

Brillouin–Raman comb fiber laser with cooperative Rayleigh scattering in a linear cavity

ABSTRACT

We demonstrate a multiple-wavelength Brillouin comb laser with cooperative Rayleigh scattering that uses Raman amplification in dispersion-compensating fiber. The laser resonator is a linear cavity formed by reflector at each end of the dispersion-compensating fiber to improve the reflectivity of the Brillouin Stokes comb. Multiple Brillouin Stokes generation has been improved in terms of optical signal-to-noise ratio and power-level fluctuation between neighboring channels. Furthermore, the linewidth of the Brillouin Stokes is uniform within the laser output bandwidth.

Keyword: Brillouin Stokes; Dispersion-compensating fiber; Power-level fluctuation; Raman amplification