

## 3<sup>rd</sup> International Conference and Exhibition on **Lasers, Optics & Photonics**

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### **A transmission of Ethernet signals via VLC link based on using LEDS in a double role**

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A light communications technology in a visible-spectrum, well-known as VLC, attracts an attention of many researchers, since last couple years. New regulations introduced by the management bodies at the world opened a gate for increasing the share in the global market illumination the light emitting diodes (LEDs), making them the most important kind of a light source, which will be used broadly at a near future. This fact is one of the most crucial reasons why with an introduction the VLC technology on the market the expectations related to it are so enthusiastic. Of course, the technology still needs a time to mature. Paradoxically, the concept of transmission in the visible-spectrum can find new applications during this time. One of them is a proposal of use the VLC link to a realization of Ethernet communication between devices forming a shared network. The article presents the results of initial investigations for an instance of such network where VLC is used as a base for realization optical wireless link path between two computers instead of cable connection or Wi-Fi. There is especially interesting that the LEDs were used in a double role. It means that some of the diodes are used as photo-detectors, not as light emitters.

#### **Biography**

Marcin Kowalczyk works as an Assistant Professor in the Institute of Telecommunications in the Warsaw University of Technology (WUT), Poland. He graduated the Faculty of Electrical Engineering, Automatic Control and Computer Science of the Kielce University of Technology and PhD studies at Faculty of Electronics and Information Technology at the WUT, where he received his PhD in 2010. His professional interests include optical communications, microwave electronics and database systems. He is author or co-author for more than 50 papers.

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