Workshop Speaker	
Full Name	M. Sezer Erkılınç
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Presentation Title	Simplified coherent versus currently-existing technology for future optical access networks

Biography

Mustafa Sezer Erkılınç received his BSc, MSc and PhD degrees in Electronic and Electrical Engineering from Koç University, Istanbul/Turkey in 2009, Rochester Institute of Technology, NY/USA in 2011, and Optical Networks Group (ONG) at University College London in the UK in 2015, respectively. He is one of the ten recipients of 2015 IEEE Photonics Society Graduate Student Fellowship (awarded to 10 world-wide Photonics Society student members and 2015 Association of British and Turkish Academics Doctoral Researcher Prize. He is currently a senior research fellow at UCL.

Dr Erkılınç's research focuses on simplified coherent transceiver designs that offer high capacity, yet low complexity, solutions for optical access and metro networks. He has authored and co-authored more than 40 papers in leading peer-reviewed prestigious journals and international conferences. Sezer is a member of IEEE and OSA.

200 words abstract

It is predicted that demand in future optical access networks will reach multi-gigabit/s per u ser. The limited performance of the direct-detection technology coupled with time-division mu ltiplexing, currently used in the optical network units (ONUs) at the customers' premises, restr icts data rates/user. Therefore, the concept of wavelength-division multiplexing coherent-enable d passive optical networks has attracted attention in recent years due to the promises of high receiver sensitivity, inherent frequency selectivity, and full compensation of linear channel imp airments. However, the immense complexity of conventional digital coherent receivers has so f ar prevented their introduction into access networks. Thus, to exploit the benefits of coherent technology, low complexity coherent receivers, suitable for implementation in ONUs, are recen tly proposed. This talk discusses the simplified coherent solutions for access networks and c ompares them with their direct detection counterparts by assessing the trade-off between rece iver sensitivity and required (optical and digital) complexity. It is concluded that the required complexity will inevitably increase towards 50/100Gbs per wavelength. Low complexity cohe rent solutions are more scalable, offering higher data rates and reach, whilst offering compara ble optical receiver hardware complexity (in terms of optical components count) whereas powe r consumption due to the required digital signal processing in a coherent receiver needs to b e further investigated.