Error correction in solid-state wave gyroscope with electrostatic control sensors

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The article considers three ways of correcting drift caused by resonator nonlinear oscillations in a solid-state wave gyroscope with electrostatic control sensors. The first method is for gyros operating in the open mode of the angular velocity sensor.
The proposed angular velocity formula is used taking into account the nonlinearity factor and other parameters of the gyro mathematical model, previously found by a specially developed technique. The second method is developed for gyros operating in the compensation mode of the angular velocity sensor. The method is based on the supply of control signals taking into account the nonlinearity factor and other gyro imperfections. The third method consists in linearizing the resonator oscillations by means of specially generated signals applied to electrostatic control sensors.
The proposed methods can be used for eliminating the nonlinearity of the oscillations and the linearization of the power characteristics of the control sensors for solid-state wave gyroscopes with hemispherical, cylindrical and ring resonators.

Keywords: *solid-state wave gyroscope, non-linear oscillations, drift compensation*

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