Erbium Ytterbium doped fiber amplifier and laser based on 927 nm multimode pumping

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OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS
Volume: 8 Issue: 7-8 Pages: 701-704
Published: JUL-AUG 2014
View Journal Information

Abstract
The performance of a high output power Erbium Ytterbium doped fiber amplifier (EYDFA) and Erbium ytterbium doped fiber laser are investigated using a star shape double clad fiber in conjunction with 927 nm cladding pumping. The EYDFA provides a flat gain of 22.4 dB within a wavelength region ranging from 1545 nm to 1570 nm when the input signal and pump powers are fixed at 0 dBm and 3 W, respectively. The corresponding noise figure is 5.73 dB at 1550.4 nm. A broadband fiber Bragg grating (FBG) is used in conjunction with a perpendicularly cleaved output fiber to achieve lasing at 1565.5 nm with a threshold pump power of as low as 0.1 mW. The output power of 1060 mW is achieved with pump power of 2.8 W, which translates of 39% efficiency without any sign of rollover.

Keywords
Author Keywords: Fiber Laser; Fiber Amplifier; Ytterbium; Double clad fiber; Multimode combiner

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Funding

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<th>Funding Agency</th>
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<td>University of Malaya</td>
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<tr>
<td>Ministry of Higher Education (MORE)</td>
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