

## FiWi Access Networks

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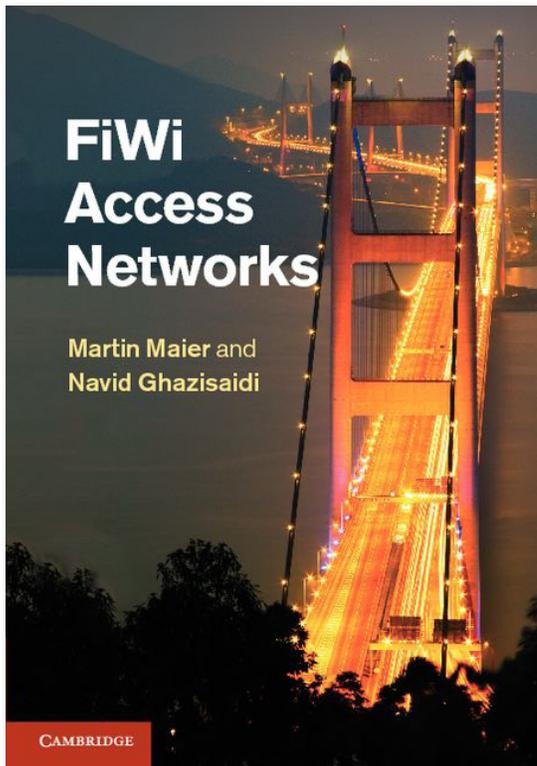
### About the Book

The evolution of broadband access networks toward bi-modal fiber-wireless (FiWi) access networks, described in this book, may be viewed as the endgame of broadband access. After discussing the economic impact of broadband access and current worldwide deployment statistics, all the major legacy wireline and wireless broadband access technologies are reviewed. State-of-the-art GPON and EPON fiber access networks are described, including their migration to next-generation systems such as OCDMA and OFDMA PONs. The latest developments of wireless access networks are covered, including VHT WLAN, Gigabit WiMAX, LTE and WMN. The advantages of FiWi access networks are demonstrated by applying powerful network coding, heterogeneous optical and wireless protection, hierarchical frame aggregation, hybrid routing and QoS continuity techniques across the optical-wireless interface. The book is an essential reference for anyone working on optical fiber access networks, wireless access networks or converged FiWi systems.

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## Praise for the Book

"The area of FiWi networks is central to the current evolution path of networks but presents significant challenges, in particular in integrating disparate systems. This book provides a cogent and highly useful exposition of the main technologies in FiWi, including not only traditional techniques, but also very recent developments such as network coding. This book is a tool both for working engineers and for researchers entering the FiWi area from the optics or from the wireless domains."

– **Prof. Muriel Médard, Massachusetts Institute of Technology**

## Key Features

- Provides detailed background information, enabling the reader to get the big picture and to acquire the technical understanding of past and current broadband access solutions
- Describes the latest and next-generation optical and wireless access networks in great technical detail, offering an update on the latest developments in each type of network
- Covers all important aspects of FiWi-related research and development activities, providing the reader with a comprehensive yet comprehensible overview of research findings, challenges and opportunities

## Contents

Part I. Introduction: 1. Broadband access; 2. Legacy broadband technologies; Part II. Fiber Access Networks: 3. GPON; 4. EPON; 5. Next-generation PON; Part III. Wireless Access Networks: 6. WiFi; 7. WiMAX; 8. LTE; 9. Wireless mesh networks; Part IV. FiWi Access Networks: 10. RoF vs. R&F networks; 11. Architectures; 12. Network planning and re-configuration; 13. Techno-economic analysis; 14. Network coding; 15. Optical and wireless protection; 16. Hierarchical frame aggregation; 17. Routing and QoS continuity; 18. Smart grid communications.

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