

Amplitude equilibrium dual-wavelength fiber laser through Brillouin pump recycling technique

ABSTRACT

A simple structure for amplitude equilibrium dual-wavelength fiber laser is proposed and experimentally demonstrated. This structure is based on the Brillouin Stokes generation in a 6.7 km single mode optical fiber (SMF) spool. Counter-propagating Stokes is generated in the SMF as the injected Brillouin pump exceeds the threshold and the transmitted Brillouin pump signal at the other end of SMF is recycled to the SMF which acts as the Brillouin gain medium by an optical mirror. The reflected Brillouin pump amplifies the generated Stokes line and reduces the Brillouin pump threshold. With 12.44 mW Brillouin pump peak power, dual wavelength output peak power at -11.08 dBm and -11.16 dBm with 10.98 GHz spacing are obtained.