Docket #: S09-144

Optomechanical fiber gyroscope

A miniature mechanical gyroscope that utilizes optical means to detect rotation-induced displacements in a mechanical structure. It utilizes the Foucault pendulum principle used in some existing MEMS gyroscopes: a rotating reference frame induces a Coriolis force that oscillates the structure about an axis orthogonal to the driving-mode axis. The main difference with similar MEMS gyroscopes is that rotation-induced oscillation is sensed using a pair of high-finesse fiber Fabry-Perot displacement sensors instead of a capacitive device. The drive axis is also driven by radiation pressure inside a set of auxiliary fiber Fabry-Perot cavities, making this device immune to electromagnetic interference. This structure solves several problems associated with MEMS gyroscopes utilizing electrostatic sensing methods.

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Patents

- Published Application: 20100309474
- Published Application: 20120300214
- Published Application: 20140130597
- Issued: 8,269,976 (USA)
- Issued: 8,711,363 (USA)
- Issued: 8,885,170 (USA)

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