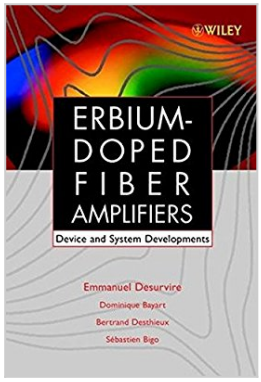

Erbium-Doped Fiber Amplifiers, Device and System Developments

By Emmanuel Desurvire, Dominique Bayart, Bertrand Desthieux, S?bastien Bigo

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"The book is an indispensable reference for researchers, development engineers, and system designers in fiber-optic communications. . . . It will excel as an introductory text in upper-level undergraduate and graduate courses on system applications of fiber optics." --Optik

"One of the most comprehensive and detailed accounts of the physics and fundamental principles of erbium-doped fiber amplifiers. . . . I do not hesitate to recommend the book enthusiastically to anyone having an interest in EDFAs and their applications." --Physics Today

Erbium-doped fiber amplifiers are an important technology for lightwave voice, video, and data transmission. The first volume of Erbium-Doped Fiber Amplifiers: Principles and Applications offered an important exploration of the then-infant technology of erbium-doped fiber amplifiers. The passage of the 1996 Telecommunications Act and the growth of the Internet have sparked intense demand for expanded bandwidth in all network layers, resulting in significant advances in EFDA technology.

Erbium-Doped Fiber Amplifiers: Device and System Developments brings telecommunications professionals up to date. Combining the contributions from four international experts in EDFAs, this new volume expands the reader's conceptual understanding of EDFAs and covers the developmental issues of EDFAs that are relevant to modern telecom applications. The authors review:

New aspects in EDFA modeling, including the standard confined-doping, the transcendental-power-equation, and average-inversion-level models Design concepts for EDFAs in terrestrial and submarine WDM systems Transmission fiber design and dispersion-management techniques for terabit/s systems Amplified submarine-cable systems, including a brief history of submarine cable communications and the investigation of terabit/s system technologies Advanced concepts in the physics of noise in amplified light, noise figure definitions, entropy and ultimate capacity limits Delving into fundamental concepts (including a wealth of previously unpublished materials) as well as important breakthroughs, this much-needed resource will place telecom engineers in a

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Editorial Review

From the Back Cover
Praise for Emmanuel Desurvire's Erbium-Doped Fiber Amplifiers: Principles and Applications

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Delving into fundamental concepts (including a wealth of previously unpublished materials) as well as important breakthroughs, this much-needed resource will place telecom engineers in a position to take advantage of every aspect in the broad potential of EDFAs.

About the Author
EMMANUEL DESURVIRE has been involved in the field of optical fiber amplifiers for nearly twenty years, starting with his PhD work on Raman fiber amplification in 1981-83. For his contributions to the early investigation and development of EDFAs at AT&T Bell Laboratories, he received several national and international awards, including the 1994 prize from the International Commission for Optics and, jointly with Professor D. N. Payne, the 1998 Benjamin Franklin Medal in engineering. He is currently Director of the Alcatel Technical Academy, a corporate program that aims to recognize experts and foster synergies in research and development. An IEEE Fellow, he has authored or coauthored more than 200 technical publications and 30 patents.

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