Decision Threshold Control Method for the Optical Receiver of a WDM PON using PSO

Abstract

An attempt is made to improve the performance of an optical receiver with beat noises by adjusting the threshold level [1] automatically according to the detected average power using
MATLAB/SIMULINK model. Observations are made at different noise power levels, number of iterations, values of bit error rate, gain and error count within time elapsed in seconds. Optical communication systems have good speed, accuracy and efficiency but accuracy of high speed communication is unstable due to internal noise. This paper attempts to focus on eliminating one of the major internal noises known as Beat noise. The proposed method is useful for the optical receiver using WDM-PON. When compared to TDM-PON, WDM –PON provides point to point connectivity and pair of wavelengths for a single user. Thus a WDM-PON network is suitable for present and future generation networks.

References


Index Terms

Computer Science
Signal Processing
Keywords

Wavelength division multiplexing passive optical networks (WDM-PON)

Particle swarm optimization (PSO)

Beat noise