

Generation of dark, Q-switched and bright pulses using erbium-ytterbium-thulium co-doped fiber

ABSTRACT

We demonstrate the generation of dark and bright pulses in a Q-switched laser using an erbium-ytterbium-thulium co-doped fiber. By manipulating pump power while maintaining lasing wavelength at 1571 nm, dark and bright pulses were observed at pump power thresholds 94.1 and 1770 mW with pulse duration of 3 and 71 ns, respectively. Stability of the two regimes were also high across an operating time of 60 min. These findings may be the stepping stone towards realising a laser with flexible operating range at different pulse regimes.

Keyword: Dark pulses; Q-switching; Bright pulses; Erbium-doped fiber laser