PHASAR-based PICs for WDM-applications

Citation for published version (APA):

Smit, M. K. (1997). PHASAR-based PICs for WDM-applications. In *1997 Digest of the LEOS Summer Topical Meetings [IEEE/LEOS summer topical meetings, 1997, Montreal]* (pp. 86-87). Institute of Electrical and Electronics Engineers.

Document status and date:

Published: 01/01/1997

Document Version:

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
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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 tomorrow's multi-wavelength networks.

SUMMARY

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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