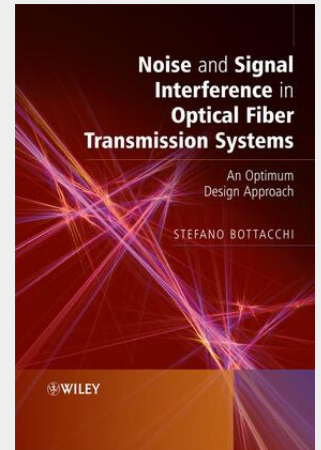


# Noise and Signal Interference in Optical Fiber Transmission Systems

An Optimum Design Approach

A comprehensive reference to noise and signal interference in optical fiber communications Noise and Signal Interference in Optical Fiber Transmission Systems is a compendium on specific topics within optical fiber transmission and the optimization process of the system design. It offers comprehensive treatment of noise and intersymbol interference (ISI) components affecting optical fiber communications systems, containing coverage on noise from the light source, the fiber and the receiver. The ISI is modeled with a statistical approach, leading to new useful computational methods. The author discusses the subject with the help of numerous applications and simulations of noise and signal interference theory. Key features: \* Complete all-in-one reference on the subject for engineers and designers of optical fiber transmission systems \* Discusses the physical principles behind several noise contributions encountered in the optical communications systems design, including contributions from the light source, the fiber and the receiver \* Covers the theory of the ISI for the binary signal, as well as noise statistics \* Discusses the theory and the mathematical models of the numerous noise components (such as optical noise, photodetection noise and reflection noise) \* Introduces the frequency description of the ISI and provides new calculation methods based on the characteristic functions \* Provides useful tools and examples for optimum design of optical fiber transmission networks and systems This book will serve as a comprehensive reference for researchers, R & D engineers, developers and designers working on optical transmission systems and optical communications. Advanced students in optical communications and related fields will also find this book useful.

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