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Mechanoluminescent Pressure Sensors4
The possible classification of the mechanoluminescent pressure

The possible classification of the mechanoluminescent pressure sensors are considered in this paper. The peculiarities of the processing sensors' output optical signals are proposed with the purpose of the improvement informative properties.

The proposed structure has working electrodes which are monocrystal wafer of silicon with V-shaped through holes and metal film. The electrodes are separated by thin dielectric layer. The dependence of the forces which act to a dipole liquid with geometric sizes of the structure was estimated by the proposed mathematic model. The ways of its optimization were planned.

Results of the investigations of etch process for high aspect ratio (A > 20) deep trenches in silicon in SF₆ + C₄F₈ plasma of rf inductive discharge in chopping regimes of SF₆ are presented. Process characteristics of etching of thin ($d=3~\mu m$) and width (60 μm) treches in Si from of RF power bias, passivity and etching times are determined. The typical defects of the deep trench etching are shows. The optimal conditions of deep trench formation with vertical walls are determined.

Spin-wave excitation spectrum of tangentially magnetized arrays of micron size rectangular particles of permalloy was investigated using ferromagnetic resonance. Some additional to thin film case peaks were found. It was shown that their arising is connected with the excitation of non-uniform resonances of backward volume magnetostatic waves and dipole-exchange magnetostatic surface waves. The influence of the rotationm of arrays in the magnetization plane on position and intensity of the peaks was also studied.

In the present paper the peculiarities of nucleation stage of deep anodic etchig of silicon are studied. The dependence of the depth of etching crater obltained for silicon samples of p-type conduction with different resistivity upon the regimes of anodic etching processes has been determined. On the basis of the experimental results obtained the "bootleneck" effect observed both at the first and second stages of pore growth is explained.

In this article, methods and principles of schematic negatron analogues construction were examined. Symmetric volt-ampere characteristic realization in examined analogues was achieved wherewith contrary-consecutive, contrary-parallel and integrated including of unipolar negatrons. Modelling of obtained schemes was realized with DesignLab Eval 8 software.

A new integrated-optic polarization splitter on two beam Mach-Zehnder interferometer is proposed and simulated. Principle of operation is based on polarization-sensitive phase shift of guided waves, propagating through both arms of interferometer. One arm includes metal-clad waveguide with specially chosen parameters.

A basically novel type of a measuring means — triaxial with a one sensitive element (vector) piezoelectric vibroaccelerometer. This domestic development for the first time provide possibilities for obtaining complete (true) data about vibration.

The possibility of using planar waveguide optical chemical sensor with a polymer film of polymethly methacrylate as a waveguide and a polymer film of functional poly(dimethyl siloxane) as a sensitive layer, as multisensor four gases — a main priority atmospheric pollutants (oxide of carbon (CO), ammonia (NH₃), dioxide of sulfur (SO₂) and hydrogen sulfide (H₂S)) has been described.

Puganova E. A., Komarov A. V., Vagin M. Yu., Karyakina E. E., Karyakin A. A. Use of the Microelectrodes Modified by Prussian Blue for Hydrogen Peroxide Detection in Physiological Liquids. 42

Analytical performances of microelectrodes modified by Prussian Blue were investigated in comparison with disk electrodes to hydrogen peroxide detection. Sensitivy of hydrogen peroxide detection was $2.5 \, \text{A/(M} \cdot \text{sm}^2)$, which five times higher than for disk electrodes. Applications of obtained microelectrodes modified by Prussian Blue are shown for hydrogen peroxide detection in physiological liquids.

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