

Widely tunable multiwavelength hybrid Brillouin-erbium fiber laser utilizing virtual mirror

ABSTRACT

Multiwavelength Brillouin erbium fiber laser (BEFL) in a new linear cavity structure have been demonstrated. The BEFL cavity was formed by a double pass amplification box on one side and a virtual mirror installed on the other side. The double pass amplification box reduces the threshold power and enhances Stokes line generation. By utilizing dispersion compensating fiber (DCF) to act as a virtual mirror, the self lasing cavity modes that limits the tuning range of the ordinary BEFL is efficiently eliminated. At Brillouin pump power of 5 dBm and EDF pump power of 90 mW, up to 14 Stokes lines and a wide tuning range of 40 nm, from 1529 nm to 1569 nm, free from the self lasing cavity modes, were obtained.