

Fiber optical parametric amplifier with double-pass pump configuration

Abstract

Characteristics of fiber optical parametric amplifier (FOPA) with double-pass pump configuration are experimentally investigated. The double-pass pump FOPA exhibits more than two-fold steeper gain slope in comparison to the conventional FOPA due to elongation of effective fiber length. In the L-band amplification band, a secondary idler is generated and used as the transmission signal in lieu of the original L-band signal. Gain measurement and bit error rate experiments are performed on the secondary idler and the results prove the usability of secondary idler, which is potentially useful for distribution networks.

Keyword: Fiber optical parametric amplifier; Double-pass pump configuration