

## **Broadly tunable multiple wavelength Brillouin fiber laser exploiting erbium amplification**

### **ABSTRACT**

We experimentally demonstrate a highly stable and flawless-tuning-range multiple wavelength Brillouin fiber laser incorporating an erbium gain block. Free-running cavity modes that inherently circulate in the cavity of a Brillouin/erbium fiber laser, which limits wavelength tunability, are completely suppressed. At a Brillouin pump power of 2 mW and 130 mW of 1480 nm pump power, we obtained seven output channels. The tunability of the generated channels is only limited to 35 nm by the amplification bandwidth of the erbium gain used in the experiment. The first four channels have an output power each above 1.6 dBm with the first and the seventh channels having a peak power of 8.19 dBm and -8.30 dBm.