

PHASAR-based PICs for WDM-applications

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PHASAR-based PICs for WDM-applications

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ABSTRACT

Wavelength multiplexers, demultiplexers and routers based on optical phased arrays play a key role in multi-wavelength telecommunication links and networks. Photonic integration of PHASARS with active components will provide the functionality required in tomorrows multi-wavelength networks.

SUMMMARY

Commercial interest in multi-wavelength components and systems is rapidly increasing. WDM provides a new dimension for solving capacity and flexibility problems in the telecommunication network. It offers a huge transmission capacity and allows for novel network architectures which offer much more flexibility than the current networks [1,2]. Multi-wavelength links and networks require optical components with an increased functionality, such as multi wavelength (MW) receivers, MW-sources, add-drop multiplexers and optical cross connects.

A key component in MW-devices and circuits is the wavelength (de)multiplexer. Phased array (PHASAR) demultiplexers have proven to be robust components [3] which are particularly suitable for integration with other components. Integration with detectors in MW-receivers [4,5], with optical amplifiers in MW-lasers [6,7] and with optical switches in MW-add-drop multiplexers [8,9] has been reported.

Photonic integration offers the potential to provide the functionality required in future MW-networks in a compact way. Performance and fabrication issues of integrated PHASAR-based devices will be discussed.

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