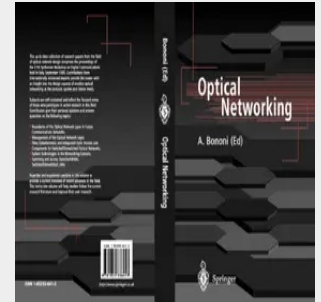


Optical Networking

The new information services provided worldwide through the Internet are fostering the upgrade of existing access and transmission plants, and the deployment of new ones. The bandwidth bottlenecks of existing electronic plants are being gradually removed by the massive use of optics at all levels. The latest technological developments in optical system components have finally made the huge bandwidth of optical fibers available both for increasing the amount of transmitted information and for reducing the transmission cost per information bit. Wavelength Division Multiplexing (WDM) is now a commercial reality, widely employed in the upgrade of existing point-to-point optical communications links, and in most upcoming newly installed fiber links. High speed Optical Time Division Multiplexing (OTDM) offers a complementary approach to WDM to tap even more into the fiber bandwidth. OTDM is however still in competition with Electronic TDM (ETDM), and as technology in integrated electronics progresses (along with the optical technology), the boundary where OTDM becomes more convenient than ETDM is still blurred and is a time-dependent variable. While the main design guidelines for point-to-point optical links are now well established, much research work remains to be done in the area of optical networking, where the resources of many interconnected point-to-point optical links are time shared. Work is to be done in the transmission field, as well as in the protocol, control and management field.

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