Summaries

UDC 514.76

Ivlev E.T., Luchinin A.A.
ON DIFFERENTIABLE MAPPING OF EUCLIDEAN SPACE E_m
TO THE AFFINE SPACE A_m ($m \geq n$)

The differentiable mapping $V_m^n: A_m \to (m \geq n)$ of Euclidean space E_m to the affine space A_n has been considered. Fields of two-dimensional areas in E_m and A_n determined by fundamental geometric object Γ of mapping V_m^n ($m \geq n$) in the sense of G.F. Laptev are studied.

UDC 517.956.6

Kozhebokov K.G.
ON SOLVABILITY OF CONJUGATION PROBLEMS
FOR NONLINEAR EQUATIONS IN PARTIAL
DERIVATIVES OF THE THIRD ORDER

Theorems of existence and uniqueness of solution of conjugation problems for nonlinear equations in partial derivatives of the third order have been proved.

UDC 517.3

Churikov V.A., Shakhmatov V.M.
INITIAL CONCEPTS ON FRACTIONAL
ANALYSIS BRANCH OF 3/2 POWER

Initial concepts on fractional analysis branch of 3/2 power have been given. Exponents, trigonometric and hyperbolic functions in fractional analysis of 3/2 power are considered.

UDC 517.3

Churikov V.A.
THE HADAMARD OPERATOR EXTERIOR ALGEBRA
OF FRACTIONAL INTEGRATION AND DIFFERENTIATION

The correlation between the Hadamard operators and functions on which they act have been considered. It was shown that a number of operator properties differ in traditional and fractional analysis.

UDC 519.886

Grigoriev V.P., Kozlovskikh A.V., Maryasov D.A.
MATHEMATICAL MODELING OF «CANDLESTICKS» AND
TWO-PARAMETER INDICATORS BY DETERMINATE CHAOS

Principles of constructing mathematical model of financial market dynamics on the basis of determinate chaos have been introduced. Secondary financial indices − exchange indicators are studied. Applicability of author's mathematical model for predicting the secondary exchange tools by example of «candlesticks» and two-parameter indicators is shown. Several variants of the author's model depending on the method of forming nonlinear components and significant parameter combination are proposed.

UDC 517.9;577.3.01;577.38

Borisov A.V., Rezaev R.O., Trifonov A.Yu., Shapovalov A.V.
NUMERICAL SIMULATION OF ONE-DIMENSIONAL
POPULATION DYNAMICS WITH NONLOCAL INTERACTION

Influence of nonlocal effects on dynamics of microorganism population in the range of diffusion model with quadratic-nonlinear nonlocal interaction has been investigated by numerical techniques. The basic equation of the model generalizes the known equation of Fisher-Kolmogorov-Petrovskiy-Piskunov. For describing nonlocal interaction the cores in the form of normal and uniform distributions were used. It was shown that in both cases the local maximums of magnitude of population are formed that indicates the formation of population structure.

UDC 530.145.7; 539.194

Bykov A.D., Kalinin K.V.
THE MOMENTS METHOD OF SUMMATION
OF SERIES OF PERTURBATION THEORY

The method of summation of divergent series of perturbation theory based on selection of function of moments method measure has been proposed. The method is applied for calculating energy levels of anharmonic oscillator, gives rather exact values of the levels at various magnitudes of perturbation parameter.

UDC 539.194;535.621

Bykov A.D., Emelianov D.S., Stroynova V.N.
VIBRATIONAL DEPENDENCE OF HALF-WIDTH
AND LINE CENTER SHIFTS OF HF MOLECULE

It was shown that significant change of intramolecular dynamics of halogen hydrides at vibrational excitation results in considerable changes of half-widths and line center shifts formed by transitions to high vibrational state. For calculations of half-width and shifts of HF line centers the Ma-Tipping-Boule version of impact broadening theory was used. Determining the energy levels and wave functions of HF molecule the direct variational method was used.

UDC 535.36

Goryachev B.V., Mogilnitskiy S.B.
INVESTIGATION OF RADIATION BALANCE IN DISPERSION
MEDIUM WITH IRREGULAR-SHAPED PARTICLES

A new method of solving the problem of radiation transport in dispersion medium with irregular-shaped particles has been proposed. It is based on use of radiation scattering indicatrix in the form of integral parameters calculated on the basis of three scattering indicatrices introduced in perpendicular planes. Such presentation of radiation scattering indicatrix is adapted to streaming methods of solving the problem of radiation transport.

UDC 535.211

Kanev F.Yu., Aksenov V.P., Izmailov I.V., Starikov F.A.
FEATURES OF EDDY BUNDLE PHASE RECONSTRUCTION AT
INCREASE OF NUMBER AND ORDER OF SINGULAR POINTS

The results of reconstruction of coherent radiation singular phase from the wave front slopes obtained by use of the numerical model of Hartmann sensor have been introduced. The recovery was carried out for the cases when the bundle wave front included a great number (more than a hundred) of singular points or singular points of high (higher than the tenth) orders. It was shown that the algorithm developed on the basis of the technique proposed by D. Fried provides the maximum reconstruction precision in these conditions. It was ascertained as well that further increase of precision can be obtained due to the use of a scanning sensor in optical scheme.

UDC 535.3:621.78:621.373

Bolshanin A.A., Slobodyan S.M., Yakovlev A.R.
SELF-ORGANIZATION OF LASER «AWL-SIGHT»
AT OBJECT GUIDANCE

The principles of controlling density level of object irradiation rate by a narrow «awl-sight» − styliform laser beam at moving object guidance implementing the required change of radiation parameters of laser beam «awl-sight» on the basis of location feedback have been proposed. Optimal parameters and laws of adaptive control of laser beam power to the action on operator eye at visual and automatic object guidance by laser «awl-sight» were defined. The self-organization principle of laser «awl-sight» was tested at bench tests in adapti-

ve system of laser beam parameter stabilization at stochastic influence of space turbulent medium of object observation.

UDC 535:551:627.942

Bolshanin A.A., Slobodyan S.M., Tsupin A.A.
TWO–DIMENSIONAL NAVIGATION OF MOVING OBJECT:
TWO–POINT SCANNING LASER BEACON

The model of two-dimensional laser navigation and orientation of moving object (surface, river, sea etc.) irradiated by laser beams of two-point laser beacon-transit scanning navigation space has been proposed. It implements the principle of autonomous object active guidance by any randomly curved motion path.

UDC 550.388.2:621.371.25

Ivanov I.I., Kuleshov G.I., Koledin N.A.,
Korinnyy A.N., Novikov V.M.
EFFECTS AT DEAD SPACE BORDER
AT DIVERSITY TECHNIQUE OF HF SIGNALS

The results of experiments on detecting focusing at dead space border and diagnostics of traveling ionospheric disturbance at simultaneous recording of variations of signal levels of RVM stations at frequency of 9996 kHz received in Shakhty and Rostov-on-Don have been introduced.

UDC 537.531.3

Gogolev S.Yu., Sukhikh L.G., Potylitsyn A.P.
BACKWARD TRANSITION RADIATION OF RELATIVISTIC
PARTICLES IN THE VACUUM ULTRAVIOLET REGION
AS A POSSIBLE TOOL FOR BEAM DIAGNOSTICS

A possibility of using the backward transition radiation in vacuum ultraviolet for diagnosing the beams of charged particle with micron and submicron sizes has been considered. Using two models the modeling of generation of the return transient radiation from molybdenum target was carried out. It was shown that both models are well conformed. Radiation yield in vacuum ultraviolet region is sufficient for its being used as a tool for beam diagnostics.

UDC 550.42:546

Yakovleva V.S.
DIFFUSION–ADVECTIVE TRANSFER OF RADON
IN MULTILAYERED GEOLOGICAL MEDIA

Solutions of steady-state diffusion-advective equation of radon transfer in multilayered geological media by numerical techniques have been introduced. In order to construct uniform conservative difference schemes the integro-interpolation method (balance technique) was used. The obtained explicit and implicit finite-difference schemes were solved by the right and left sweep method. Optimal grid pitch was selected from comparison of the data of numerical calculations and analytical solution obtained in the package Mathematica 5 for stationary case. With the help of the obtained numerical model of diffusion-advective radon transfer the distribution of radon porous activity and radon flow density on the depth and into external atmosphere may be calculated. The results of numerical calculations of radon porous activity functions on the depth for the case of 3-layer medium introduced by various types of grounds and rocks with strongly different physico-geological characteristics were given.

UDC 543.427.2

Strezhneva T.N., Lobova A.A., Antropov N.A.,
Kryuchkov Yu.Yu.
ESTIMATION OF DETECTION THRESHOLD
OF X–RAY TRANSMISSION METHOD FOR DETERMINING
SULFUR IN OIL AND OIL PRODUCT

The **X–ray** transmission method of determining sulfur content in oil and oil product in industrial pipe-lines has been described. Sulfur detection threshold was estimated. It was shown that the method allows decreasing an error of determining sulfur in such important objects as oil and oil product.

UDC 621.039.543.6

Shamanin I.V., Gavrilov P.M., Bedenko S.V., Martynov V.V.
(α, n)–REACTIONS AND NEUTRON RADIATION FIELD
OF IRRADIATED CERAMIC NUCLEAR FUEL

The main channels of forming the neutron radiation field of irradiated ceramic nuclear fuel have been considered. It was shown that (α, n)-reaction caused by alpha particles from decay of Pu, Am and Cm occurring at light nuclei, included into fuel is a significant source of neutrons in irradiated fuel. Quantitative results by contributions of (α, n)-reactions into a general intensity of neutron radiation of the irradiated ceramic fuels UO_2, UC and UN were obtained. The comparative analysis of radiative characteristics (neutron component) of these kinds of fuel was carried out.

UDC 544.169,661.883.1

Ozhereliev O.A., Fedin A.S., Mereutsa N.K.
APPLICATION OF EXAFS–SPECTROSCOPY
FOR RESEARCHING HIGH–TEMPERATURE FLUORIDE
SORPTION ON ZIRCONIUM SURFACE

A possibility of using EXAFS-spectroscopy for researching the mechanism of fluoride chemisorption on metal surface has been tested by example of iron and zirconium. Structural characteristics of studied samples were calculated by EXAFS method on the basis of experimental spectra of absorbing iron atom being on the surface of zirconium substrate. The obtained results were analyzed; the possibility of using EXAFS-spectroscopy for similar investigations was estimated.

UDC 66.012

Baidali S.A., Dyadik V.F., Yurkov A.S.
MATHEMATICAL MODEL OF GENERATING
URANIUM HEXAFLUORIDE

Mathematical model of generating Разработана UF_6, taking into account semi-product transportation by the pulse jet transport, inertia and delay of all engineering varieties has been developed. The adequacy of the developed model was checked and proved.

UDC 66.021.2.065.5

Vilnina A.V., Dyadik V.F., Baidali S.A., Liventsov S.N.
EXPERIMENTAL INVESTIGATION OF DESUBLIMATION
PROCESS FROM COOLDOWN CYCLE DURATION

The main indices of desublimator operation have been determined and the program of commercial tests has been developed. By the results of the experimental investigations the quantitative estimations of the influence of desublimator operation mode on desublimation degree and bulk weight of uranium hexafluoride UF_6 were determined. Optimal cycle of cooling down was selected. At this cycle the optimal ratio of transport capacity population and desublimation degree is achieved.

UDC 661.87.519

Vlasov V.A., Orlov A.A., Butov V.G., Timchenko S.N.
MODELING OF NONSTATIONARY HYDRAULIC PROCESSES
IN CASCADES OF CENTRIFUGES OF URANIUM
ISOTOPE ENRICHMENT

The mathematical model of nonstationary hydraulic processes in industrial centrifugal cascades of uranium enrichment has been developed and implemented. It is intended for application as the expert system and using in computer simulator for training specialists of separating industry.

UDC 621.039.546.8;621.039.548.33;624.072.2

Mitrofanov Yu.A., Zamyatin V.M., Belozerov B.P.
ON PROCESS TUBE BEHAVIOR
IN URANIUM–GRAPHITE REACTORS

The model describing the process tube behavior at maintenance of uranium-graphite reactors has been proposed. The values of deflections and stresses in different sections of process tube in the worst possible case were determined by the methods of elliptic and elastic parameters.

UDC 539.376

Svetashkov A.A., Zamyatin V.M., Kupriyanov N.A.
CONSTRUCTION OF A CLOSED MODEL OF EXTENDED ELASTOMER DEFORMATION TAKING INTO ACCOUNT MICROSTRUCTURAL DEFECTS

Mechanical behavior of rubber-like elastomers with a filling material in the form of ground metal particles has been studied. The experiments on single axis mode of deformation of samples undergone loading conditions complex by time: tension and unloading with constant rates of changing stress and deformation, rest recovery, creep and relaxation were analyzed. Functionals responsible for softening obtained as a result of damage accumulation and partial cure at loading are included in mathematical model predicting mechanical behavior of elastomer. The proposed model describes satisfactorily the elastomer behavior for stress and strain paths complex by time.

UDC 621.315.592+004.942

Philippov M.M., Babushkin Yu.V., Gribenyukov A.I., Ginsar V.E.
ESTIMATION OF TEMPERATURE FIELD DYNAMICS IN WORKING VOLUME OF BRIDGMAN VERTICAL DEVICE AT LONGITUDINALLY AXIAL MOVEMENT OF GROWTH CONTAINER AT CRYSTAL GROWTH

The results of numerical calculation of temperature field in working volume of the device for growing crystals by the Bridgman method in vertical variant with a seed crystal have been introduced. The design model includes standard conditions of heat problem for the system of annular heating modules forming temperature field of axial symmetry and working volume filling in with attributes connected with crystal growth approximate to reality. The temperature field changes in working volume depending on ampoule position relative to the device were studied. It was shown that at stationary axial temperature distribution in the device, at ampoule movement the crystallization front form and its position change relative to the initial ones and material crystallization progresses with varying velocity differs from ampoule moment rate.

UDC 621.315.592+004.942

Philippov M.M., Babushkin Yu.V., Gribenyukov A.I., Ginsar V.E.
ALGORITHM OF ESTIMATING HEATING ELEMENT POWER IN MULTIREGION DEVICE FOR CRYSTAL GROWTH BY BRIDGMAN

The model of multizone thermal device for crystal growth by Bridgman vertical method with arbitrary number of heating elements has been considered. The algorithm of estimating the heater power forming a priori specified temperature distribution in working volume was developed. The algorithm allows estimating powers efficiently both at design stage and at maintenance of thermal device.

UDC 539.5

Skripnyak V.A., Skripnyak E.G., Kozulin A.A., Pasko E.G., Skripnyak V.V., Korobenkov M.V.
INFLUENCE OF POROUS STRUCTURE OF FRAGILE CERAMICS ON DAMAGE AT DYNAMIC LOADING

Porous structure influence on damage of brittle ceramic materials at dynamic compression has been studied. It was shown that porous clusters influence greatly the fragment sizes at damage of porous ceramics. The conclusion was drawn that presence of clusters in porous structure at shock loading of ceramics results in longitudinal crack formation.

UDC 669.71:539.24'25

Ivanov K.V., Naidenkin E.V.
FEATURES OF STRUCTURE AND MECHANICAL PROPERTIES OF PURE ALUMINUM AND ALLOY 1420 AFTER THE INFLUENCE OF SEVERE PLASTIC DEFORMATION

The influence of equal channel angular extrusion on formation of structure and mechanical properties of pure aluminum and aluminum alloy 1420 has been studied by the methods of transmission electron microscopy and analysis of diffraction patterns of back-scattering electrons. It was ascertained that as a result of extrusion by the path B_c in the studied samples the ultra-fine-grain homogeneous equiaxial grain-sub-grain structure with average size of structural elements ~2 μm is formed.

It was detected that in the case of pure aluminum the grain average size exceeds twice an average size of subgrain and in alloy 1420 the values of these quantities are close. It was shown that as a result of equal channel angular extrusion the mechanical properties of the studied materials improve considerably. The factors conditioning the detected features of structure and mechanical properties are discussed.

UDC 539.292:620.193

Savitskiy A.P., Martsunova L.S.
SURFACE ENERGY AND LIQUID–METAL EMBRITTLEMENT OF TIN

On the basis of calculations, experimental and literature data the role of decreasing surface interfacial energy under the influence of melt at liquid metal embrittlement of solid phase has been analyzed. It is shown that in the given phenomenon the decrease of surface energy in contact with melt acts only a sidetrack providing liquid phase delivery to the crack tip. The conclusion is drawn that the reason of liquid-metal embrittlement is diffusion of active component atoms along defects of the wrought metal structure which results in local decrease of material melting point, formation of liquid phase there, crack nucleation and growth.

UDC 621.793:620.194

Kovalevskaya Zh.G.
STUDYING THE PHENOMENON OF WEAR AT FRETTING OF GAS–THERMAL COATING SPRAYED WITH SIMULTANEOUS ULTRASONIC TREATMENT

The structure of gas-thermal plasma coating on the basis of iron, coating on steel base in customary mode and at simultaneous ultrasonic treatment has been studied. The elements of structure of plasma coatings and fracture mechanisms were described from the point of view of physical mesomechanics of structurally inhomogeneous media. It was shown that coating spread with simultaneous ultrasonic action has a modified structure at all scaled structure levels. The influence of ultrasonic modified coating on its wear resistance at fretting was studied.

UDC 539.121.8.04;621.9.047.7

Sungatulin A.R., Sergeev V.P., Fedorischeva M.V., Sergeev O.V.
INFLUENCE OF BEAM TREATMENT OF IONS (Cr+B) OF SURFACE LAYER OF STEEL 38ХН3МФА ON WEAR RESISTANCE

Change of structural-phase state and elements distribution in surface layer of steel 38ХН3МФА at implantation by ion beams (Cr+B) as well as the change of wear resistance and hardness at operation in friction pair «steel 38ХН3МФА − polyamide ПА-66» have been studied. The increase of tribomechanical properties of steel at surface layer modification by composite ion beam which is connected with the change of structural-phase state of this layer was detected.

UDC 533.9;538.9

Surmenev R.A., Surmeneva M.A., Pichugin V.F., Epple M.
RF–MAGNETRON SPUTTERED CALCIUM PHOSPHATE COATINGS ON THE MATERIALS OF MEDICAL IMPLANTS

Calcium phosphate coatings were prepared on technically pure titanium and stainless steel by means of rf-magnetron sputtering. On basis of the results obtained, we conclude that either amorphous or crystalline coatings of hydroxyapatite with Ca/P ratio in the range 1,5...3,9 can be deposited by varying a discharge power level and negative electrical bias on the substrate.

UDC 533.9;538.9

Surmeneva M.A., Surmenev R.A., Pichugin V.F., Peitsch T., Epple M.
INFLUENCE OF RF–MAGNETRON SPUTTERED CALCIUM PHOSPHATE COATING ON THE RELEASE OF Ni FROM NiTi SUBSTRATES

The surface morphology, phase and elemental composition of calcium phosphate coatings deposited on NiTi substrates by rf-magnetron sputtering prior and after exposure to either 0,9 % NaCl physiological solution or distilled water were investigated. The coatings de-

posited at 30 W were amorphous and completely dissolved after 42 days of exposure to the media; they did not influence on the release of nickel. Polycrystalline coatings deposited at 290 W weakly dissolved and decreased in 7...10 times the release of toxic nickel ions from the surface layers of NiTi to surrounding media.

UDC 539.234;621.793.1

Voronov A.V., Sergeev V.P., Sergeev O.V., Neifeld V.V., Paraev Yu.N.
OBTAINING NANOCOMPOSITE COATINGS ON THE BASIS OF THE SYSTEM Ti–Al–Si–N BY TWO MAGNETRONS

Nanocomposite coatings on the basis of the system Ti-Al-Si-N have been obtained by vacuum magnetron deposition at simultaneous operation of two magnetrons. Influence of magnetron sputtering parameters of various targets on chemical composition and microhardness of coatings was studied. Phase composition and average size of subgrains of the main phase in the obtained TiAlSiN coatings was determined by X-ray analysis.

UDC 614.841.34:620.181.4:543.226

Pischulin V.P., Svarovskiy A.Ya., Kuzmenko V.P.
THERMAL DESTRUCTION AND FIRE RESISTANCE OF FLAME–RETARDANT COATS FOR THE OBJECTS OF POWER ENGINEERING AND CHEMICAL INDUSTRY

The investigations of thermal destruction of fire-resistant swelling material of OVKP-2 coating and comparative data of testing fire-resistance with thermal expanding coatings have been introduced. Thermophysical properties of OVKP-2 material at various temperatures were determined. Firing tests of OVKP-2 coating showed the highest fire resistance in comparison with the other flame-retardant coats.

Apasov A.M., Kozlov E.V.
STUDYING METAL STRUCTURE OF WELDED JOINT OF CORROSION–RESISTANCE STEEL

The structure of the central area of welded joint, heat-affected zone and base metal far from welded joint has been studied by the methods of optical and electron microscopy. Phase composition, grain and dislocation structures of base metal, heat-affected zone and welded joint were diagnosed. Quality of corrosion-resistant steel was determined. The conclusion was drawn that crystal lattice informative parameters and structure quantitative characteristics obtained experimentally indicate high mechanical properties of welded joint metal.

UDC 621.787:621.91:621.7.011

Slobodyan M.S.
COMPARATIVE ANALYSIS OF COMPUTING METHODS OF INITIAL RESISTANCE VALUES OF ELECTRODE–ELECTRODE CIRCUIT AT RESISTANCE SPOT WELDING

Initial resistances of the area electrode-electrode and component-component at resistance spot welding have been designed by different techniques by example of components of zirconium alloy E110. The obtained results are characterized by the wide range of values which is mainly conditioned by the design methods difference, divergence of the published values of physico-mechanical properties of materials as well as the change of components contact area at electrode wearing. All the design values obtained by various methods differ considerably from the experimental ones that confirms the necessity of measuring at development of welding conditions.

UDC 629.7.05:534.647

Britova Yu.A., Androsov V.Ya., Dmitriev V.S.
VIBRATION ANALYSIS OF MOTOR–FLYWHEEL DYNAMIC CHARACTERISTICS

Vibration signal of motor-flywheels in frequency and time domains have been analyzed. The structure of bench for testing is presented by multichannel analysis system PULSE. Defects of motor-flywheels and method of their identification are examined.

UDC 622.23.05

Zhukov I.A., Sarakhanova E.V.
THEORY OF SYNTHESIZING STRIKER FORM OF IMPACT SYSTEMS OF ENGINEERING ASSIGNMENT

Solution of the problem of improving impact systems by synthesizing striker forms by grapho-analytical method by the form of generated impact pulse corresponding more efficiently to physico-mechanical properties of damaged object has been shown.

UDC 69.002.5:622.23.05

Krauinsh P.Ya., Deryusheva V.N.
COLLISION MOMENTUM FORMATION DEPENDING ON PERFORMANCE OF INTERMEDIATE CAVITY OF PNEUMATIC–HYDRAULIC PERCUSSION UNIT

Using mathematical modeling the influence of medium parameters of generator intermediate cavity of pneumatic-hydraulic percussion unit on the form and duration of collision momentum has been studied. It was shown as changing the parameters and embodiment of generator and intermediate cavity the efficiency of collision momentum may be increased.

UDC 621.83

Efremenkov E.A.
THE ANALYSIS OF REDUCER KINEMATIC SCHEMES FOR DRIVE OF FEED CHISEL CROWN OF COAL GETTER–LOADER

The article introduces kinematic schemes of transmissions with rolling intermediate bodies and separator free transmissions. Their structural analysis was accomplished and more suitable mechanism was determined. Technical data of reducers for drive of feed chisel crown were analyzed. Reducers designed on the base of kinematic schemes were introduced. The design was chosen as the result of the analysis which satisfied more fully the requirements for drive of feed chisel crown of coal getter-loader.

UDC 62-822

Scherbina A.V., Melnikov V.G., Kaverzin S.V.
INFLUENCE OF PRESSURE CHANGE ON HYDRAULIC SYSTEM ELASTICITY OF HYDROVOLUMETRIC DRIVE

The question of determining the reduced coefficient of hydraulic system elasticity of volumetric hydraulic drive by example of pilot model of a tracked skidder TT4M-23L and interaction of the reduced module with pressure have been considered.

UDC 66.023

Grigorieva M.M., Tatarnikov A.A.
INFLUENCE OF FEED ZONE EFFICIENCY OF A SINGLE SCREW MACHINE ON FILTERING PROPERTY OF PRESSURE ZONE

Influence of feed zone efficiency and single screw geometries on filtering property of pressure zone at elastomeric material extrusion have been studied. Connection between feeding mode, geometries and efficiency of pressure zone of single screw machine was ascertained.

UDC 62-523.8

Kononenko D.A.
INCREASE OF FINISH AT TURNING MACHINES DUE TO THE CONTROL OF LONGITUDINAL FEED VALUE

Factors of processing error formation owing to elastic movement of turning machine manufacturing system have been ascertained. A block-diagram of adaptive control system of turning processing allowing increasing quality of elements due to the control of longitudinal feed value was proposed. The design of regulation characteristic range for the machine 16A20 is given.

UDC 53(091)

Kuznetsova S.I.
HARD LIFE OF TTI PROFESSOR B.P. VEINBERG

A period of life in Tomsk of Boris Petrovich Veinberg, professor, the head of the department of physics of TTI (TPI-TPU) in 1909−1924 and hard destiny of his inventions have been reflected. Reminiscences of academician V.D. Kuznetsov, professor of TGU A.B. Sapozhnikov and G.V. Ostrovskay, granddaughter of B.P. Veinberg are used.