Realization of widely tunable Brillouin erbium doped fiber laser by using Brillouin stokes lines feedback control

ABSTRACT

A widely tunable multiwavelength Brillouin-Erbium fiber laser (BEFL) is realized by controlling the feedback mechanism of Brillouin stokes lines that are generated in the SSMF. The self-lasing cavity modes' oscillation shape is changed by optimizing the variable optical coupler, which can be used to enlarge the multiwavelength tuning range and the number of wavelength of the BEFL. With EDF pump power of 70 mW and a Brillouin pump power of 7 dBm, 60 wavelengths with a tuning range of 48 nm are achieved. Due to change the feedback mechanism by utilizing 3 optical components in the experimental configuration, the tunability is enhanced and the number of wavelength is increased.