CONTENTS

Angular distribution of energy and velocity of photoelectrons is investigated at an internal photoeffect for two variants: the quantum of light shows basically wave properties and basically corpuscular properties at interaction with orbital electron. Distinction in angular distribution of photoelectrons for these variants is shown. Angular distribution in the second variant is investigated for not relativistic and relativistic cases.

Keywords: electron, photon, quantum interaction, metallic film.

Keywords: mathematical modeling, finite element method, thermal modes, micro-motors, glass-fiber technology.

The analysis of problems of agreement of current-voltage characteristics calculation results of RTD based on known models with the experimental data has led to a conclusion about necessity of development of model for particular system (systems) of materials. It is shown, that the proposed combined two-band model can be used for the satisfactory agreement with experimental data on I-V characteristics RTD based on GaAs/AlAs.

Keywords: the resonant tunneling diode, intervalley scattering, combined two-band model.

Lubimsky V. M. *The Temperature and the Pressure Dependence of the Bend of the Long Rectangular Many-Layer Plate* . . 17 A system of the differential equations which describes the influence of the temperature on the bend of a long rectangular many-layer plate is obtained. This made possible the investigation of the temperature dependence of deflections, deformations, mechanical stresses under various conditions at the edges of the plate. Exact solutions of the system of the differential equations were obtained for rigidly jammed plate edges and for the plate freely rest on the bottom surface. The good agreement was found between our theoretical results and results in a literature.

Keywords: long composite rectangular plate, temperature-deflection, deformation, stress.

The aim of this research was the approbation of the method of the sedimentation yttrium oxide's dielectric at the porous surface of an anode condenser foil by the thermal decomposition of the yttrium organic salt. The samples of the etched aluminium foil KDK (Japan) with dielectric yttrium oxide's films which have different thickness and structure have been made. Capacitance characteristics of this samples have been measured, impact assessment of thickness and structure of dielectric film under it's dielectric properties has been studied. Also was studied the substructure of produced films by the methods of transmission electronic microscopy.

Keywords: electrolytic capacitor, dielectric thin film, electric capacitance, operating voltage, porous anode condenser foil.

Keywords: the device, assemblage, MST, quality, the soldering, temperature.

– НАНО- И МИКРОСИСТЕМНАЯ ТЕХНИКА, № 3, 2009 –

Behaviour of the effective hydrostatic piezoelectric coefficients d_h^* and g_h^* , squared figure of merit $(Q_h^*)^2$ and electrome-

chanical coupling factor k_h^* has been analysed for the 1-3-type relaxor-ferroelectric single crystal/auxetic polymer composites

on changing microgeometry and properties of the porous matrix. A correlation between max $X_h^*/X_h^{(1)}$ and a ratio of elastic

compliances of the porous matrix $s_{33}^{(2)}/s_{11}^{(2)}$ has been stated for a composite based on the single crystal poled along [001] of

the perovskite unit cell, where $X_h^{(1)}$ denotes the hydrostatic parameter of the single crystal. Advantages of the novel 1-3-type composites are discussed.

Keywords: piezo-active 1-3-type composite, hydrostatic parameters, relaxor-ferroelectric single crystal, porous polymer, elastic properties.

Keywords: boundary problem, method of Kirhgoff, integral equation method, radius of correlation of irregularities, variance of boundary field.

Keywords: robust, block diagram, MEMS-accelerometer, unit, proofmass, spring, feedback, transfer function, frequency response, natural frequency.

Afonin S. M. *Harmonious Linearization Loop Characteristics of Piezoactuator for Nano- and Micrometric Movement.* 49 Hysteresis characteristics of deformation piezoactuators are proposed. Basic and local loops for hysteresis deformation characteristics of a compound piezoactuator are proposed. Transfer functions of a nonlinear links with a loop characteristics are found for a piezoactuator of longitudinal, and cross and shear piezoeffect. Coefficients of harmonious linearization are received for loop characteristics of piezoeffect for calculation of a systems of automatic control of piezoactuator for nano- and micrometric movement.

Keywords: harmonious linearization, hysteresis characteristics, basic and local loops, piezoactuator, nano- and micrometric movement, piezoeffect.

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