Short Range Inter-Datacenter Transmission with Carrier Delivery and Remote Modulation for 112 Gb/s PM-QPSK Signals - DTU Orbit (08/01/2019)

The increasing demand for bandwidth in datacenter interconnect links is currently driving a transition towards four level pulse-amplitude modulation (PAM-4) as the de facto modulation format. Nevertheless, other schemes with even higher spectral efficiency will be required in the future given the challenges of increasing baud rate or number of channels. As enabling technology, we propose and demonstrate a coherent link concept inspired from passive optical networks (PON) where carrier delivery and remote modulation are used to achieve single wavelength transmission of polarization multiplexing quadrature phase shift keying (PM-QPSK) at 112 Gb/s in channels of 5 and 10 km single mode fiber (SMF). By using a single laser for modulation and local oscillator the required complexity of digital signal processing is reduced in comparison to traditional digital coherent links.