

Multiwavelength Brillouin fiber laser with enhanced reverse-S-shaped feedback coupling assisted by out-of-cavity optical amplifier.

ABSTRACT

A multiwavelength widely tunable Brillouin optical comb with an enhanced reverse-S-shaped feedback coupling assisted by out-of-cavity optical amplifier is demonstrated. The enhancement is done by locating the amplifier and the Brillouin pump into the reverse-S-shaped fiber section. The oscillating modes in the cavity are directly influenced solely by the Brillouin gain. A wide tuning range of 45 nm is obtained that is only limited by the erbium amplification bandwidth. An average of eleven laser lines that can be tuned to over 45 nm wavelengths is obtained at 40% optimum output coupling ratio.

Keyword: Lasers; Fiber; Scattering; Stimulated Brillouin; Scattering; Rayleigh; Nonlinear optics; Fibers.