



Contribution ID: 196

Type: Oral Presentation

## A single DFB laser for multilevel directly modulated signal for high speed optical fibre communication system

Wednesday, 9 July 2014 14:20 (20 minutes)

**Abstract content**   
 &nbsp; (Max 300 words)   
 <a href="http://events.saip.org.za/getFile.py/a target="\_blank">Formatting & Special chars</a>

Abstract: Multilevel modulation format that meets the high bandwidth requirements and increases the bit rate is experimentally investigated. A single distributed feedback (DFB) laser at 1550 nm is used to transmission a total of 20 Gb/s of data over an optical fibre link. The data rate is doubled from binary 10 Gb/s by employing a multilevel technique. An economical, all electrical multi-level signal generation technique was designed. The multilevel format transmitter codes two bits in one symbol. This enables an increase in the bit rate of the system, though at the expense of receiver complexity. The two bits coded in a single symbol generate a four level signal that has to be decoded at the receiver. The designed complex receiver section utilizes the offline digital signal processing algorithms to evaluate the system performance through bit error rate (BER) measurements. The system performance was experimentally evaluated on back-to-back transmission.

Key terms:

Multilevel

Digital signal processing

BER

**Apply to be considered for a student award (Yes / No)?**

yes

**Level for award (Hons, MSc, PhD)?**

PhD

**Main supervisor (name and email) and his / her institution**

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**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

yes

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**Session Classification:** Applied

**Track Classification:** Track F - Applied Physics