Mode-locked fiber laser in C-band region for dual-wavelength ultrashort pulses emission using carbon nanotube saturable absorber

ABSTRACT

A saturable absorber is commonly employed to generate an ultrashort laser with a mode-locking scheme. In an erbium-doped fiber laser system, the laser regimes of either 1530 or 1550 nm wavelength are procured based on the absorption profile of the erbium-doped fiber. The absorption of the erbium-doped fiber is designed to emit at both wavelengths by controlling the net gain of the laser cavity. Subsequently, simultaneous erbium-doped fiber laser emission is attained at 1533.5 and 1555.1 nm with the pulse duration of 910 and 850 fs, respectively. Therefore, this work maximizes the output portfolios of a mode-locking fiber laser for dual-wavelength ultrashort pulses emission.