

# **Abstract**

**Heba Ahmed Fayed**

## **SAC- OCDMA System Using Different Detection Techniques**

In this paper, we investigate the optimum received power for spectral amplitude coding optical code division multiple access (SAC-OCDMA) at different transmission distances using modified-AND subtraction detection technique and single photodiode (SPD) detection technique. We also investigate the effect of avalanche photodiode (APD) gain on the received power. Simulation results show that: 1) the received power decreases while the bit error rate (BER) increases with the transmission distance, and 2) both the received power and the BER increase with the APD gain for the same transmission distance.