Wide-band low-noise distributed front-end for multi-gigabit CPFSK receivers

In this paper a distributed optical front-end amplifier for a coherent optical CPFSK receiver is presented. The measured average input noise current density is 20 pA/√(Hz) in a 3-13 GHz bandwidth. This is the lowest value reported for a distributed optical front-end in this frequency range. The front-end is tested in a system set-up at a bit rate of 2.5 Gbit/s and a receiver sensitivity of -41.5 dBm is achieved at a 10-9 bit error rate.