

## ABSTRACT

This work investigated the use of Concatenated sequences (Kronecker sequences) in optical fiber CDMA network. These sequences can overcome the loss and short of available sequences. I proposed another form of Kronecker sequences that are generated by balanced m-sequences and balanced gold sequences. In recent years, available kronecker sequences are constructed by Lampel codes and Gold codes. In this thesis, the programmable BER is measure of performance of kronecker sequences. The value of BER are compared between the generating balanced m-sequences as inner and balanced gold sequences as outer and the generating balanced gold sequenced as inner and balanced m-sequences as outer. MATLAB program is used for generating balanced m-sequences and balanced gold sequences. The calculation for auto-correlation and cross correlation of Kronecker sequences is designed to find the numerical result of BER values. The performance of Kronecker codes is evaluated to find the best combination.

