Abstract:

A low-power (0.96pJ/bit), high sensitivity (-11.1dBm median), high bandwidth (7x50Gbps NRZ WDM) receiver (RX) that achieves <1e-12 BER without forward-error-correction is presented. Cascaded ring resonators are used for wavelength selection with <-15dB cross talk and 1.5nm laser grid. An inverter-based TIA with T-coil peaking is used to improve power efficiency while meeting a transimpedance of >4kΩ and bandwidth >35GHz. An area efficient quadrature locked loop is used for RX clocking.