

APPLIED PHYSICS

THE SCIENTIFIC AND TECHNICAL JOURNAL

No. 5

Founded in 1994

Moscow 2011

CONTENTS

GENERAL PHYSICS

- Vorobyov G. S., Zhurba V. O., Petrovsky M. V., Rybal-ko A. A., Shulga Yu. V.* Modelling of Cerenkov and diffracti-
onal radiations on the periodical metal-dielectric struc-
tures..... 5
- Baurov Yu. A., Demchuk N. A., Baurov A. Yu., Baurov A. Yu.
(junior), Dunin V. B., Tikhomirov V. V., Sergeev S. V.* Pre-
liminary results of ^{60}Co β -decay rate change long-term
experimental investigation in 2010 12
- Golyatina R. I., Mayorov S. A.* Characteristics of the
electron drift in a dc field for inert gases..... 22
- Sobko A. A.* Applied aspects of the classical thermody-
namics. Part III. Thermodynamics of model gases 28
- Denisov I. A., Smirnova N. A., Andrusov Yu. B., Res-
nik V. Ya., Mezhennyi M. V.* Investigation of the CdZnTe
structural perfection by the transmission electron micros-
copy..... 35
- Predein A. V., Vasilyev V. V.* Features of the band bend-
ing on the surface of graded gap $\text{Hg}_{1-x}\text{Cd}_x\text{Te}$ 41
- Naumov N. D.* Focusing of the wave beam by a para-
bolic reflector 48
- Amirshikhova Z. M., Magomedov G. M., Kozlov G. V.*
Cross-linked epoxy polymers structure formation: the fractal
model..... 52

PLASMA PHYSICS AND PLASMA TECHNOLOGIES

- Chirkov A. Yu., Ryzhkov S. V., Bagryansky P. A., Ani-
keev A. V.* Thermonuclear regimes of an axially symmetrical
mirror trap with the high power injection of fast particles 57
- Prokopenko A. V., Smirnov K. D.* Microwave plasma
torch at atmospheric pressure for the food industry 64

ELECTRON AND ION BEAMS

- Golikov Yu. K., Krasnova N. K., Abramyonok O. A.*
Electric spectrographs of charged particle flows with poten-
tials of Euler's type 69

- Bizyukov A. A., Girka A. I., Sereda K. N., Sleptsov V. V.,
Romashchenko E. V.* Longitudinal ion source with a current
self-compensation of the focused ion beam 74

PHOTOELECTRONICS: ELEMENTAL BASE AND TECHNOLOGY

- Voitsekhovskiy A. V., Nesmelov S. N., Dzyadukh S. M.,
Burlakov I. D., Selyakov A. Yu.* Calculation of capacitance-
voltage characteristics for the MIS-structures based on
heteroepitaxial HgCdTe MBE with near-surface graded-gap
layers with elevated composition 80
- Anatychuk L. I., Demchuk B. N., Kobylyansky R. R.,
Pribyla A. V., Shustakov V. Yu.* Thermoelectric radiation
detectors 87
- Zaitsev A. A., Khromov S. S., Boltar K. O., Kuznet-
sov P. A.* The 6×576 ROIC with time delayed integration 92
- Solyakov V. N., Kortikov M. V.* Researches of stability of
the correction parameters for the TDI FPA 96
- Boltar K. O., Yakovleva N. I., Nikonov A. V.* IR trans-
mission spectra of multilayer heteroepitaxial structures 100
- Markov O. I.* Influence of gadolinium additives on ther-
moelectric properties of the bismuth—antimony alloys 107
- Abasova A. Z., Madatov R. S., Nadjafov A. I., Gazanfa-
rov M. R.* Effect of the γ -irradiation on the electrical and photo-
voltaic properties of heterojunction $p\text{-TlInSe}_2/n\text{-TlSe <Ge>$ 112

PHYSICAL EQUIPMENT

- Beloconev V. M., Volcov V. G., Salicov V. L., Shmacova L. V.*
Day and night vision devices with stabilisation of a visual
field 118
- Okhrem V. G.* Thermoelectric cooling by the Peltier effect . 123
- Ashimbaeva B. U., Chokin K. Sh., Asylbekova S. N.,
Saulebekov A. O.* Energy analyzer on basis of combination
of electrostatic fields 127
- Information 132