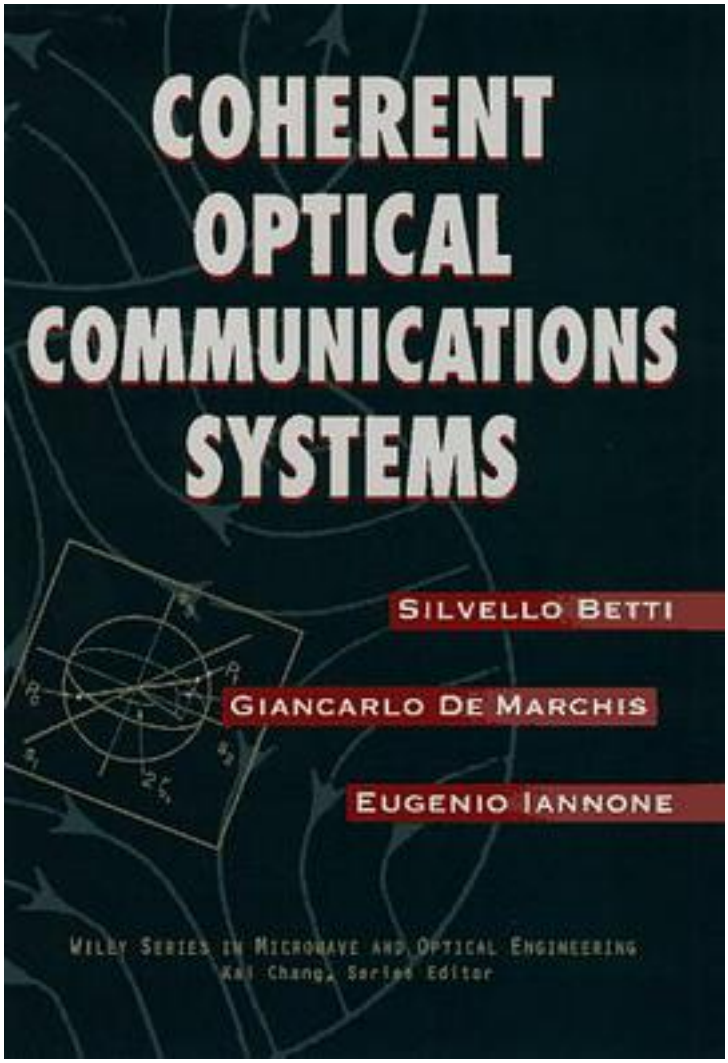
Coherent Optical Communications Systems



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A comprehensive look at state-of-the-art theory and practiceThis book offers an in-depth look at state-of-the-art technologies and systems configurations available to telecommunications engineers who design optical communications networks. It also provides designers with precise analytical methods with which to comparatively assess available components and systems configurations for performance, reliability, and practicality. Designed to afford readers the fullest possible understanding of the similarities and dissimilarities existing between various modulation and demodulation schemes, Coherent Optical Communications Systems offers: * A timely review of the physical properties of all major optical and optoelectronic components * The latest thinking on direct detection systems, alone or in conjunction with optical amplifiers * A comprehensive technical review of both conventional and novel system structures * Detailed discussions of the characteristics of optical frequency division multiplexed systems * A detailed look at contemporary optical systems implementations and the practical limitations of various system schemes This valuable professional resource offers a timely, in-depth look at the many new and innovative technologies and systems configurations available to telecommunications engineers who design optical communications networks. In addition to providing a broad ranging review of state-of-the-art technologies and systems, it arms designers with comprehensive analytical tools with which to comparatively assess available components and systems configurations for performance, reliability, and practicality.The authors, all three of whom are leading international experts in the field, begin their discussion with a thought-provoking assessment of optical communications from an information theory point of view. They explore the theoretical and empirical foundations of optical communications systems and optical technologies in general and consider the broad implications of a number of recent experimental advances.The remainder of the book is devoted to more basic issues. Organized so as to give readers a fuller understanding of the similarities and dissimilarities between the various modulation and demodulation schemes and their practical implementations, the book's coverage progresses logically from the physical properties of individual components to systems design issues. Initial chapters offer the authors' insightful analyses of the physical properties of optical and optoelectronic components, including single mode optical fibers and fiber-based optical devices, semiconductor lasers, semiconductor amplifiers, optical modulators, and photodiodes. From there, the authors move on to a discussion of the latest thinking on direct detection systems, in which they offer their expert evaluation of the possibilities of such systems, alone or in conjunction with optical amplifiers. Following chapters include a comprehensive technical review of both conventional and novel system structures; a detailed discussion of the characteristics of optical frequency division multiplexed systems; a review of contemporary optical systems implementations; and finally, an in-depth look at the practical limitations of various system schemes.Coherent Optical Communications Systems is an important professional resource for all those involved with the design of modern telecommunications systems.

作者介绍:

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