Abstract

Ring Laser Gyroscope is a single axis laser gyro angle sensor designed and developed for high accuracy launch vehicle navigation systems. They are well suited for high precision strap down Inertial Navigation Systems (INS) due to very high accuracy, high bias, scale factor stability, low scale factor non-linearity and wide dynamic range. A ring laser gyroscope consists of a ring laser having two counter propagating modes over the same path in order to detect rotation. It operates on the principle of Sagnac effect which shifts the nulls of the internal standing wave pattern in response to angular rotation. The interference between the counter propagating beams, observed externally, reflects shifts in that standing wave pattern, and thus rotation. This paper presents a survey of ring laser gyroscope technology, the factors affecting its performance and techniques to overcome the limitations of lock-in effect.
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- Jeng Nan Juang and R. Radharamanan, "Evaluation of Ring Laser and Fiber Optic Gyroscope Technology", School Of Engineering, Mercer University, Macon, GA 31207 USA.
- Neil M Barbour, John M Elwell, Roy H Setterlund, "INERTIAL INSTRUMENTS: WHERE TO NOW?", The Charles Stark Draper Laboratory, Inc. Cambridge, Massachusetts 02139
- http://shodhganga.inflibnet.ac.in/bitstream/10603/10152/6/06_chapter%201. pdf
- http://szk-avionics.blogspot.in/

**Index Terms**

Computer Science  Information Science

**Keywords**

Strap down  Rotation rate  Dither  Lock-in  Beat frequency