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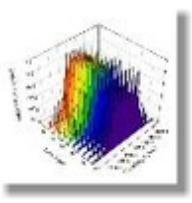

S-band multiwavelength Brillouin/Raman distributed Bragg reflector fiber lasers

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Abstract

A multiwavelength Brillouin/Raman distributed Bragg reflector fiber laser operating in the S-band region is proposed and demonstrated. The laser uses a 7.7 km long dispersion-shifted fiber with an effective mode area of $15\ \mu m^2$ as the Brillouin and Raman gain media simultaneously. Two 1420 nm laser diodes with a combined power of 372 mW are used as pump sources, while a fiber Bragg grating with a center wavelength of 1500 nm is used as a reflector in the cavity. The setup is capable of generating 6 clearly defined Stokes lines at the highest pump power, spanning from 1499.8 to 1500.3 nm with the even Stokes having relatively higher peak powers, between 1.4 and 3.5 dBm as compared to the odd Stokes, which have peak powers between -4.7 and -5.0 dBm. The output of the laser is very stable and shows little to no fluctuations over a monitoring period of 50 min.

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