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## S-band multiwavelength Brillouin Raman Fiber Laser (Article)

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### Abstract

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In this paper we propose and demonstrate an S-band Brillouin - Raman Fiber Laser (BRFL). The S-band BRFL utilizes a Dispersion Compensating Fiber (DCF) as the non-linear gain medium in a linear cavity configuration and amplified by two 1425 nm, 380 mW pumped Raman Fiber Amplifiers (RFAs). A Brillouin Pump (BP) signal of 1515 nm at 12 dBm in power is injected into the setup to generate Stokes lines via the Stimulated Brillouin Scattering (SBS) process. The S-band BRFL is able of generating a Brillouin comb with 32 Stokes lines with a flat peak output power of - 18 dBm. The best BP to Stokes power ratio of the system is determined to be 50:50, while a ratio of 70:30 is observed to generate Stokes with a higher peak power, but at the expense of the number of wavelengths. The S-band BRFL has many potential applications as multiwavelength sources for communications and sensors. © 2011 Elsevier B.V. All rights reserved.

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### Author keywords

Multiwavelength fiber laser Raman Pump Fiber Laser System S-band fiber laser  
Stimulated Brillouin Scattering (SBS)

### Indexed keywords

Engineering uncontrolled terms

Brillouin Brillouin pump Dispersion compensating fibers Linear cavity  
Multi wavelength fiber laser Multi-wavelength source Multiwavelength  
Nonlinear gains Peak output power Peak power Potential applications Power ratio  
Raman fiber amplifiers Raman fiber lasers Raman pump S-band fiber laser  
Stimulated Brillouin

Engineering controlled terms:

Dispersion compensation Fiber amplifiers Fibers Light polarization  
Measurement theory Pumping ( laser ) Pumps Ring lasers Ultrasonics

Engineering main heading:

Stimulated Brillouin scattering

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