

**Abstract:**

In this paper, a wideband serial hybrid fiber amplifier is simulated utilizing higher order stimulated Raman scattering (SRS). The amplifier structure is consisting of 3 m erbium-doped fiber and 7 km of dispersion compensating fiber (DCF) as gain medium for an erbium doped fiber amplifier (EDFA) and Raman fiber amplifier (RFA), respectively. The proposed amplifier produced wide flat-gain bandwidth about 90 nm extended from 1520 nm to 1610 nm by combining two fiber amplifiers with different amplification bands; the EDFA pumped by 1480 nm for conventional band (C-band) and RFA pumped by 1410 nm for short band (S-band). The long band (L-band) is achieved from RFA pumped with low power at 1490 which is boosted by second-order SRS. An optical average gain level of 20 dB and an average NF of 7 dB are obtained by optimizing the pump power at 40 mW and 800 mW for erbium and Raman pump, respectively.