



Ali Khan Irfan

**Performance Analysis of  
Optical CDMA Systems**  
Analysis of OCDMA systems using MATLAB



# Performance Analysis of Optical Cdma Systems

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This book presents the effect of dispersion property of optical fiber and multiple access interference (MAI) due to unique signature codes in the optical code division multiple access (OCDMA) systems. A mathematical analysis is presented to evaluate the effect of fiber chromatic dispersion on the bit error rate (BER) performance of a direct sequence optical code division multiple access system with intensity modulation direct detection transmission link using sequence inverse keying optical correlator receiver. MATLAB simulations are used to presents signal-to-noise ratio (SNR) versus received optical power (ROP) plot for various numbers of users. It can be done for the ROP v/s BER for different lengths of single mode optical fiber with consideration the effect of chromatic dispersion index. Also visualize what amount of transmitted power is required in order to obtain a BER of  $10^{-9}$  when the length of the optical fiber is increased. It noticed that when the fiber length is decreased, the index of chromatic dispersion of the optical fiber increases.

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