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Ultrafast Optical Word Generator

Novel optical communications system efficiently multiplexes multiple parallel electronic data streams onto a very high speed optical data channel.

In optical fiber communication systems, the Arrayed Waveguide Grating (AWG) is commonly used to multiplex or demultiplex wavelength channels. Current optical technologies have difficulty in integrating device components with a high speed optoelectronic modulator in a simple, cost effective, and manufacturable configuration.

Purdue University researchers have developed a novel optical communications system that is capable of multiplexing multiple, parallel electronic data streams onto a very high speed optical data channel.

Advantages:

-Provides direct optical access to the individual guides in the waveguide array

-Scalable to higher or lower channel rates

-Pulse spacing as small as one picosecond have been demonstrated

Potential Applications:

-Computing

-Optics

TRL: 3

Intellectual Property:

Provisional-Patent, 2003-05-29, United States | Utility Patent, 2004-05-28, United States

Keywords: Optical fiber communication, Arrayed Waveguide Grating, AWG, wavelength channels, multiplexing, demultiplexing, optoelectronic modulator, optical communications system, optical data channel, waveguide

Technology ID
63067

Category
Computing/Photonic & Optical Computing Technologies

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array, Communications and Computing, Electrical Engineering, optical technologies, Optics, Optoelectronics, Waveguide