Abstracts

Carrier reuse with gain compression and feed-forward semiconductor optical amplifiers

E. Conforti, C.M. Gallep, S.H. Ho, A.C. Bordonalli and Sung-Mo Kang. "Carrier reuse with gain compression and feed-forward semiconductor optical amplifiers." 2002 Transactions on Microwave Theory and Techniques 50.1 (Jan. 2002, Part I [T-MTT] (Mini-Special Issue on 1999 International Microwave and Optoelectronics Conference (IMOC'99))): 77-81.

The results of two techniques for optical carrier regeneration and wavelength reuse using semiconductor optical amplifiers (SOAs) are presented in this paper. The main objective is to recover an optical carrier by erasing its amplitude modulation. The first technique employs gain compression of deeply saturated SOAs. The second technique uses a feed-forward approach, where a delayed current signal is injected into the SOA with the same shape of the incoming optical pulse. The second technique could be capable to recover the optical carrier with less than 3-dB noise. However, it was observed that the SOA gain recovery time limits the maximum usable bit rate. Theoretical simulation showed good agreement with experimental results.

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