

## Channels Splitting Strategy for Optical Local Area Networks of Passive Star Topology

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**Abstract :** In this paper, we present a network configuration for a WDM LANs of passive star topology that assume that the set of data WDM channels is split into two separate sets of channels, with different access rights over them. Especially, a synchronous transmission WDMA access algorithm is adopted in order to increase the probability of successful transmission over the data channels and consequently to reduce the probability of data packets transmission cancellation in order to avoid the data channels collisions. Thus, a control pre-transmission access scheme is followed over a separate control channel. An analytical Markovian model is studied and the average throughput is mathematically derived. The performance is studied for several numbers of data channels and various values of control phase duration.

**Keywords :** access algorithm, channels division, collisions avoidance, wavelength division multiplexing

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