

CONTENTS

Babayevsky P. G., Zhukov A. A., Shapoval S. Yu., Grinkin E. A. *Adhesion Interaction of Solid Surfaces and Polymer Dry Adhesives Development Theoretical Aspects* 2

Physical and geometrical aspects of adhesion bonds formation between solid surfaces without liquid adhesive, material and micro- or nanodimensional structure of dry adhesives selection criterions, adaptation to surfaces and self-cleaning effect are presented with using ideas of dry adhesion mechanism in nature and theoretical data given in literature.

Landyshev A. V., Lavrentjev A. A., Landyshev V. A. *Research of Influence Concentration Heterogeneity in Alloys $\text{Bi}_2\text{Se}_{0,3}\text{Te}_{2,7}$ and $\text{Bi}_2\text{Se}_{0,6}\text{Te}_{2,4}$ on Their Thermoelectric Properties* 8

Influence concentration heterogeneity in alloys $\text{Bi}_2\text{Se}_{0,3}\text{Te}_{2,7}$ and $\text{Bi}_2\text{Se}_{0,6}\text{Te}_{2,4}$ on their thermoelectric properties is investigated. Alloys prepared crystallization from melt, pressing of a powder and annealing of briquettes, extrusion and with application of superfast tempering from a liquid condition. Samples were investigated by means of methods of electronic microscopy and electron-probe microanalysis besides measurements of electrophysical parameters was spent: mobility, thermoelectric power, conductivity, concentration of carriers of a current and parameter $\alpha^2\sigma$. Correlation between thermoelectric properties and concentration heterogeneity is established.

Estimations of influence heterogeneity in alloys to thermoelectric properties were made.

Lotonov A. M., Novik V. K., Gavrilova N. D. *On Dielectric Permittivity Dispersion in Ferroelectric Triglycine Sulfate (TGS) in Wide Temperature Range* 14

The results of research of a dielectric dispersion in ferroelectric Triglycine Sulfate (Curie point $T_c = 49,15^\circ\text{C}$) in frequency range $10^{-3} \dots 10^7$ Hz at $-155 \dots 90^\circ\text{C}$ are stated. In paraelectric phase there is no dispersion or it is extremely flat. In close vicinity to the transition region ($T_c + 0,3^\circ\text{C}$) appearance of a dispersion was observed, while the classical form of the latter is formed only at $T = T_c$. The appeared domain structure is considered to be the dominating reason of the dispersion. In high-frequency range its contribution is connected with oscillations of a domain wall, in low-frequency range — also with the formation of new domains, i. e. with reversed polarization processes in small fields. At ultra low frequencies the contribution of the own electric conductivity to the dispersion is noted, that especially increase in paraelectric phase and in the Curie point. At $T = T_c$ at frequencies less than 10^{-1} Hz formation of a closing layer was observed, that lowers measured value of a dielectric permittivity of the sample by two orders of magnitude.

Hurtavy V. G., Sheleg A. U. *Low-Temperature Investigates of the $\text{K}_3\text{Li}_{1,88}\text{Nb}_{5,12}\text{O}_{15,24}$ Crystal Dielectric Properties* 22

The investigations of electrical conductivity (σ) and dielectric properties (ϵ , $\text{tg}\delta$) of $\text{K}_3\text{Li}_{2-x}\text{Nb}_{5+x}\text{O}_{15+2x}$ (KLN) crystal in the temperature range of 100–300 K were carried out. The measurements of σ , ϵ and $\text{tg}\delta$ were carried out at frequencies of 0.1 kHz, 1 kHz, 10 kHz and 1 MHz. It was established that the dielectric constant ϵ increases as the temperature is raised and decreases with the frequency growth. It is shown, that with the frequency growth electrical conductivity increases in several orders. The anisotropy of electrical conductivity and dielectric properties was discovered.

Bobrovnik V. N., Shelepin N. A. *Analysis of Silicic Beam-Type Strain Gauge Intrinsic Frequency and Mechanical Stresses* 25

An opportunity of two programs joint usage for calculation sensor with sensing elements Q-factor is considered in this article. Intrinsic frequencies are determined in COSMOS/DesignSTAR. And distribution diagrams of mechanical stresses are calculated in Mechanical Desktop Power Pack for determination of tensomodels' optimum allocation on the surface of the strain gauge.

Komov A. N., Kurganskaya L. V., Shcherbak A. V. *Fast High Sensivity Microwave Power Meter on SiC/Si Structures* 28

This research dedicates to application of SiC/Si hetero structures for high power microwave measurement. The estimation of influence attendant effects on output signal is carried out. It is shown that such structures may be used for high power microwave measurements.

Fedorov R. A., Shelepin N. A. *Design of the Circuit Supporting Resonant Fluctuations of the Sensitive Element of Micromechanical System* 35

The opportunity of joint modeling of differential capacitor micromechanical system and the electric circuit is considered. Transfer function of system consisting of MEMS and the electric circuit supporting the resonant fluctuations is received, allowing to estimate a degree of influence of the basic parts.

Luchinin V. V., Maltsev P. P. *Of the Term "Microsystems Technologies" of the English-Russian Dictionary* 39

Of the term "microsystems technologies" (MST) и "microelectromechanical systems" (MEMS) of the english-russian dictionary.

Yashin K. D., Lazapnev E. V. *The Terminological English-Russian Mems&Nems Dictionary* 42

In dictionary are given the terms and most widely used phrases and abbreviations of micro- and nanosystems and their fabrication.

For foreign subscribers:

"NANO and MICROSYSTEMS TECHNIQUES" Magazine (*Nano- i mikrosistemnaa tehnika*, ISSN 1684-6419)
Joint-stock company MK-Periodica. E-mail: info@periodicals.ru Tel.: +7(095) 684-5008. Fax: +7(095) 681-3798

The journal bought since november 1999.

Editor-in-Chief Ph. D. Petr P. Maltsev

ISSN 1813-8586.

Address is: 4, Stromynsky Lane, Moscow, 107076, Russia. Tel./Fax: +7(495) 269-5510.

E-mail: it@novtex.ru; http://www.microsystems.ru

Адрес редакции журнала: 107076, Москва, Стромьинский пер., 4/1. Телефон редакции журнала (495) 269-5510. E-mail: it@novtex.ru

Журнал зарегистрирован в Федеральной службе по надзору за соблюдением законодательства в сфере массовых коммуникаций и охране культурного наследия.
Свидетельство о регистрации ПИ № 77-18289 от 06.09.04.

Дизайнер Т.Н. Погорелова. Технический редактор И.С. Павлова. Корректор М. Г. Джавадян

Сдано в набор 30.11.2005. Подписано в печать 30.12.2005. Формат 60×88 1/8. Бумага офсетная. Печать офсетная.
Усл. печ. л. 6,86. Уч.-изд. л. 7,83. Заказ 123. Цена договорная

Отпечатано в Подольской типографии — филиал ОАО "ЧПК", 142110, г. Подольск, ул. Кирова, 15