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Wavelength conversion based on FWM in a HNLF by using a tunable dual-wavelength erbium doped fibre laser source (Article)

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Abstract

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In this paper, we propose and demonstrate a cost-effective wavelength converter utilising a highly nonlinear fibre (HNLF) and a tunable dual-wavelength fibre laser as the pump source. The proposed system uses only the pump source and a signal probe to generate a partially degenerate four-wave mixing (FWM) effect. An FWM conversion efficiency of -12dB is obtained at pump and signal powers at +13.3 dBm and +5 dBm, respectively, and it is predicted that a higher conversion efficiency is possible if a high power dual-wavelength fibre laser source is used. © 2011 Taylor & Francis.

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Topic: Semiconductor Optical Amplifiers | Mach-Zehnder Interferometers | Wavelength Conversion

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Author keywords

Dual-wavelength fibre laser Four-wave mixing (FWM) FWM conversion efficiency Highly nonlinear fibre (HNLF)

Indexed keywords

Engineering uncontrolled terms

Degenerate four wave mixing Dual-wavelength Erbium - doped fibre lasers Fibre lasers FWM conversion efficiency High-power Highly non-linear fibres Pump sources System use Wavelength conversion Wavelength converter

Engineering controlled terms:

Conversion efficiency Efficiency Erbium Fibers Four wave mixing Optical frequency conversion Pumping (laser)

Engineering main heading:

Wavelength

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