SUMMARY

Berzhansky V.N., Sorokin Yu.V. **Hyperfine interactions and covalency effects in the chromium chalcogenide spinels** // Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 3-11.

Using the LCAO method, obtained the expressions contributions at supcrexchange interactions of ions chromium with next anions and cations in the chromium chalcogenide spinels.

Keywords: covalency effects, hyperfine interactions, chromium.

Ryabushkin, D.S., Borisov, V.V.. **Approximants Method in Nuclear Magnetic Resonance Theory** // Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 12-15.

In this paper the peculiarities of formation of two-pulse NMR responses in heteronuclear solids containing two types of magnetic nuclei are investigated.

Keywords: two-pulse responses, NMR, heteronuclear solids

Fridman Yu.A., Kosmachev O.A. **Influence of External Pressure on Phase States and Spectral Lows of Ferromagnet with Complicated Single-Ion Anisotropy**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P.16-23.

In the paper the phase transitions on pressure in ferromagnet with complicated single-ion anisotropy with account of inclined anisotropy are investigated. It is found that in the system under investigation only two magnetic phases may realize, and external pressure creates effective anisotropy.

Keywords: external pressure, single-ion anisotropy, magnetoelastic waves

Fridman Yu.A., Klevet Ph.N. Spirin , D.V. **Reorientation Phase Transition on Temperature in Two-Dimensional Ferromagnet with the Account of High-Order Anisotropy**// Uchenyc zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 24-31.

The reorientation phase transitions on temperature in thin films (with thickness of few monolayers) are investigated in the paper. It is shown that the account of high-order anisotropy and magnetoelastic interaction leads to the realization of angular phase in the system. The phase transitions in the system under study are of the first order and their characteristry are determined mainly by elastic and magnetoelastic parameters

Keywords: single - ion anisotropy, phase transitions, spectra

Arifov L.Ya., Lelyakov A.P.. Roschupkin C.N. **The dynamics for closed string in Peress space-time**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 32-35.

In this article, in single approximation, we find solutions of motion equations for closed string moving in Peress space – time on the perturbation theory, where role of a small paramcter plays siring tension.

Kcywords: Peress space – time, perturbation theory, string

Zinchenko E.N., Roschupkin S.N. **The singular perturbation theory and string dynamics of Rindler area**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 36-37.

In this article, in single approximation, we find the solutions of motion equations for closed string moving in Ringler space – time

Keywords: Peres space – time, perturbation theory, string

Mueller W., Novender W.-R., Bazhenov B.M., Dolgosheev A.T. **About the theorem Sirl** // Uchenyc zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 38-40.

The field inside the dielectric cylinder is shown to be the "transformation" of the field of external sources.

Glumova M.T., Vorobev M.Д. **A research of influence of an issuing non-uniformity of the cathode per volt-ampere performances of electroless electronicses**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P.41-46.

In the article the research of influence issuing of the cathode per volt-ampere performances (current-voltage characteristic) is adduced, the fulfilment which one has become possible only with usage by the designed writers of numerical dynamic model of electron-beam tubes.

Keywords: an issuing non-uniformity, cathode, current-voltage characteristic.

Ponomarenko V.I., Popov V.V. **Single-Layer radioabsorbing coatings on the basis of two-level composites**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 47-51.

Optimum parameters and radiotechnical characteristic of single-layer radioabsorbers are researched. Composites containing conductive inclusions, distributed in the environment being artificial dielectric on the basis of inclusions of the same type, and also in the dielectric environment with a dispersion of a resonant type were researched.

Keywords: microwave, absorption, composition materials.

Dzedolik I.V., Lapaeva S.N. **Dynamics of Gaussian pulses, which are excited on the basic and the highest modes in optical fiber**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 52-61.

In the paper two regimes of the transmitting of the Gaussian pulses without and with the initial frequency modulation in the graded-index fiber are researched. The tail wave surface of the pulse without the initial frequency modulation falls behind the top wave surface and the front wave surface passes ahead of the top wave surface. The tail wave surface of the pulse with the initial frequency modulation passes ahead the top wave surface and the front wave surface falls behind of the top surface, i.e. the regime of the pulse wave front inversion appears.

Skibinsky K.M., Strugatsky M.B., Khizhnyi V.I., Tarakanov V.V. **Amplitude – Frequency Characteristic of Iron Borate Under Magnetic Birefringence of Transverse Sound**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 61-67.

In experiment on magnetic birefringence of transverse sound amplitude-frequency characteristic curve was found. Constructed theory describes the experiment adequately.

Keywords: Birefringence of sound, Weak ferromagnet.

Shostak R.I. and Yatsenko A.V. **On the temperature dependence of the components of the electronic polarizability tensor of O^{2-} ions in ferroelectric $LiNbO_3$ crystal**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 68-71.

Temperature dependences of the principal components of the electronic polarizability tensor of the O^{2-} ions in stoichiometric $LiNbO_3$ crystal are calculated. It is shown, that the anisotropy of the electronic polarizability of the O2- ions is closely influenced by the length of the shortest (Nb – O) bonds.

Keywords: $LiNbO_3$ crystal, electronic polarizability.

Yevdokimov S.V. and Yatsenko A.V. **Investigation of the photoiduced macroscopic electric field in $LiNbO_3$ crystals under their illumination by polarized light**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 72-75.

It is investigated the influence of illumination of the $LiNbO_3$:Fe crystals by linear-polarized light on the ^{93}Nb NMR line parameters and on the short-circuit photocurrents. It is concluded that the homogeneity of the total electric field in the illuminated area of crystal is strongly influenced by the parameters of the light source.

Keywords: $LiNbO_3$ crystal, NMR.

Ponomarenko V.I., Lagunov I.M. **Quasimagnetics on the basis of metallized spherical corpuscles**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 76-79.

The computational model of a synthetic magnetic with unregulated frame is constructed on the basis of metallized spherical corpuscles. Is exhibited, that in a paramagnetic material the order-disorder transformation results in frequency shift quasimagnetic resonance and modification of the form of a resonance characteristic, and also to ascending components of inductivity. In a diamagnet the influence of an order-disorder transformation to a dispersion of a magnetic permeability is expressed more weakly.

Keywords: microwaves, absorption, composites, magnetics.

Dolgov A.I., Basiladze G.D. **Optimization of coupling coefficients of fiber-optic 1×2 couplers for one-fiber bus network**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 80-85.

Light power coupling coefficients of fiber-optic couplers 1×2 configuration being optimised for work stations connection to fiber-optic local network bus are calculated. It is shown that selection of couplers according to calculated coupling coefficients allow to increase a number of network stations.

Keywords: fiber-optic coupler, local network

Boborikina O.V., Nasonkin V.A. **About a capability of a short forecast of earthquakes on an example of records of laser interferometers.** // Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 86-93.

The scheme for a data analysis in geophysical measurements is offered. The outcomes of an application of the scheme in deformations observations executed by laser interferometers in Sevastopol district of are got. The offered scheme can be the basis for some technique of a short forecast of earthquakes in locale.

Keywords: earthquake, forecast, interferometer, deformation, correlation.

Berzhansky V.N., Gordienko T.P., Lagunov I.M., Milyukov V.V. **The computer course on Physics. Mechanics**// Uchenye zapiski TNU. Series: Physics, 2001. – Vol.14(53). №1. – P. 94-102.

There are presented the tasks of computer course on Physics «Mechanics». There are described both structure of computer course as a whole and structure of each task. The recommendations for application of tasks are given.

Keywords: pedagogical technologies, physics, mechanics, computer practical work.