

# Abstract

**Moustafa Hussein Aly**

## **Comparative study of performance of EDFA/Raman hybrid optical amplifier with Raman only amplifier and EDFA only amplifier**

In this paper, comparative study of the gain and noise figure for EDFA/Raman hybrid amplifier, EDFA and Raman amplifier was done. In addition, the optical signal to noise ratio (OSNR) is calculated as a function of signal wavelength. The higher gain was 41.1 dB for EDFA/Raman hybrid amplifier at -30 dBm input signal power, 100 mW of both EDFA and Raman pump power and signal wavelength of 1530 nm and the lower noise figure was 3.8 dB for EDFA only at -30 dBm input signal power, 100 mW of EDFA pump power and signal wavelength of 1530nm. The lower values of OSNR obtained for Raman amplifier only at signal wavelength 1530 – 1600 nm with -30 dBm input signal power and 100 mW Raman pump power. The flatness of the gain profile of EDFA/Raman hybrid amplifier is higher than of both EDFA only and Raman only.