

Code Division Multiplexing Passive Optical Network



Overview

An low-latency service scheme is proposed over Passive Optical Network (PON). The Optical Code Division Multiplexing Access (OCDMA) technique is used to define multiple private networks serving as Virtual GE-PON that mimic the service-based VLAN (S-VLAN) in the optical domain. High-capacity communication networks are built to provide high throughput and low latency to accommodate the growing demand for bandwidth. Optical. This book is a comprehensive guide to optical fiber communications, from the basic principles to the latest developments in OCDMA for next-generation Fiber-to-the-Home (FTTH) systems. Part I starts with the fundamentals of light propagation in optical fibers, multiple access protocols, and their. Abstract: Advanced modulation and multiple access schemes with high spectral efficiencies are desirable to overcome the bandwidth limitation in low-cost optical and electrical devices to fulfill the high-data rate requirements in passive optical networks (PONs).



Article Content

Apr 27, 2026

Power-code division non-orthogonal multiple access scheme for next ...

Abstract: Advanced modulation and multiple access schemes with high spectral efficiencies are desirable to overcome the bandwidth

Feb 16, 2026

Technologies for future wavelength division multiplexing passive ...

This study reviews key technologies of next generation wavelength division multiplexing passive optical networks

Dec 28, 2025

Wavelength Division Multiplexing Passive Optical Network (WDM

Wavelength Division Multiplexing Passive Optical Network (WDM PON) introduces high data rate and large bandwidth.

Aug 13, 2025

WDM-PON Wavelength Division Multiplexing Passive Optical Network

Wavelength Division Multiplexing Passive Optical Network (WDM-PON) is an advanced optical access network

Apr 08, 2026

Wavelength-division multiplexing

In fiber-optic communications, wavelength-division multiplexing (WDM) is a technology which multiplexes a

Apr 17, 2026

WAVELENGTH-DIVISION MULTIPLEXING OPTICAL NETWORKS

WDM is analogous to frequency-division multiplexing (FDM), which is often used for transmission over the airwaves. In WDM

Sep 25, 2025

Technologies for Future Wavelength Division Multiplexing Passive ...

In this article, the comb wavelength division multiplexing passive optical network (Comb WDM-PON) system has been

May 26, 2026

Optimization and analysis of Spectral/Spatial optical code division ...

This work explores the use of a 2D spectral-spatial optical code division multiple access (OCDMA) passive optical

Apr 17, 2026

Research on Optical Code Division Multiple Access Passive Optical ...

In this paper, we have studied an optical code division multiple access (OCDMA-WDM-PON) passive optical network

Jun 12, 2026

Optical Code Division Multiple Access

Optical code division multiple access (OCDMA) has been emerging as a promising technology of choice for the NG-PON. OCDMA

Dec 14, 2025

Wavelength-division-multiplexed passive optical network based on ...

We propose and demonstrate a new wavelength division-multiplexed (WDM) passive optical network (PON) architecture that uses

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Toward Low-Latency Services over PON using OCDMA Private

An low-latency service scheme is proposed over Passive Optical Network (PON). The Optical Code Division

Dec 27, 2025

High efficient employment of hybrid space division multiplexing/time ...

Abstract This paper has demonstrated the high efficient employment of space division multiplexing and time division

Jul 29, 2025

Code Division Multiplexing

Code division multiplexing is defined as a technique in which each user encodes their messages with a unique

Oct 24, 2025

Wavelength-division-multiplexed passive optical network (WDM-PON ...

Particularly, recent developments in optical technologies have made the realization of wavelength division multiplexing

Jul 14, 2026

Performance Analysis of Wavelength Division Multiplexing-Based Passive ...

First, a short basic classification of passive optical network architectures utilizing advanced wavelength division

Feb 16, 2026

Feasibility analysis of 2-dimensional permutation vector optical code ...

Abstract This paper analyzes the feasibility of a 2-dimensional (2D) permutation vector (PV) optical code division

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Optical Wavelength-Division Multiplexing for Data Communication ...

Wavelength-division multiplexing (WDM) enables multiple-shift usage of transmission fibers by transmitting a multitude of

Jul 04, 2026

Wavelength-division-multiplexed passive optical network (WDM-PON ...

Feature Issue on Optical Access Networks (OAN) The passive optical network (PON) is an optical fiber based network architecture,

Jan 12, 2026

Mode Division Multiplexing-Based Passive Optical Networks

Mode Division Multiplexing (MDM) is investigated during the transmission of high data rates for increasing capacity in

May 29, 2026

Passive optical network based on optical code division multiplexing

A passive optical network (PON) scheme based on optical code division multiplexing (OCDM) for the downstream

Nov 10, 2025

Optimization and Analysis of Spectral/Spatial Optical Code Division ...

Therefore, we propose a low-cost, flexible, and secure OBAN based on FSO technology and a time-delayed two

Nov 02, 2025

Wavelength Division Multiplexing Passive Optical Network modeling

In this article, the comb wavelength division multiplexing passive optical network (Comb WDM-PON) system has been

Nov 09, 2025

Recent development on time and wavelength-division multiplexed passive ...

Abstract The second stage of next-generation passive optical network (NG-PON2) based on time and wavelength

Mar 24, 2026

Coherent passive optical network: applications, technologies, and ...

Abstract and Figures This paper presents a comprehensive overview of the emerging coherent passive optical network

May 06, 2026

Fault Tolerant Spectral/Spatial Optical Code Division Multiple ...

This work optimizes an existing 2D spectral-spatial optical code division multiple access (OCDMA) passive optical

Mar 24, 2026

Random Codebook-Based 3D-SCMA-OFDM High-Security Optical

Abstract: In this article, a three-dimensional sparse code division multiple access (SCMA) orthogonal frequency division multiplexing

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