

Widely tunable linear-cavity multiwavelength fiber laser with distributed Brillouin scattering.

ABSTRACT

We demonstrate a multiple wavelength Brillouin/erbium fiber laser in a linear cavity configuration. The laser cavity is made up of a fiber loop mirror on one end of the resonator and a virtual mirror generated from the distributed stimulated Brillouin scattering effect on the other end. Due to the weak reflectivity provided by the virtual mirror, self-lasing cavity modes are completely suppressed from the laser cavity. At Brillouin pump and 1480-nm pump powers of 2 and 130 mW, respectively, 11 channels of the demonstrated laser with an average total power of 7.13 dBm can freely be tuned over a span of 37-nm wavelength from 1530 to 1567 nm.

Keyword: Brillouin pump; Brillouin/erbium fiber lasers; Cavity mode; Fiber loop mirrors; Laser cavity.