

1. Record Nr.	UNINA9910809241403321
Titolo	Ultrafast all-optical signal processing devices // edited by Hiroshi Ishikawa
Pubbl/distr/stampa	Chichester, U.K., : Wiley, 2008
ISBN	1-281-84093-9 9786611840938 0-470-75869-4 0-470-75868-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (259 p.)
Altri autori (Persone)	IshikawaHiroshi
Disciplina	621.382/2
Soggetti	Integrated optics Optical data processing Optoelectronic devices Signal processing - Equipment and supplies Very high speed integrated circuits
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

Semiconductor-based Ultra-Fast All-Optical Signal Processing Devices / a key technology for the next generation of ultrahigh bandwidth optical communication systems! The introduction of ultra-fast communication systems based on all-optical signal processing is considered to be one of the most promising ways to handle the rapidly increasing global communication traffic. Such systems will enable real time super-high definition moving pictures such as high reality TV-conference, remote diagnosis and surgery, cinema entertainment and many other applications with small power consumption. The key issue to realize such systems is to develop ultra-fast optical devices such as light sources, all-optical gates and wavelength converters. Ultra-Fast All-Optical Signal Processing Devices discusses the state of the art development of semiconductor-based ultrafast all-optical devices, and their various signal processing applications for bit-rates 100Gb/s to 1Tb/s. Ultra-Fast All-Optical Signal Processing Devices: . Provides a thorough and in-depth treatment of the most recent achievements in ultrafast all-optical devices . Discusses future networks with applications such as HD-TV and super-high definition moving screens as a motivating background for devices research . Covers mode-locked semiconductor lasers, electro-absorption modulator based 160Gb/s signal sources, SOA based symmetric Mach-Zehnder type all-optical gates, intersubband transition gate device, and more . Explains the technical issues behind turning the ultra-fast optical devices into practical working tools . Examples of above 160Gb/s transmission experiments . Discusses future prospects of the ultra-fast signal processing devices This invaluable reference will provide device researchers and engineers in industry, researchers at universities (including graduate students, and post doctoral researchers and professors) and research institutes with a thorough understanding of ultrahigh bandwidth optical communication systems. Device and communication market watchers will also find this book useful.
