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## ABSTRACT

Soliton pulses as a solution to maintain the shape of the signal from the medium that makes the signal distortion is a choice in fiber-optic transmitter. Soliton pulses with a narrow spectrum and is affected by GVD and SPM effects of non-linear form of the defense to make a dispersion medium. In this research soliton pulses is multiplexed and transmitted up to a distance of 200 km.

Non-linear effects in DWDM caused by the Kerr-effect and Inelastic Scattering. Kerr Effect includes Cross Phase Modulation (XPM), Four Wave Mixing (FWM) and Self-Phase Modulation (SPM). While Inelastic Scattering includes Stimulated Brillouin Scattering (SBS) and Stimulated Raman Scattering (SRS). This research analyzed the influence of the Kerr-effect where the refractive index of the non-linear influence on the decrease in the number of channels transmitted. The results showed the 80 channels that are transmitted on a non-linear fiber with  $n_2 = 4,4526 \cdot 10^{-20} \text{ m}^2/\text{W}$  using 50 GHz channel spacing between channel that has contained 5 BER above  $10^{-9}$ .

The results of recent studies on the effects of non-linear that change the value of  $n_2$  up to the worst conditions show a growing number of channels that can not be transmitted. This research also proves that the soliton pulse in a 80-channel DWDM network to link 200 miles only 75 channel are able to maintain the BER values below  $10^{-9}$

**Keywords : Dense Wavelength Division Multiplexing , Four Wave Mixing , Cross Phase Moulation, Soliton**