World Academy of Science, Engineering and Technology
International Journal of Electronics and Communication Engineering
Vol:12, No:12, 2018

All-Optical Function Based on Self-Similar Spectral Broadening for 2R Regeneration in High-Bit-Rate Optical Transmission Systems

Authors : Leila Graini

Abstract : In this paper, we demonstrate basic all-optical functions for 2R regeneration (Re-amplification and Re-shaping) based on self-similar spectral broadening in low normal dispersion and highly nonlinear fiber (ND-HNLF) to regenerate the signal through optical filtering including the transfer function characteristics, and output extinction ratio. Our approach of all-optical 2R regeneration is based on those of Mamyshev. The numerical study reveals the self-similar spectral broadening very effective for 2R all-optical regeneration; the proposed design presents high stability compared to a conventional regenerator using SPM broadening with reduction of the intensity fluctuations and improvement of the extinction ratio.

Keywords : all-optical function, 2R optical regeneration, self-similar broadening, Mamyshev regenerator
Conference Title : ICLOP 2018 : International Conference on Lasers, Optics and Photonics
Conference Location : Dublin, Ireland
Conference Dates : December 20-21, 2018

Open Science Index, Electronics and Communication Engineering Vol:12, No:12, 2018 publications.waset.org/abstracts/101178.pdf