

Abstract

MEMS vibratory gyroscopes are finally reaching performance ranges that make them applicable to many aerospace control and navigation problems. Low cost COTS versions are starting to appear showing bias stability figures of just a few degrees per hour. We at the JPL miniature gyroscope laboratory have an ongoing program to develop MEMS vibratory gyroscopes of high enough performance to enable their use in spacecraft navigation tasks requiring less than degree per hour performance. We also use our facilities to test the performance claims of other MEMS gyroscope developers. In this talk we will discuss the general principles underlying MEMS vibratory gyroscope rate sensing, performance measures, testing procedures, and typical error sources. In particular we will discuss our recent performance testing of the COTS BAE silicon ring gyroscope.

Speaker Biography

Ken Hayworth has been a research engineer at JPL for five years, and has been deeply involved in the theory and construction of MEMS vibratory gyroscopes at the JPL miniature gyroscope laboratory for the past three years.