Docket #: S07-307

Frequence-swept Narrow-band laser for the fiber-optic gyroscope

A fiber-optic sensor includes an optical fiber coil and a laser source optically coupled to the coil. Light from the source is transmitted to the coil as a first signal propagating along the coil in a first direction and a second signal propagating along the coil in a second direction opposite to the first direction. The optical paths of the first signal and the second signal are substantially reciprocal with one another and the first signal and the second signal are combined together after propagating through the coil to generate a third signal. The laser source is frequency-modulated or can have a coherence length longer than a length of the coil.

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Applications

- Improving the noise and long-term stability perfomances of the fiber-optic gyroscope.

Advantages

- Reduction of the main limiting noise source for the fiber-optic gyroscpe, namely the excess-noise (beat noise).
- Improvement of the long-term stability of the fiber-optic gyroscope by improving the wavelength stability of the source.

Patents

- Published Application: 20090195785
- Published Application: WO2009065086
- Published Application: 20100302548
- Published Application: 20110176140
- Published Application: 20120281225
- Published Application: 20140029011
- Issued: 7,911,619 (USA)
- Issued: 8,223,340 (USA)
- Issued: 8,289,521 (USA)
- Issued: 8,437,005 (USA)
- Issued: 8,681,339 (USA)

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