CONTENTS

The article presents a review and the comparative characteristic of photoresist for technology of lift-off lithography in order to receive interdigital transducers (IDT) of systems of radio frequency identification (RPID) on the basis of acousto-electronic elements on surface acoustic waves (SAW). The photoresist, satisfying to features of products is selected for SAW. Use of this method will allow to provide safe monitoring over the sizes of elements.
Keywords: RFID, SAW, IDT, lift-off lithography, photoresist

The permanent magnetic field sensor based on fork acoustic resonator with bimorph elements which are made of piezoceramic lead zirconate titanate and excited by ac current is investigated. The sensor uses combination of Ampere force, piezoelectric effect, and acoustic resonance in order to increase sensitivity. The sensor has sensitivity of 450 V/(A · T) and linear dependence output voltage of current and magnetic field within the field range 10^{-6}...0,3 T.
Keywords: magnetic field sensor, Ampere force, piezoelectric effect, lead zirconate titanate

The systematization of gas chemical nanosensors with sensing elements based on polymers is carried out. Analytical capabilities of these devices are demonstrated. In particular, the ability to identify a large number of organic and inorganic compounds is marked. Some regularities are identified. The design influence on nanosensor metrological characteristics is shown. The improvement directions of nanosensor metrological characteristics are specified.
Keywords: gas chemical nanosensor, sensing element, polymer, constructional characteristic, metrological characteristic

This paper discusses the active silicon coordinate-sensitive photodetectors with longitudinal photoeffect. The method of improving photo-emf in photodetectors has been offered. Our study shows that combined photo-emf values are higher than those of the longitudinal photo-emf in considered coordinate-sensitive photodetectors. The studied photodetectors exhibit a linear dependence of output signal on light beam coordinate.
Keywords: photodetector, coordinate photosensitivity, photoeffect

A new interpretation of human brain as an organic hybrid nanoelectronics object created by Nature is presented. The nearest analogue in artificial electronics is an integrated circuit of micro- and nanoelectronics. Therefore the comparison of the neuronal circuits of the brain with integrated circuits was made and their basic differences were determined. The proposed interpretation and its consequences allow, on the one hand, to analyze the principles of the brain functioning more deeply, and, on the other — to suggest a complex approach of brain investigation, based on multilevel simulation combined with experimental methods. In the part III the answers to the following questions are presented: "Is quantum mechanics enough for description of the brain functioning, including consciousness, thought, and its other mental functions? How to investigate the brain farther?"

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