wide range of applications - beyond free-space terrestrial communication and extending to in-space and under-sea communications. The biggest attractions to OWC are its extremely high spectral efficiency (bits/Hz/sq. m) - owing to its high carrier frequency and the ease of OWC signal confinement, which enables superior frequency reuse and its immunity to EM interference. On the other hand, Fiber-Radio (FR) communications, which combines the best of two worlds - optical fiber and radio communications continues to be widely used in wireless and mobile applications including 3G and 4G and the newest mobile standard - 5G.

At the dawn of 5G mobile, many had hoped that perhaps OWC in one of its many flavors - including VLC/Li-Fi would, on the basis of its key advantages have a natural role to play in the new era. However, as it turns out, today 5G mobile is mostly relying on Radio, Optical Fiber and FR technologies. This workshop will discuss the reasons why OWC hasn't had the anticipated success in today's 5G deployments. In addition, we will consider the question of whether the evolution towards 6G, which promises exceedingly higher wireless data speeds, ultra-low latency communications and a host of new applications will provide that long-awaited opportunity for OWC to play a significant role in edge and end-user communications. The workshop will aim to identify areas of potential limitations for FR systems and specific areas of opportunity for OWC in the 6G era and provide the accompanying rationale for the optimism.

Speakers:Abdelmoula Bekkali, *TDYO Electric Corporation, Japan*Alberto Bianchi, *Ericsson, USA*Pham Tien Dat, *NICT, Japan*Nathan Gomes, *University College London, United Kingdom*Harald Haas, *University of Strathclyde, United Kingdom*Volker Jungnickel, *Fraunhofer HHI, Germany*Xu Li, *Huawei Technologies, China*Michael Sauer, *Corning, USA*Mark Watts, *Verizon Wireless, USA*Jing Wang, *Cable Labs, USA*