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| **Abstract:** |  |
| This paper introduces a Semiconductor Optical Amplifier (SOA) based 2 × 1 Code word Multiplexer (CMUX) and a Code word De-Multiplexer (CDEMUX). CMUX is designed to multiplex the user data in the transmission side and CDEMUX is designed to de-multiplex the CMUX to get the original user data in the receiver side of an optical communication system. Finally, the designed CMUX and CDEMUX are implemented in an Optical Code Division Multiple Access (OCDMA) system. Optisystem version 7 is used for simulation to investigate the performance in the proposed system. Transmission distance of 70 km is achieved with acceptable bit error rate and Q factor. Open eye diagram is also verified at the receiving end. | |