

## **Enhanced Brillouin-erbium fiber laser with Brillouin pump pre-amplification technique**

### **ABSTRACT**

We demonstrate an enhanced multiwavelength Brillouin-Erbium comb fiber-laser in which the Brillouin-pump is pre-amplified before entering the single-mode fiber. By using this simple scheme, a lower external Brillouin pump power is required to create the Brillouin gain and suppress the laser cavity modes as compared to direct injection of Brillouin pump into the single-mode fiber. The proposed technique also demonstrates that the BEFL exhibits a wide tunability and can produce up to 27-stable output channels with 10.5 GHz channels spacing.

**Keyword:** Multiwavelength fiber laser; Optical fiber devices; Nonlinear-Brillouin scattering