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Multichannel Optical Networks

The huge bandwidth of optical fiber was recognized back in the 1970s during the early development of fiber optic technology. For the last two decades, the capacity of experimental and deployed systems has been increasing at a rate of 100-fold each decade-a rate exceeding the increase of integrated circuit speeds. Today, optical communication in the public communication networks has developed from the status of a curiosity into being the dominant technology. Various great challenges arising from the deployment of the wavelength division multiplexing (WDM) have attracted a lot of efforts from many researchers. Indeed, the optical networking has been a fertile ground for both theoretical researches and experimental studies. This monograph presents the contribution from my past and ongoing research in the optical networking area. The works presented in this book focus more on graph-theoretical and algorithmic aspects of optical networks. Although this book is limited to the works by myself and my coauthors, there are many outstanding achievements made by other individuals, which will be cited in many places in this book. Without the inspiration from their efforts, this book would have never been possible. This monograph is divided into four parts: • Multichannel Optical Networking Architectures, • Broadcast-and-Select Passive Optical Networks, • Wavelength-Switched Optical Networks, • SONET/WDM Optical Networks. The first part consists of the first three chapters. Chapter 1 pro vides a brief survey on the networking architectures of optical trans- XVII xvm MULTICHANNEL OPTICAL NETWORKS port networks, optical access networks and optical premise networks.

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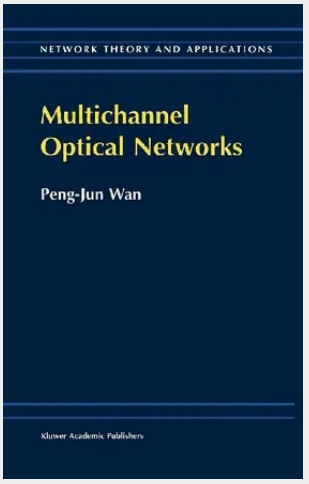

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