

CONTENTS

VOLUME 51

NUMBER 1

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN

Pages
Russian/English

Radiative shift of the quark mass in a constant chromomagnetic field at finite temperature and density. V.Ch. Zhukovskii, K.G. Levchenko, T.L. Shoniya, and P.A. Eminov	3	1
Finite-element calculation of dielectric waveguides precluding the appearance of nonphysical solutions. A.N. Bogolyubov and A.L. Delitsyn	9	7
Intensity of synchrotron radiation of a particle bunch in magnetic field as a function of particle location probability distribution. N.P. Klepikov and N.M. Morozova	13	11
Finslerian kinematic consequences. G.S. Asanov	18	15
Measurement problem in a quantum system with memory. D.A. Slavnov	24	21
On the existence of solitary-wave type solutions to nonlinear equations with dispersion. Yu.D. Pletner, A.G. Sveshnikov, and A.Yu. Smirnov	29	25
On problems of refining the experiment interpretation and model. Yu.P. Pyt'ev, Zhou Yaoming, and S.A. Filatova	32	28
Effect of oxygen on the heating kinetics of the molecular gas in a nitrogen-oxygen mixture. A.V. Kalinin, V.M. Shibkov, and L.V. Shibkova	38	34
The sensitivity of parametric electrodynamic transducers of the modulator-demodulator type. A.V. Gusev	49	38
Resonance sound absorbers in a water medium. K.A. Pestov, A.G. Samokhin, and O.S. Tonakanov	53	42
Simulation of the behavior of dislocation loops in inhomogeneous fields. D.L. Legotin, O.V. Bubnovskaya, and N.A. Tyapunina	58	46
The baroelectric effect and telluric currents. V.I. Grigor'ev and E.V. Grigor'eva	64	52
Simulation of averaged climate fields: zero approximation. V.P. Yushkov	69	57
Daily atmospheric tides and their influence on the Earth rotation. V.E. Zharov	75	62

Brief Communications

An efficient source of bremsstrahlung with multiple crossing of a thin target by an electron beam. V.K. Grishin, B.S. Ishkhanov, and V.I. Shvedunov	83	69
Theory of anomalous Doppler effect-based maser with distributed radiation extraction. V.A. Kubarev	86	72
Effect of nonlinearity relaxation time on intensity oscillations of light that has passed a ring resonator with nonlinear medium. V.A. Makarov and A.A. Tsilikov	89	76
Combustion waves in a vibrationally nonequilibrium gas. A.V. Uvarov, A.I. Osipov, and E.A. Rybkina	92	79
A study of structural transformations in an amorphous Fe ₈₃ W ₁ B ₁₆ alloy caused by natural aging. A.A. Novakova, T.Yu. Kiseleva, and V.G. Denisova	97	84

CONTENTS

VOLUME 51

NUMBER 2

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN	Pages	
	Russian/English	
New relations in tensor algebra. V.I. Grigor'ev and I.P. Denisova	3	1
Finslerian nonlinear invariance and Lorentz transformations. G.S. Asanov	8	6
The Einstein-Podolsky-Rosen paradox and the bell inequality in a quantum system with memory. D.A. Slavnov	13	11
The renormgroup method for functions of many variables. V.V. Belokurov and V.V. Kamchatnyi	17	15
On the theory of nonlinear plasma waves. P.A. Polyakov	24	21
Gas heating kinetics in pulse-periodic air discharge. V.V. Lodinev, V.M. Shibkov, and L.V. Shibkova	29	26
A setup for studying drifting ionospheric disturbances. V.D. Gusev, N.V. Karabanov, and D.V. Kir'anov	35	32
Diagnostics of plasma in a low-pressure surfatron from radial SHF field distribution. S.E. Bobkov, P.S. Bulkin, G.S. Solntsev, and L.I. Tsvetkova	37	35
Mutual influence of diffraction-coupled lasers in a Talbot resonator. V.P. Kandidov and I.V. Pashkova	49	41
The influence of cubic anisotropy on the domain structure of ferromagnetic films. L.I. Antonov, E.A. Mukhina, and E.V. Lukasheva	57	49
X-Ray and Mössbauer studies of the $Mn_{2.75}Fe_{0.25}Al$ alloy isostructural to β -Mn. A.S. Vinogradova, V.S. Zasimov, A.S. Ilyushin, I.A. Nikanorova, and I.S. Nikanorov	66	53
The magnetic properties of $SmFe_{11-x}Co_xTi$ single crystals. S.A. Nikitin, I.S. Tereshina, T.I. Ivanova, and Yu.F. Popov	69	56
Observations of the Earth's deformation spectrum by means of a laser interferometer-deformograph. V.K. Milyukov and V.K. Kravchuk	73	60
The secular drift of the Earth's center of mass caused by movements of lithospheric plates. Yu.V. Barkin	79	65
<u>Brief Communications</u>		
On the problem of calculating dielectric waveguides.	86	71
Calculation of oscillations of nonuniform plates under local influences. G.N. Medvedev, B.I. Morgunov	89	75
The effect of absorption on radio wave reflection by the ionosphere for slant probing. V.D. Gusev, E.G. Mikhailova, and L.I. Prikhod'ko	92	78
A voltage-controlled precision high-frequency oscillator for a laser gyroscope. V.A. Krainov and V.E. Zharov	96	82
Effect of electron irradiation on the structure of $Pr-Fe$ alloys. A.S. Ilyushin, N.A. Khatanova, and E.A. Rykova	99	85
Diffraction of Mössbauer radiation in a perfect silicon crystal irradiated by ultrasound. A.A. Opalenko, A.A. Kornilova, and O.G. Koshelev	102	88

CONTENTS

VOLUME 51

NUMBER 3

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN	Pages	
	Russian/English	
Finsler's transformation laws of light signal velocities. G.S. Asanov	8	1
Zenon quantum effect in a system with memory. D.A. Slavnov	12	5
Cosmological model in the scalar-tensor theory of gravitation. V.I. Denisov and B.V. Mekhta	17	10
Mathematical modeling of a nuclear energy surface. O.P. Badaev	23	15
Proton spectrum shape in high-energy cosmic rays, revised. D.M. Podorozhnyi, G.A. Samsonov, L.A. Khein, and I.V. Yashin	30	23
Design of flat ironless undulators. A.F. Aleksandrov, V.L. Vesnin, and V.A. Kubarev ...	33	27
Modeling CO oxidation processes on dissociation of water in plasmachemical systems with allowance for vibrational excitation of nitrogen molecules. A.A. Kuzovnikov, A.V. Ponomareva, and V.S. Sviridkina	39	33
Electron absorption spectra and photochemical properties of a new compound, photobiotin. K.G. Blinova, V.I. Yuzhakov, S.N. Shcherbo, and M.F. Turchinskii	45	38
Influence of polarization state of ferroelectric films on electrophysical properties of silicon- ferroelectric structures. N.L. Levshin, A.N. Nevzorov, and A.G. Petrukhin	49	42
On the problem of dynamic diffraction of X-rays in Bragg scheme by a crystal in which ultrasonic wave is excited. I.R. Prudnikov	56	48
Frequency of geomagnetic field inversion as a function of solar system position in the Galaxy. K.V. Semenov	62	53
Polarization of cosmic microwave background radiation. M.V. Sashin and V.V. Shul'ga .	69	61
About the gyromagnetic ratio of celestial bodies. V.I. Grigor'ev and E.V. Grigor'eva	75	67
Statistical characteristics of a scattered field reflected from an inhomogeneous absorbing ionospheric layer. V.D. Gusev, E.G. Mikhailova, and L.I. Prihod'ko	81	72
On directivity of radiation of dispersing tsunami waves produced by asymmetric sources. M.A. Nosov and N.K. Shelkovernikov	86	77
<u>Brief Communications</u>		
Electron stream polyharmonic modulation at the alternating field amplitude step. Yu.K. Alekseev, D.M. Petrov, and A.P. Sukhorukov	92	83

CONTENTS

VOLUME 51

NUMBER 4

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN	Pages	
	Russian/English	
Finslerian extension of scalar products. G.S. Asanov	3	1
The method of projection operators in correlation NMR spectroscopy. V.S. Tumanov ...	7	5
On Schrödinger uncertainty relation. Yu.I. Vorontsov	12	10
Annihilation of $e^+ e^-$ pair into hadrons in a model chromomagnetic field of the gluon vacuum condensate. V.Ch. Zhukovsky, A.E. Grigoruk, and I.V. Mamsurov	17	14
Photoproduction of an axion on an electron in an external magnetic field (Compton mechanism). A.V. Borisov and V.Yu. Grishina	24	20
Wave function in a quantum system with memory. D.A. Slavnov	30	26
Resonance interaction of electron waves and a damped backward wave in a periodic waveguide. V.I. Kanavets	35	30
Low-frequency equivalent of a parametric electrodynamic transducer. A.V. Gusev	42	36
Quasi-collinear light diffraction on ultrasound. V.N. Paryghin and A.V. Vershubskii	46	40
Interphase electronic localized states in germanium–Langmuir films of copper stearate structures. V.B. Zaitsev, O.V. Konovalov, G.S. Plotnikov, L.A. Feigin, and D.L. Yakovenko	52	46
Concerning the theory of stimulated Raman scattering in a plasma. O.M. Bilak and S.Yu. Nikitin	64	52
A contribution to the theory of exchange amplification in high-temperature superconducting systems. A.V. Vedyayev, A.M. Savchenko, A.V. Stefanovich, and M.Yu. Nikolaev	69	57
Telluric currents caused by tidal effects. V.I. Grigor'ev and E.V. Grigor'eva	73	61
On turbulence effect on settling of particles from a suspension current. Yu.G. Pyrkin, I.B. Romanova, and M.A. Silaev	78	66
A new type of solitary waves on water. S.A. Arsen'ev, M.M. Vakhrushev, and N.K. Shelkovnikov	81	69
Multipole harmonics of polarization of cosmic microwave background radiation. M.V. Sazhin and V.V. Shul'ga	87	75
On a type of nonlinear internal waves. M.B. Tverskoy	94	81
Calculation procedure for a longitudinal-transverse electrostatic flat undulator. V.A. Kubarev	96	84
Dielectric constant of zinc diarsenide in the UHF range. O.G. Koshelev, T.V. Semenenya, V.A. Morozova, S.F. Marenkin, and A.B. Maimasov	102	87
Distribution of superfine fields in semimetallic ferromagnets $NiMnSb_{1-x}Si_x$. V.V. Surikov, P.N. Stetsenko, S.D. Antipov, G.E. Goryunov, A.V. Garmashov, and A.L. Kolumbaev	105	90
About the possibility to observe induced superparamagnetism. V.I. Nikolaev, T.A. Bushina, and Kim Yen Chan	107	93
Testing the stationarity of moving ionospheric disturbances. D.V. Kiryanov	110	96

CONTENTS

VOLUME 51

NUMBER 5

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN	Pages	
	Russian/English	
Gauge model in the superstring theory. A.A. Vikhorev and B.I. Sadovnikov	3	1
On some formulations of the problem of thermoelectric cooling. V.B. Glasko, Yu.V. Glasko, and A.V. Shchepetilov	8	6
The problem of synthesizing circular dielectric waveguides. A.G. Sveshnikov, A.N. Bogolyubov, and A.V. Krasil'nikova	12	10
Minimax estimation of heterogeneity parameters in problems of breast cancer diagnosis by means of a tensometer matrix. D.A. Pashko, Yu.P. Pyt'ev, and A.P. Sarvazyan ..	18	14
Asymptotic methods in statistical thermodynamics. P.N. Nikolaev	25	21
Selecting the parameters of a complex self-excited system for the case of fractional-multiple synchronization. N.V. Maletin and I.I. Minakova	30	26
Detection of a classical signal with unknown parameters in quantum noises of electrodynamic transducer. A.V. Gusev	35	31
On feasibility of suppressing stimulated Raman scattering in a plasma by rapid frequency modulation of pumping radiation. O.M. Bilak and S.Yu. Nikitin	40	36
Interaction of a shock wave with flow parameter fluctuations. O.A. Azarova, E.A. Bratinkova, A.V. Samsonov, L.S. Shtemenko, F.V. Shugaev, and V.E. Yanitskii	46	42
Thermophysical properties of impurity-helium solid phase. M.V. Martynenko, V.N. Novikov, A.A. Pelmenev, E.A. Popov, and E.V. Shidov	53	49
Conductance of structures for gas sensors based on SnO ₂ films doped with copper and nickel. B.A. Akimov, A.M. Gas'kov, M. Labeau, M.M. Osipova, M.N. Rumyantseva, and L.I. Ryabova	60	55
A Mössbauer study of the state of iron atoms during the low-temperature synthesis of cristobalite in the SiO ₂ -Fe ₂ O ₃ system. V.S. Rusakov, A.M. Bychkov, and G.A. Sukhadolskii	66	60
<u>Brief Communications</u>		
The influence of adsorbed hydrogen on the electron gas structure near the surface of a metal. O.S. Erkovich, V.V. Komarov, A.M. Popova, O. Mel'skhaimer, and Kh. Neiman ..	77	65
Excitation of slow solitons in nonlinear tunneling of signals. Yu.N. Karamzin, S.V. Polyakov, and A.P. Sukhorukov	80	69
Superfine fields and magnetic moments in Heusler alloys NiMnSb _{1-x} Sn _x . P.N. Stetsenko, V.V. Surikov, S.D. Antipov, G.E. Goryunov, and P.V. Chepovskii	84	73
A series of free exciton lines in transmission spectra of zinc diarsenide. V.A. Morozova, T.V. Semeneyna, S.F. Marenkin, O.G. Koshelev, and M.V. Chukichev	86	76
About anomalies of spontaneous magnetization, paraprocess susceptibility, and technical magnetization characteristics of magnetite in low-temperature transformation range. K.P. Belov, A.N. Goryaga, and L.A. Skipetrova	89	79
Short-range order characteristic temperature of high-temperature FCC phase of the Mn-21 AT.% Ga alloy. V.M. Silonov and S.Yu. Rodin	92	82
Phonon focusing in a quartz crystal. K.N. Baranskii and I.V. Shlyakhov	94	85

CONTENTS

VOLUME 51

NUMBER 6

1996

MOSCOW UNIVERSITY PHYSICS BULLETIN

Pages
Russian/English

Laser femtosecond spectrochronography. Development and application of laser nonlinear-optical structurally sensitive spectrochronography of ultra-fast processes in a substance in the range of durations from nanoseconds to femtoseconds. N.I. Koroteev	6	1
Powerful focused ultrasound: nonlinear effects, excitation of shear waves and medical diagnostics. O.V. Rudenko	18	12
Parametric solitons in quadratically nonlinear media. A.P. Sukhorukov	32	25
On certain inverse problems of cementation technology. V.B. Glasko and Yu.V. Glasko	51	42
Internal field of action arising in pulsed magnetic reversal of iron borate single crystals. O.S. Kolotov, Kim En Hen, and V.A. Pogozhev	57	48
Magnetic states and hyperfine interactions in magnetic superlattices Fe/Al. S.D. Antipov, G.E. Goryunov, A.L. Kolumbaev, G.V. Smirnitskaya, and P.N. Stetsenko	60	51
Frequency dependence of impurity conduction in a quantum well. I.P. Zvyagin and W. Wang	69	58
A new method of determination of photoelectric parameters of semiconductor wafers with $p-n$ junctions. O.G. Koshelev and V.A. Morozova	73	62
Phenomenological model of isomorphic phase transitions in thin ferroelectric films. S.V. Pavlov and M.L. Akimov	78	67
About day length variations and atmospheric circulation oscillations. V.E. Zharov	89	72
<u>Brief Communications</u>		
Clausius virial theorem and scale relations in the method of many-particle density functionals. O.S. Erkovich	96	77
Evolution of spectra of acoustic wave packets in a nonlinear dissipative medium. A.A. Sukhorukov	98	79
Dependence of magneto-optical effect on magnetic wedge thickness in Au/Co-wedge/Au (001) sandwiches. E.E. Shalygina, A.V. Vedyayev, A. Marty, B. Gilles, M.V. Lazarev, and O.A. Shalygina	102	83
About the vortex-wave structure of density current. B.I. Samolyubov and V.V. Kremenetskii	106	86