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With the help of modern device-technological modeling the distributions of carriers of a charge, density of currents and recombination speed in two-collector lateral bipolar the magnetotransistor generated in a well at external connection of contacts to a substrate and to a well are investigated. The experimental research dual-collector lateral bipolar magnetotransistor with base in well, as sensor of weak magnetic fields is spent. The absolute sensitivity 900 V/T, voltage of noise in a working mode and resolution $5 \cdot 10^{-10}$ T is determined.

Mechanisms of formation of sensitivity dual-collector lateral and planar bipolar magnetotransistors on the basis of change in a magnetic field of current lines of the injected charge carriers are considered. The analysis of distribution of a current in structures of devices gives the list of mechanisms of sensitivity and the recommendation about its increase at the expense of a choice of structure bipolar magnetotransistor.

Keywords: bipolar magnetotransistor, current lines, galvanomagnetic effect

The results of theoretical and experimental study of single-capacitor microelectromechanical mechanical-to-electrical energy converter with a series circuit are presented. The analysis of the converter operation is carried out, and analytical expressions for evaluation of the converter parameters are derived. The dependences of the load voltage against time and frequency of the capacitance modulation are calculated and also measured. It was established that the dependence of the output power versus modulation frequency and load resistance has a maximum.

Keywords: ambient energy harvesting, variable capacitor, micropower generator, microelectromechanical converter, capacitance modulation, mechanical-to-electrical conversion, electrostatic energy converter

The influence of carbon nanotubes with mammalian cells MA-104 и A549 by centrifugation has been investigated. The influence of nanotubes on mammalian cells by centrifugation with preliminary treatment by magnetic field of cells has been analyzed.

Keywords: cafbon nanotubes, mammalian cells, magnetic field

The major advantage of sensors, designed on the basis of molecular-electronic technology, is extremely high slope transform the mechanical signal into an electrical current. The basis of this class of devices based on the principle of diffusion of charge transport in conditions of forced convection, which arises under the action of an external acceleration. We demonstrate the possibility of designing a modern high-microaccelerometer based on molecular electron transfer (MET — molecular-electron transfer) in nanostructures.

Keywords: molecular-electronic technology, molecular-electron transfer, conversion of mechanical signals, convective diffusion, transfer function, microaccelerometers, nanostructures, microelectronic processing

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