**"Gyroskopiya i Navigatsiya" №4, 2006**

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| In many classes of modern sensors of air and space instrument-making (extrasmall pressure sensors, floated-type and micromechanical gyroscopes and others) methods of thin-film technology are reshaped bridge measuring circuits. The elastic bonding contact pads of these schemes paired to contacts of a body by elastic conductors. These conductors have the composite curvilinear form, and the design of such measuring circuit represents a dynamic oscillating system with distributed parameters. Object of research - developed in Research institute of physical measurements from Penza, firm "Korpus" from Saratov, Central Scientific and Research Institute "Elektropribor" from St. Petersburg and other firms, the sensors of air and space instrument making operating in conditions of vibrational effects, and in designs which one are contained considered dynamic oscillating systems.The purposes of work are:1. Construction and research of mathematical models for calculation of natural frequencies (and control by them) curvilinear conductors of sensors of air and space instrument-making.2. Choice, on the basis of knowledge of natural frequencies, parameters of conductors ensuring in conditions of external vibrations, drift from resonant modes and, there by, allowing to avoid destruction of a measuring circuit of sensors. Mathematical model (1) (28) is constructed, (fig. 1, 2) and algorithms are developed for calculation of natural oscillations frequency of considered dynamic oscillatory system with curvilinear elastic conductors. The supporting software is developed for realization of the constructed mathematical model and algorithms, allowing is automated to solve tasks in view.On the basis of constructed model (1) (28) and the developed general technique, calculations of natural oscillations frequency of curvilinear gold conductors of a variable and constant curvature (fig. 3, 4 and the table) when the ends of conductors base (fig. 2) on the elastic bases a membrane and pressure seal are made. The opportunity of the decision of problems of calculation and the analysis of natural oscillations frequency of considered dynamic oscillatory systems as functions of geometrical and physical parameters and characteristics of these systems is shown. The opportunity of the decision and return problems, for example, problems of a choice of geometrical parameters of the oscillatory system providing set natural oscillations frequency is shown. |  |

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