

Workshop Speaker

Full Name	Jinlong Wei
Affiliation	Huawei Germany
Presentation Title	1 Terabit Ethernet Based on Low-Cost Direct Detection Systems

Biography

Dr. Jinlong Wei is currently a senior researcher at Huawei Technologies Dusseldorf GmbH, European Research Center, Munich, Germany. Prior to it, he worked as senior engineer at ADVA Optical Networking SE, Germany (2014 to 2016). He received a PhD from Bangor University, UK in 2011 and then joined University of Cambridge, UK as a research associate.

Dr. Wei's research interests include advanced modulation formats, signal processing, and devices covering applications from in-house to data center (DC), access, Metro and long-haul networks with emphasis on cost- and energy-efficient innovations. He has participated in about 10 European national and international projects and realized a number of world-first system demonstrations with his colleagues such as a real time 40 Gb/s lane rate PAM-4 based optical access network (ECOC2015PDP) and a real time 400 Gb/s DC interconnects optical link. His work has been reported by leading media such as BBC, Reuters, Yahoo, Business Wire etc.

Dr. Wei has (co-)authored more than 120 peer-reviewed journal/conference papers including over ten invited and holds several US/Europe patents. He has been contributing to the next generation 100 Gigabit Ethernet study within IEEE802.3. He has served as a session organizer or a technical committee member of several international conferences, a frequent reviewer for over ten journals and won the 2016 outstanding volunteer of IEEE/OSA Journal of Light wave Technology.

Dr. Wei is a senior member of IEEE and a member of IEEE Photonics society. He is a Marie Curie fellow and an honorary research fellow of Bangor University, UK.

200 words abstract

Data centers (DC) show an annual traffic growth of 27%, according to Cisco's survey. 400 Gigabit Ethernet (GE), representing the highest standardized Ethernet link speed, will be not sufficient beyond 2020. 1 Terabit Ethernet (TE) is one of the highly possible link speeds for the next generation Ethernet and its commercial use is expected in a few years. Coherent systems are promising to ultimately allocate the capacity in one or two wavelengths but it is restricted to long reach scenarios beyond 10-km SMF due to the transceiver cost and complexity. Below 10-km, direct detection schemes are preferred solutions in the near future. Similar to 400 GE, the rule of thumb for 1 TE is to minimize the parallel lanes in order to fulfill the stringent cost and power constraint. In this talk, we focus on the technical challenges of 1TbE for 500m and 2 km SMF applications in DC, from both hardware components and digital signal processing (DSP) perspectives. Demonstrations of high speed PAM and DMT as well as advanced DSPs will be presented to verify the feasibility of 1TE based on 4 wavelengths and off-the-shelf components, making 1TE a competitive candidate for the next generation Ethernet.