**"Gyroskopiya i Navigatsiya" №2, 2002**

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| In designing vibratory micromechanical gyroscopes (MMG) a contradiction occurs between the angular rate sensitivity requirements and the necessary working frequency band. This contradiction can be eliminated by constructing a compensation type device. The paper deals with the use of integrating properties of a vibratory MMG working in a resonant adjustment mode while forming Coriolis torque compensation loop. Nature of motion along the resonantly adjusted MMG output axis is considered with a constant angular rate and the one changing harmonically, transfer function and gain-frequency characteristic from the "envelope curve" of output signal are determined under operation in the open loop. It is shown that if MMG oscillator is not damped (0), the transfer function corresponds to the integrating link, and with a finite value of  - to the aperiodic link. Construction of compensation loop for Coriolis torque acting on MMG with the con-trol along the "envelope curve" of modulated signal makes it possible on retention of resonant adjustment of oscillator to provide the required working frequency band without desensitizing the device with regard to external angular rate. | |  |

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**Materials of the 9th St. Petersburg International Conference   
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| **Yu.P Semenov, V.P. Legostaev, B.Ye. Chertok, V.P. Gavrilov, G.A. Berzin, V.A.Udaloy, S.G. Revnivykh, V.N. Pochukaev** | **High Elliptical Orbit-Based Informational and Navigational Functional Augmentation of Global Navigation Satellite Systems** | **37** |
| This paper presents a concept for a Russian space-based wide-area functional augmentation of global navigation satellite systems (GNSS). This augmentation was given the name of Informational and Navigational Functional Augmentation (INFA). In contrast to WAAS and EGNOS systems using for relay satellites SC in GEO, the space segment of INFA consists of SC based on Yamal bus flying in High Elliptical Orbits (HEO) of Tundra type. The paper provides a rationale for the desirability of creating INFA for Russia, with its large area and northerly location. | |  |

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| **A.A Elizarov, B.S. Konovalov, S.F. Konovalov, D.V. Mayorov, A.V. Polynkov, A.A. Trunov,V.V.Yurasov, Kwan Sup Lee** | **System of Diagnostics of a Construction Structure State** | **46** |
| The system of diagnostics of construction structures capable (depending on variant of its set) of ensuring either periodic or continuous monitoring of a structure state under operation conditions is described in the paper. The system includes one accelerometer of compensation type with a vertical measuring axis and two compensation type inclinometers. The sensors are connected either to a computer or a microcontroller that provides three-component measurement of spectra of translational vibration and 2D measurement of inclinations. The information from the system is transmitted to the central computer by means of the radiomodem. Due to high resolution of the accelerometers, used in the system, and inclinometers of navigational class, it provides the sure measurement of oscillations of construction structures caused by traffic load, wind load, operation of lift equipment etc. The results of measurements of vibration spectra and inclination rate of different Moscow metal and ferroconcrete bridges, Moscow TV tower, the main building of Bauman State Technical University are presented in the paper. The fact that operation loading of tested structures in the case of lon-term survey (about 30 minutes and more) in frequency range of 0.5-30 Hz is equivalent to such effect as "white noise" is shown in the paper. The requirements to sensors of the system are defined in the paper. | |  |

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