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Presentation Title: Node and Control Architectures for the Receiver Collisions Elimination and the Performance Optimization of Optical WDM Networks

Presentation Abstract:

This presentation focuses on the study of the parameters that affect the optical WDM networks performance. Especially, many node and control network architectures are presented and the performance optimization conditions for the exploitation of the optical fiber bandwidth are explored. The receiver collisions phenomenon, as a direct result of the WDM technique use, is studied and its effective elimination is attempted. The study is performed for WDM networks of synchronous and asynchronous transmission strategies, in local and metropolitan area scale and under various traffic models. The performance measures are extracted based on accurate mathematical models and are verified by simulation. The numerical results are studied for various performance parameters values. Finally, the node architecture that provides the total receiver collisions phenomenon elimination is determined, which is common for all the examined WDM networks cases. The presentation results can be exploited by researchers and engineers of optical high-speed WDM networks.