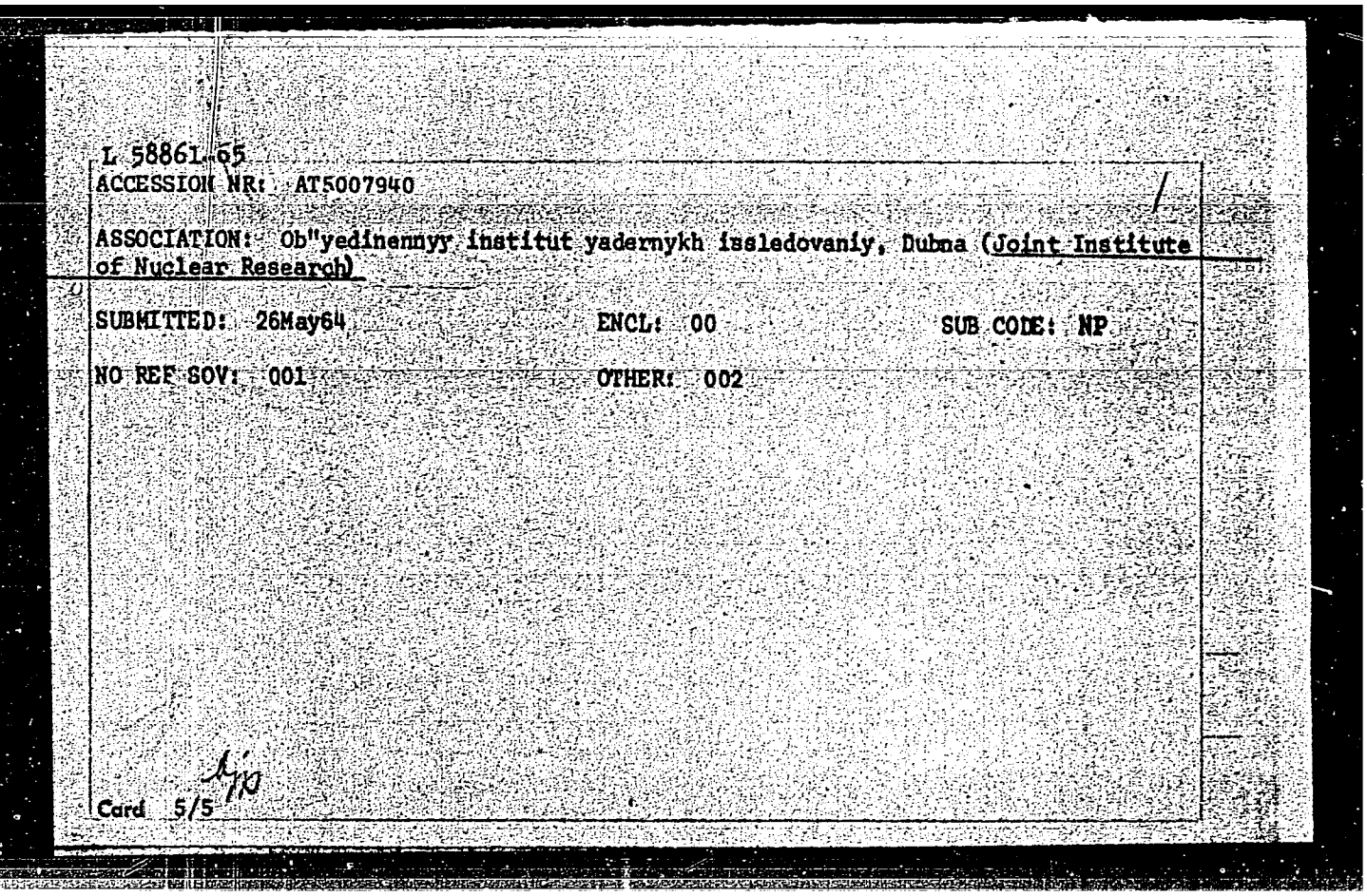


L 58861-65
ACCESSION NR: AT5007940

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP

NO REF SOV: 001 OTHER: 002

Card 5/5

L 58859-65 EPA(w)-2/EWT(m)/EWA(m)-2 Pt-7 IJP(c) GS
ACCESSION NR: AT5007941 S/0000/64/000/000/0595/0599

AUTHOR: Danilov, V. I.; Yenchevich, I. B.; Novikov, D. L.; Polferov, E. A.; Safonov, A. N.; Feoktistov, B. V.

TITLE: Calculation in the region of the origin of the stable phase oscillations in the synchrocyclotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 595-599

TOPIC TAGS: synchrocyclotron, high energy accelerator

ABSTRACT: The capture and acceleration of charged particles in the central region of the synchrocyclotron is not adequately described by the phase equation primarily because the maximum possible energy growth per revolution is an increasing function of the radius and approaches the slit value only at radii 5-10 times larger than the aperture of the dee. The phase motion of protons in the central region of the synchrocyclotron is now obtained by solving the equations of motion of charged particles in electric and magnetic fields of an accelerator on high-speed digital computers. Considering only the motion of charged particles in the median plane of the magnetic field possessing axial symmetry, one has the following set of differential

Card 1/3

L 58859-65

ACCESSION NR: AT5007941 O

equations (S. P. Lomnev and G. A. Tyagunov, in *Uskoriteli*, G. A. Tyagunov, Editor, No. 2, Moscow, Atomizdat, 1960):

$$\left.\begin{aligned} \ddot{r} &= A_0(1-\beta^2)^{1/2}\left[A_r(1-\dot{r}^2)-A_\theta\dot{r}\alpha\right]+\frac{\alpha^2}{r^2}, \\ \ddot{\theta} &= \frac{1}{r}\left\{A_\theta(1-\beta^2)^{1/2}\left[A_\theta(1-\alpha^2)-A_r\dot{r}\alpha\right]-\frac{2\alpha\dot{r}}{r}\right\}, \end{aligned}\right| \quad (1)$$

where the dot indicates differentiation with respect to ct, z_0 is the impedance of free space, and $A_\theta = e/m_0c^2$; $\alpha = r\dot{\theta}$; $A_r = \mathcal{E}_r + \alpha Z_0 B_z$; $A_\theta = \mathcal{E}_\theta - r\dot{Z}_0 B_z$; B_z-magnetic induction; E_r, E_θ-components of the electric field strength. After a number of transformations the dependence of the electric field strength upon radius is represented in the following form

$$\mathcal{E}_r = \frac{\mathcal{E}_\theta \sin\theta}{1+\frac{\pi^2}{D^2}r^2\sin^2\theta}\cos(1+\Delta)(1-\gamma\omega_0 t)\,\omega_0 t, \quad (2)$$

where

$$\Delta = \frac{\varphi}{\omega_0}, \quad \gamma = \frac{1}{2}\cdot\frac{d\omega_0}{dt}\cdot\frac{1}{\omega_0^2}; \quad (3)$$

Card 2/3

L 58859-65

ACCESSION NR: AT5007941

$E_0=U_0/D$; U_0-amplitude of the accelerating voltage; D-dee aperture; ω_0-frequency of revolution of an ion at the center. The present report discusses the solution of the equations of motion (1) for given boundary value conditions and parameters in the case of the OIYaI synchrocyclotron. A high-speed digital computer was used to obtain curves of (a) radius and phase versus time, (b) capture effectiveness versus gamma-coordinate for various accelerator parameters (e.g. aperture), (c) damping of amplitude of radial-phasal oscillations versus radius, and (d) regions of stability of $\dot{\varphi}$ versus φ (φ-phase). The trajectories of radial-phase oscillations were used to determine the effectiveness of capture as a function of various accelerator parameters and also the ion beam configuration during the acceleration of the ions from the center to a radius of 50 cm. Orig. art. has: 5 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

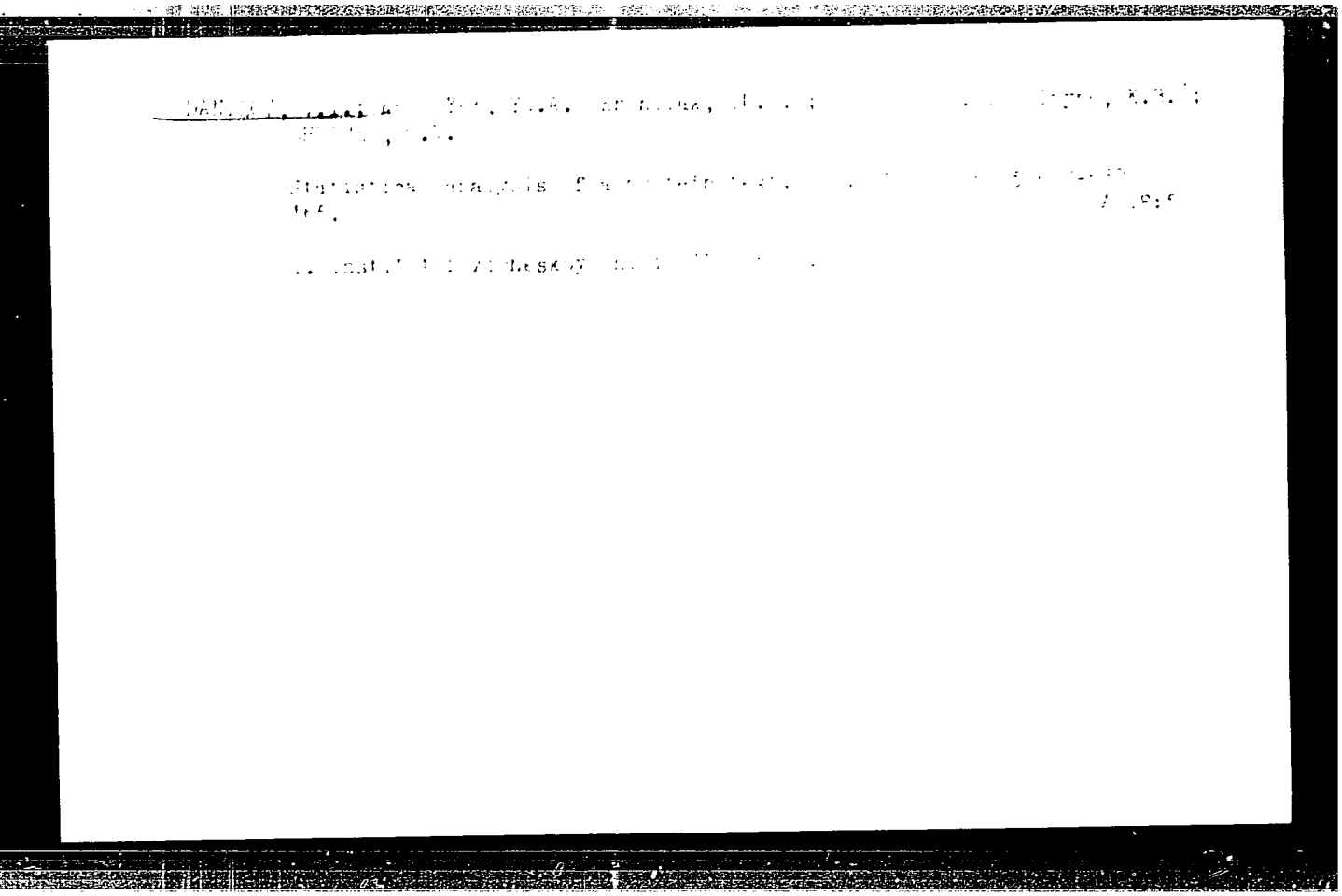
SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP, EM

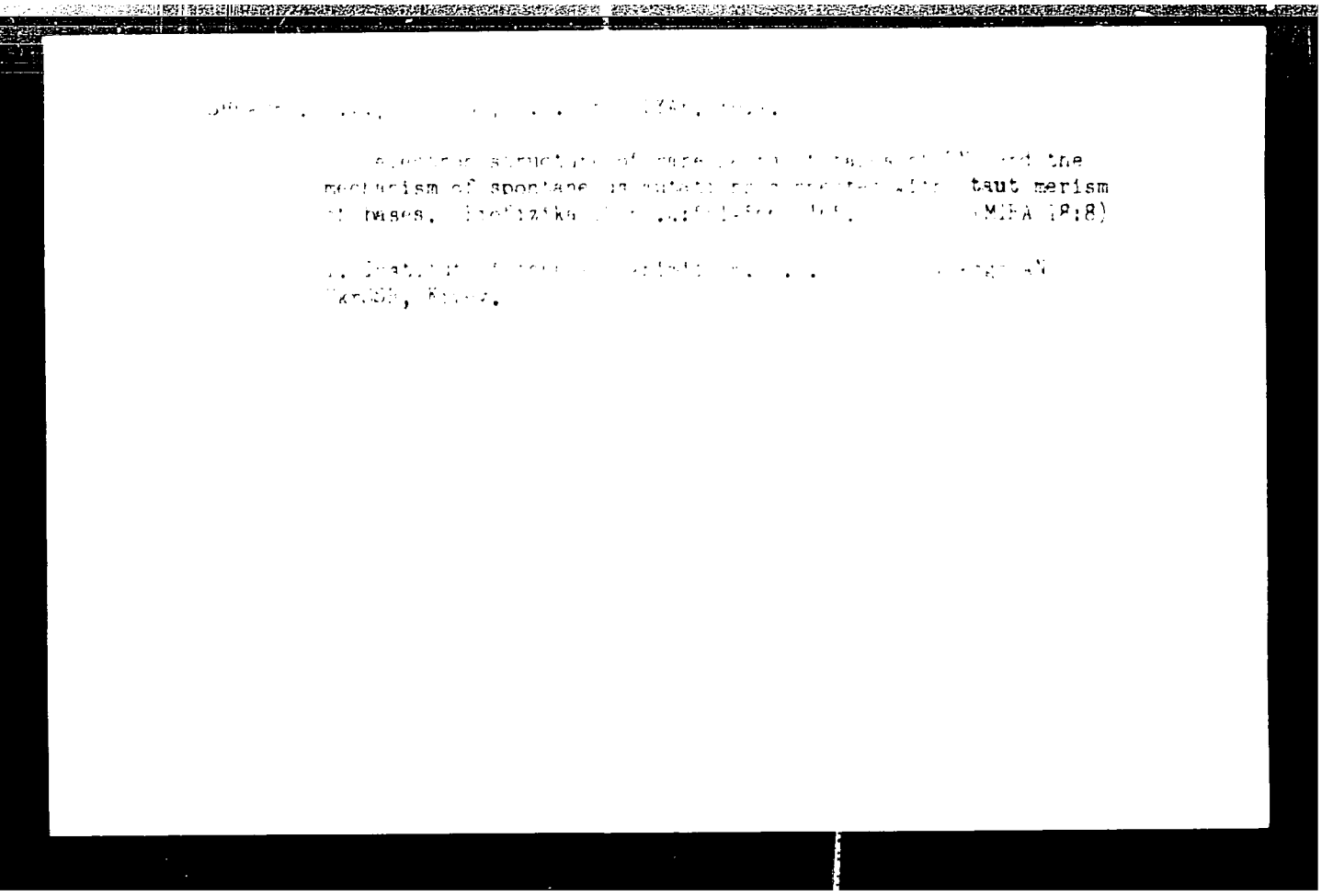
NO REF SOV: 002 OTHER: 001

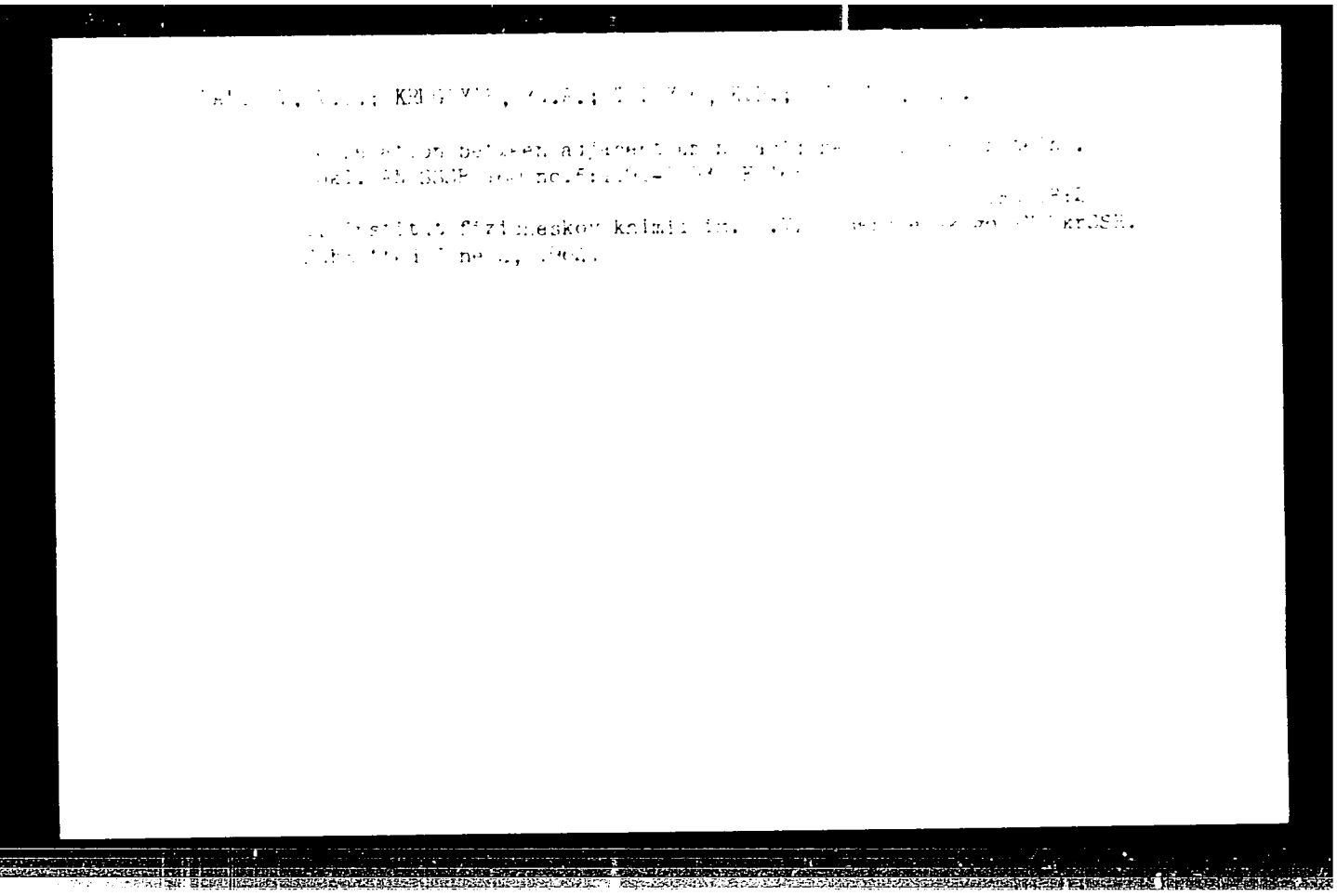
Card 3/3

DANILOV, V.I.; YENCHEVICH, I.B.; ZAMOLODCHIKOV, B.I.; MARCHENKO, B.N.; NOVIKOV, D.L.; POLFEROV, E.A.; ROZANOV, Ye.I.; SAVENKOV, A.L.; SAFONOV, A.N.

Increase in intensity of a proton beam in a six-meter synchro-cyclotron of the United Institute of Nuclear Research. Atom. energ. 16 no.1:9-11 Ja '64. (MIRA 17:2)







DANILOV, V.I.; TOLPYGO, K.F.; SHRAMKO, O.V.

Reversibility and error-resistance of the [illegible] synthesis.
Dokl. AN SSSR 163 no.5:1282-1285. Ag '65. (MIRA 18:8)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR.
Submitted October 8, 1964.

KRUGLYAK, Yu.A.; DANILOV, V.I.; SHRAMKO, O.V.

Systems of nucleic acid base pairings. Biofizika 10 no.3: 399-403 '65. (MIRA 18:11)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR, Kiyev. Submitted July 28, 1964.

DANILOV, V.I.; YENCHEVICH, I.B.; ZAMOLOCHIKOV, B.I.; POLFEROV, E.A.; ROZANOV, Ye.I.; SMIRNOV, V.I.; TESTOV, V.G.

Increasing the pulse duration of particle beams from a 680 Mev. OIIAI synchrocyclotron. Atom. energ. 19 no.3:289-292 S '65. (MIRA 18:9)

L 07919-67 EWT(m) IJP(c)

ACC NR: AP6021991 SOURCE CODE: UR/0120/66/000/003/0019/0022

39
35
B

AUTHOR: Danilov, V. I.; Yenchevich, I. B.; Rozanov, Ye. I.; Tomilina, T. N.; Shestov, A. V.

ORG: Joint Nuclear Research Institute, Dubna (Ob"yedinennyy institut yadernykh issledovaniy)

TITLE: Control of a 680 Mev synchrocyclotron 11

SOURCE: Pribory i tekhnika eksperimenta, no. 3, 1966, 19-22

TOPIC TAGS: synchrocyclotron, particle acceleration, coincidence circuit

ABSTRACT: The paper presents a system of control of various synchrocyclotron operating conditions. A phototransducer, having an optico-mechanical connection with a high frequency generator furnishes square pulses of positive polarity. These pulses are used for the regulation of the generator and for synchronizing the operating auxiliary apparatus with the accelerator. A flow chart of this operation is shown. In the continuous mode of operation, the capture and acceleration of the particles occurs in each period of modulation. The synchronization pulses, coincident with the front of the phototransducer pulses, are directed into two channels. In the first of these, the actuating pulses are formed; these pulses move into the exit tube with or without time delay and then into the operator of the high frequency generator. In the second chan-

UDC: 621.384.611.2

Card 1/2

nel, the cut-off pulses are formed; these pulses move into the operator with a time delay, approximately equal to half the period of modulation. In the single mode, acceleration of the particles occurs with the frequency of the starting pulses. The synchronization pulse, before entering the actuating pulse channel, must go through a coincidence circuit. After leaving the coincidence circuit the pulse returns the trigger to the initial condition. Other modes of operation of this system include the single mode with damping, accumulation, increase of pulse width of beam, and operation of an ionic source with the pulse method. Lost time due to shutdown using this control scheme did not exceed 0.1% of the operating time of the accelerator. The authors thank V. I. Ivanov, Yu. V. Maksimov, and N. P. Sechenov for taking part in the construction of the apparatus. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 29Apr65/ ORIG REF: 010/ OTH REF: 001

L 05392-67 IJP(c)

ACC NR: AT6031503 SOURCE CODE: BU/2503/66/014/000/0005/0019

AUTHOR: Danilov, V. I.; Enchevich, I. B.; Marchenko, B. N.; Polferov, E. A.; Safonov, A. N.; Shestov, A. V.

47
42
B+1

ORG: none

19

TITLE: Increasing the internal beam current of the synchrocyclotron of the Joint Institute for Nuclear Research by additional electrostatic focusing

SOURCE: Bulgarska akademiya na naukite. Fizicheski institut. Izvestiya na Fizicheskiya institut s ANEB, v. 14, 1966, 5-19

TOPIC TAGS: synchrocyclotron, electrostatic field, electrode, duant, accelerator, rectifier, proton current

ABSTRACT: A description is given of the effects of an electrostatic field in the central region in the synchrocyclotron of the Joint Institute of Nuclear Research upon the accelerated proton current. As a result of theoretical and experimental research, the chosen aperture of the focusing electrode is equal to the aperture of the dee. In view of the need for a stable installation for long periods of work, 30-mm gaps were established between the screens and the electrodes and a 170-mm

Card 1/2

distance was established between the dee and the electrodes. In such conditions the maximum current magnitude attained is U_{Φ} = 13 kilovolts. As a result of the increase of focusing forces in the central region of the accelerator, the beam current on the finite radius increased from 1.1—1.2 to 2.1—2.3 μA . In conclusion, the authors thank senior technicians V. I. Ivanov and Yu. V. Maksimov for the production of the 30-kv rectifier; designer I. Kh. Nozdrin and K. A. Baycher, director of the machine shops of the Laboratory of Nuclear Problems, for their efforts in the development and production of the focusing installation, and G. I. Selivanov, chief engineer of the Laboratory of Nuclear Problems. Orig. art. has: 16 figures.

SUB CODE: 20, 09/ SUBM DATE: none/ ORIG REF: 003/

L 01948-67 EWP(k)/EWT(d)/EWT(m)/T/EWP(w)/EWP(v)/EWP(t)/ETI IJP(c) EM/WW/JD
ACC NR: AR6021887 (N) SOURCE CODE: UR/0124/66/000/003/V027/V027

AUTHOR: Danilov, V. I.

TITLE: Creep buckling of cylindrical and conical shells

SOURCE: Ref. zh. Mekhanika, Abs. 3V203

REF SOURCE: Sb. Issled. po teorii plastin i obolochek. No. 3. Kazan', Kazansk. un-t, 1965, 244-254

TOPIC TAGS: buckling, shell buckling, cylindric shell structure, conic shell structure

ABSTRACT: A study was made of the critical time in loading a closed cylindrical shell by axial compression combined with external pressure, utilizing linear initial physical relationships between elongation and displacement and the components of the hereditary forces with one creep center. The above deformations were expressed nonlinearly in terms of the initial deviation from the regular shape in the normal direction and in the direction of the displacement of the mean point of the surface in axial and radial directions, with retention of second-order terms. A solution

Card 1/2

L 01948-67
ACC NR: AR6021887

was obtained by an approximation method based on the Hamilton-Ostrogradskiy variation principle. Buckling in a short, thin, conical shell under axial compression was studied by an analogous method, using the corresponding equations which determine the stress functions in the preceding problem. M. I. Rozovskiy
[Translation of abstract] [FM]

SUB CODE: 13, 14/

Card 2/2 jd

L 4147-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) DM

ACCESSION NR: AP5023773 UR/0089/65/019/003/0289/0292
621.384.611

AUTHOR: Danilov, V. I.; Yenchevich, I. B.; Zamolodchikov, B. I.; Polferov, E. A.; Rozanov, Ye. I.; Smirnov, V. I.; Testov, V. G.

TITLE: The increase in pulse duration of the 680 MEV OIYaI synchrocyclotron particle beam

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 289-292

TOPIC TAGS: synchrocyclotron, ion acceleration, ion accelerator, MEV accelerator

ABSTRACT: In synchrocyclotrons ions are accelerated in bunches, the shape and dimensions of which are determined by radial-phase and betatron oscillations. The present authors describe a method for pulse extension which was tested on the OIYaI synchrocyclotron and yielded results summarized in Fig. 1 of the Enclosure. The method is based on the analysis of the approximate expressions for pulse duration.

$$T = \int_{r_M - \delta r}^{r_M} \frac{dr}{\dot{r}_0(t) + \dot{Q}_{B,M}(t)}.$$

Card 1/4

L 4147-66
ACCESSION NR: AP5023773

where the speed of equilibrium orbit widening is given by

$$\dot{r}_s = \frac{r_s}{1-n} \cdot \frac{1}{E_s \beta_s^2} \cdot \frac{\omega_s}{2\pi} e_0 V_0 \sin \varphi_s = \frac{r_s}{1-n} \cdot \frac{1}{K_s \beta_s^2 \omega_s} \cdot \frac{d\omega}{dt};$$

$\rho_{B.M.}(t)$ is velocity of displacement of the equilibrium orbit at the φ_n azimuth caused by the excitation of the first harmonics of the magnetic field;

$$n = -\frac{r}{H} \cdot \frac{\partial H}{\partial r}; \quad K = 1 + \frac{n}{1-n} \cdot \frac{1}{\beta^2}; \quad \beta = \frac{v}{c};$$

v, ω, E are velocity, rotational frequency, and total energy of the particle, respectively; eV_0 - maximum possible energy increment per turn; subscripts s characterize equilibrium values;

$$\delta r = q_0 + q_s \text{ with } \dot{q}_{s.s} = 0;$$
$$\delta r = q_0 + 2q_s \text{ with } \dot{r}_s = 0$$

Card 2/4

L 4147-66

ACCESSION NR: AP5023773

and $\int_f$, γ_c is the maximum amplitude of radial betatron and radial-phase oscillations respectively. It is shown that the length of the pulse may be extended by increasing the interval of radial oscillation amplitudes and by decreasing the beam velocity along the radius (this can be achieved by increasing, in time, the forced radial oscillations for $f_s = 0$). A brief description of the design and operation of the necessary circuits is also given. Orig. art. has: 9 formulas and 5 figures.

ASSOCIATION: None

SUBMITTED: 06Feb65 ENCL: 01 SUB CODE: NP, MA

NO REF SOV: 001 OTHER: 006

Card 3/4

L 4147-66

ACCESSION NR: AP5023773 ENCLOSURE: 01

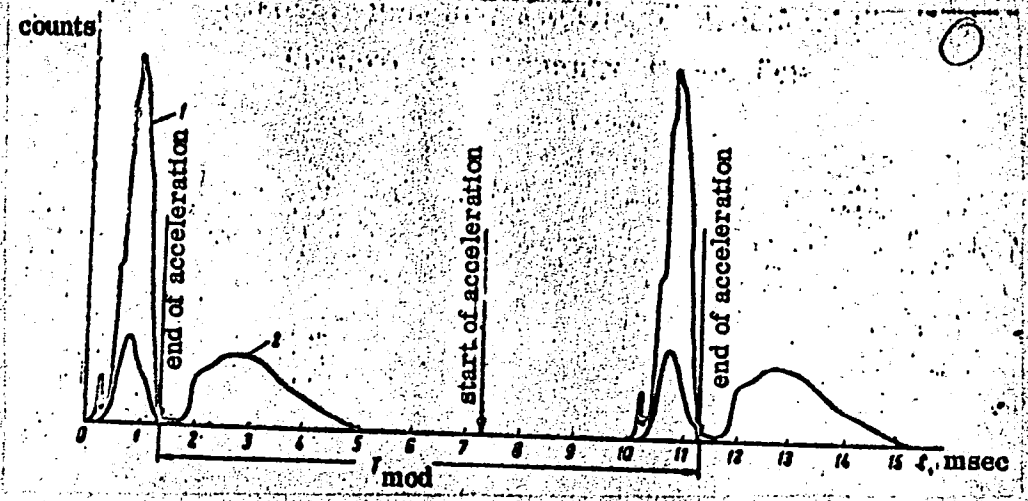


Figure 1. Shape of OIYal synchrocyclotron beam pulses. 1- standard operation; 2 - extended beam pulse operation.

Card 4/4

DANILOV, V. K.

DANILOV, V. K. : "Investigation of the forces and deformation in a stressed bolt joint." Leningrad Shipbuilding Inst. Leningrad, 1956.

SO: Knizhnaya letopis'
No 21, 1956. Moscow.

3-1-13/32

AUTHOR: Tatarintsev, A.S., Professor, Doctor of Biological Sciences, Danilov, V.K., Instructor of the Leningrad Shipbuilding Institute, and 6 Students of the 1st course of the Moscow Construction-Engineering Institute imeni Kuybyshev.

TITLE: Preparing for a New Enrollment (Gotovyas' k novomu priyemu)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, # 1, pp 45-47 (USSR)

ABSTRACT: In connection with the enrollment of new students, the authors set forth in the article the observations they have made and submit suggestions tending to improve the present order of enrollment.

They emphasize that among the students there are persons who have no particular liking or are not qualified for the speciality chosen. The first author, therefore, suggests that discussions be arranged with the prospective students in order to find out the views of each one on his chosen speciality.

He is satisfied that the enrollment regulations of 1957 enable to accept persons with a record in practical work as it will improve the composition of the student body. The

Card 1/2

SOV/122-58-7-12/31

AUTHOR: Danilov, V.K., Engineer

TITLE: On the Stresses and Deformations in the Components of a Tightened Bolt Connection (O napryazheniyakh i deformatsiyakh v detalyakh zatyanutogo bolтovogo soyedineniya)

PERIODICAL: Vestnik Mashinostroyeniya 1958, Nr 7, p 41 (USSR)

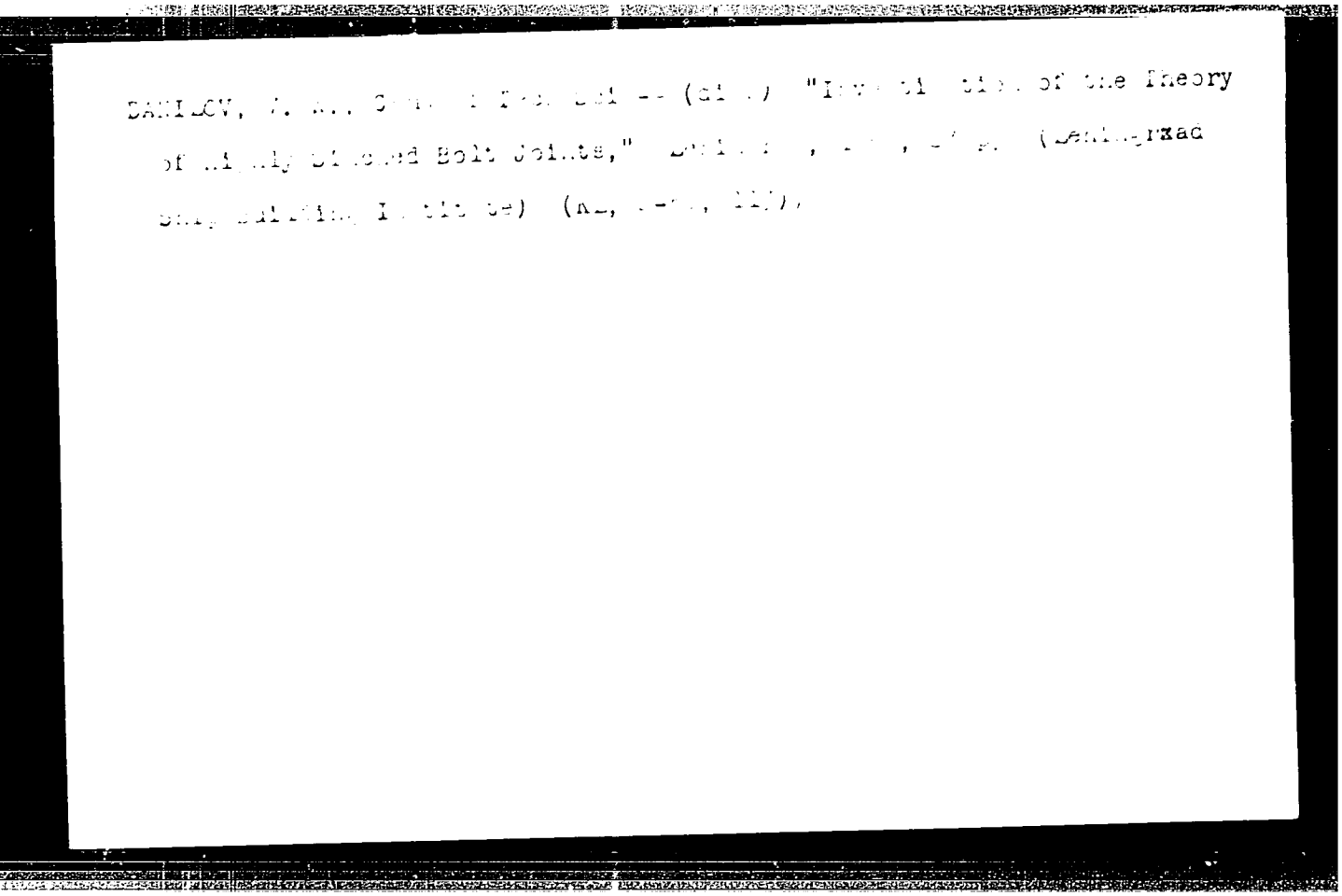
ABSTRACT: To determine approximately the stress distribution in the parts of a bolt connection, a segmental element between two planes through the bolt axis is replaced by a flat element of unit width so that a plane elastic problem results. The solution arising from a Fourier expansion of the load distribution under the bolt head is given without derivation. Eq (2) expresses the total compression of the components between the bolt and the nut. An approximate method for computing the load on a tightened bolt is given. There are 2 figures.

Card 1/1

DANILOV, V.K.

Determining load coefficient and stress distribution in butts in designing strained threaded joints [with summary in English]. Inzh.-fiz.zhur. 1 no.8:65-72 Ag '58. (MIRA 11:8)

1.Korablestroitel'nyy institut, Leningrad.
(Fastenings)



BAILEY, [illegible] -- (dis.) "[illegible] of the Theory of Highly Stressed Bolt Joints," [illegible] (Leningrad Mfg. Institute) (KL, [illegible], 11).

DANILOV, V.K., assistent

Problem of the rigidity of joint parts in a stressed bolted joint and experimental solution of this problem. Izv.vys. uchab.zav.; mashinostr. no.1:8-20 '59. (MIRA 13:3)

1. Leningradskiy korablestroitel'nyy institut.
(Bolts and nuts) (Strains and stresses)

SOV/122-59-6-7/27

AUTHOR: Danilov, V.K., Engineer

TITLE: Experimental Determination of the Yielding in the Compression of Flanges Under the Action of Bolt Tightening Forces

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 6, pp 25-27 (USSR)

ABSTRACT: Tests were carried out with specimens simulating flanges bolted together made of transparent plastic (TUNKKhP 530-42). M18 size bolts were used in the tests. The characteristic quantity was considered to be the ratio of bolt diameter to the combined thickness of the specimens. The thicknesses tested range between 1 and 6 diameters. The outside diameters of the specimens varied between 32 and 100 mm. A progressively increasing compression load up to 2 500 kg was applied, the material remaining in the elastic range. The modulus of elasticity of the plastic was found to be about 24 000 kg/cm^2. Curves of compression against outside flange diameter are shown (Figure 1). In all cases, the compression diminishes rapidly and stabilises beyond a certain diameter. This final compression occurs beyond about 40 mm diameter at a

Cardl/2

Experimental Determination of the Yielding in the Compression of Flanges Under the Action of Bolt Tightening Forces

thickness of 1 bolt diameter and beyond about 70 mm diameter at a thickness of 4 bolt diameters. The maximum compression is plotted against the thickness/diameter ratio and flattens out after about 4 diameters. The shape of the curve agrees closely with the analytical formula obtained as a solution of the problem of pressing a round punch into an elastic semi-space. A practical formula is suggested for engineering materials relating the compression as a percentage of its value at infinite thickness to the thickness/diameter ratio. These recommendations are at variance with existing formulae.
There are 3 figures, 1 table and 3 Soviet references.

Card 2/2

DANILOV, V.K.

Cyclical strength of stressed bolts and the force of preliminary tightening. Trudy LKI no.26:13-16 '59. (MIRA 14:9)

1. Kafedra detaley mashin i pod"yemno-transportnykh mashin Leningradskogo korablestroitel'nogo instituta.
(Bolts and nuts)

S/123/61/000/001/004/015
A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1961, No. 1, p. 31, # 1A243

AUTHOR: Danilov, V. K.

TITLE: The Determination of the Axial Strain of Compressed Parts in a Stressed Bolted Joint

PERIODICAL: "Tr. Leningr. korablestroit. in-ta", 1959, No. 27, pp. 55-65

TEXT: The author presents the description and results from an experimental determination of the magnitude of axial strain of the compressed components in a stressed bolted joint (determination of λ, the yielding magnitude of these components). Parts of different thicknesses were made of organic glass (the polymer of methyl ether of methacrylic acid, ultimate compression strength about 1,000 kg/cm^2, modulus of elasticity 19,000 - 28,000 kg/cm^2, Brinell hardness 14-16, Poisson ratio about 0.3). The experiments were conducted at 20 $\pm$ °C. The joint was made with bolts M 18. It is pointed out that the thesis on the determination of the volume of the parts jointed from the "cones of effect" was not substantiated by the tests. A formula of yielding is proposed which was obtained on the basis of the investi-

Card 1/2

S/123/61/000/01 1/004/015
A005/A001

The Determination of the Axial Strain of Compressed Parts in a Stressed Bolted Joint

gation results:

$$L = \frac{1}{2dE}\left(\frac{H}{d}\right)^{0.375}$$

where L is the yielding sought for; H is the thickness of the jointed components; d is the bolt body diameter; E is the modulus of elasticity of the material of the jointed components. The investigation results can serve as criterion for the evaluation of the precision degree of the existent approximate theoretical solutions of the problem of stresses and strains in the components of the tightened bolted joint.

G. Basovskaya

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

S/123/61/000/004/006/027
A004/A104

AUTHOR: Danilov, V. K.

TITLE: Some discussion problems of the present theory of strained threaded joints

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 4, 1961, 20, abstract 4A187. ("Tr. Leningr. korablestroit. in-ta", 1959, no. 29, 155-159)

TEXT: The author discusses methods of determining the rigidity of the joined elements of tightened screwed joints (axial yielding of elements). The following problems were investigated: hypothesis on the zones of influence, Ye. B. Vitkun's (Kiyevskiy avtomobil'no-dorozhnyy institut [Kiyev Automobile and Road Institute]) suggestion to replace in the calculation of concrete screwed joints the conventional layout in which the compression stress is centered on the edges of thin plates with long regular bolt heads, the author's suggestion to cut out from the stressed zone a plate of uniform width with the inherent special pressure (it is assumed that all other similar strips within are symmetrical relative to the action of force axis will be in analogous conditions). It is pointed out that the results of the investigations carried out confirmed the

Card 1/2

S/123/[illegible]/009/004/006/027
A004/A104

Some discussion problems of the present

applicability of the author's suggestion as to concrete screwed joints. Based on the processed test data the author has developed a yield formula for ordinarily utilized structural types of threaded joints.

[illegible] Tyomkin

[Abstractor's note: Complete translation]

Card 2/2

DANILOV, V.K.

Choosing the original parameters in the design of tough thread joints. Trudy LKI no.32:59-66 '60. (MIRA 15:2)

1. Kafedra detaley mashin i pod"yemno-transportnykh mashin Leningradskogo korablestroitel'nogo instituta.
(Bolts and nuts)

DANILIN, L.A.; DANILOV, V.K.; IVANKIN, N.I.

Four-beam pulsed oscillograph. Priborostroenie no.10:24-25
O '63. (MIRA 16:11)

DAVILOV, A.V., [illegible]; KAPILEVICH, Ya.B., [illegible]

[illegible] of the situation by the chief of the medical service. Voen.-med. zhur. [illegible]:
[illegible]-13 Ja [illegible] (MLA [illegible])

USSR/Cultivated Plants - Subtropical. Tropical. M.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15859

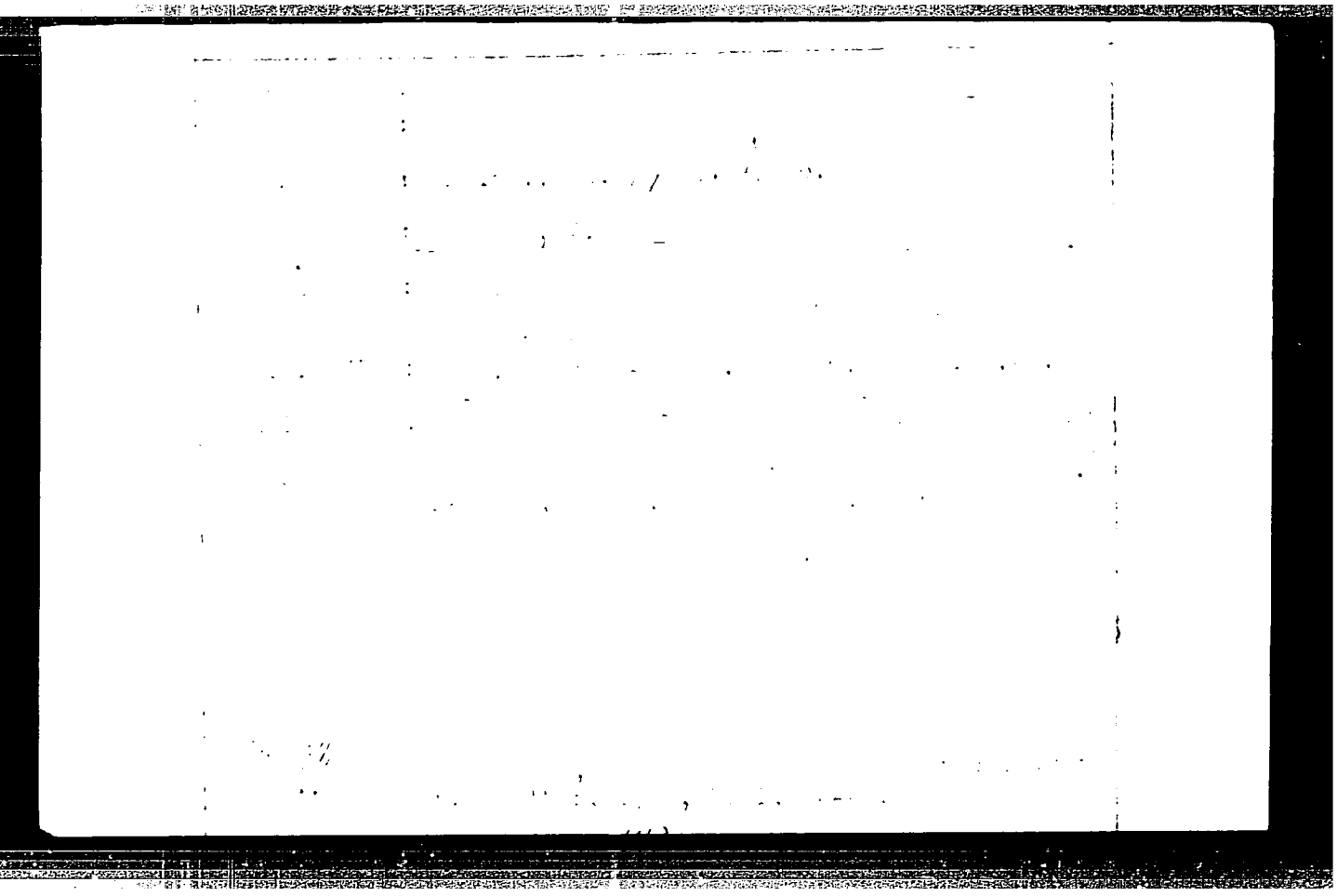
Author : V.L. Danilov
Inst :
Title : An Attempt to Cultivate the Pomegranate on the Non-Irrigated Soil Provided.

Orig Pub : S. kh. Tadzhikistana, 1956, No 10, 43-46.

Abstract : No abstract.

Card 1/1

166



USSR/Cultivated Plants - Subtropical [illegible] pical.

Abs Jour : [illegible]

Author : [illegible]

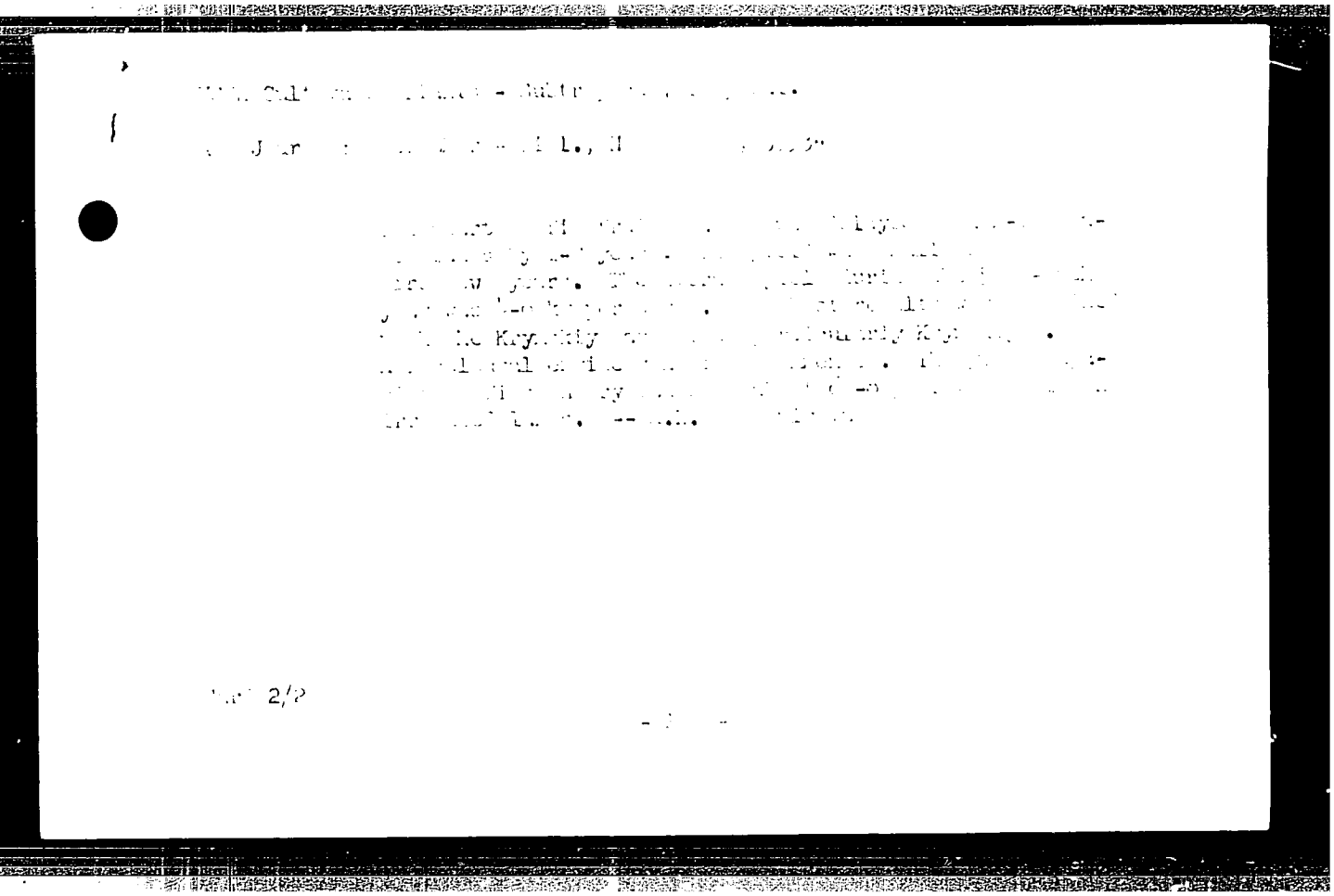
Inst : [illegible]

Title : [illegible]

Orig Pub : [illegible] kishl ki [illegible]

Abstract : [illegible] -Union [illegible] Institute [illegible] -irri [illegible] altitude [illegible] level. [illegible] precipitation [illegible] Kry [illegible]

Card 1/2



S/108/63/018/001/011/011
D201/D308

AUTHORS: Danilov, V.L. and Rodionov, V.A.

TITLE: Bridge phase-shifter with a shift up to 180°

PERIODICAL: Radiotekhnika, v. 18, no. 1, 1963, 72-77

TEXT: The authors describe a bridge phase-shifter which makes it possible to vary continuously the phase of its output voltage from 0 to 180°. The bridge consists of two fixed impedances and of two reactances shunted by a potentiometer the slider of which, connected to the junction of the two reactances, forms the hot terminal of the output, so that each reactance may be alternately reduced to zero. The design formulas and the circuit diagram of a practical phase shifter with two pentodes and one double-triode is given. With suitable components the device has a linear phase characteristic and an accuracy of about 1%. A special compensating device is introduced in order to improve the stability of the modulus of the transfer coefficient to within approx. 0.15 dB. There are 7 figures.

Card 1/2

S/108/63/018/001/011/011
D201/D308

Bridge phase-shifter ...

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstracter's note: Name of Association taken from first page of journal]

SUBMITTED: July 18, 1961

Card 2/2

DANILOV, V.L. (Moscow):

"On the solution of two-dimensional Veriginˈs problem"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

USSR/Geophysics - Oil Wells 21 Aug 53

"Exploitation of Oil Wells in Anisotropic Strata With Bottom Water," G. S. Salekhov and V. L. Danilov, Physicotech Inst, Kazan Affli Acad Sci USSR

DAN SSSR, Vol 91, No 6, pp 1297-1300

Det the output Q and time T of waterless exploitation of a well for the case of stationary filtration of incompressible fluids in an anisotropic stratum. Follows N. K. Girinskiy's derivation of eqs (Opredeleniye Koeffitsiyenta Fil'tratsii

275T62

[Determination of the Coef of Filtration], Moscow, 1950). Presented by Acad A. I. Nekrasov 21 Jun 53

DANILOV, V. L.

USSR/Geophysics - Petroleum Well Yield 1 Sep 53

"The Yield of an Oil Well When the Supply Contour is of Arbitrary Shape," V. L. Danilov, Phys-Tech Inst of Kazan Affiliate, Acad Sci USSR

DAN SSSR, Vol 92, No 1, pp 21-24

Employs in the calculation of oil well yield the math methods developed in his candidate dissertation (Kazan, 1951), "Calculation of Hydrodynamic Grids." Also cites B. I. Gekht's candidate dissertation (Kazan, 1952), "Solubility of Nonlinear Integral and Integro-Differential Eqs by the Method of Successive Approximations." Remarks that the problem of detg the yields of oil wells is of considerable interest for underground hydraulics. Presented by Acad A. I. Nekrasov 20 Jun 53.

274T58

SALEKHOV, G.S.; DANILOV, V.L.; IVANOV, N.F.; KHOVANSKIY, A.N.

Flooding of oil wells having bottom water strata. Izv. Kazan. fil. AN SSSR. Ser. fiz.-mat. i tekh. nauk no.5:16-39 '54. (MLRA 8:7)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.
(Oil field flooding)

DANILOV, V.L.

Yield of oil wells with arbitrary forms of flow contour. Izv. Kazan. fil. AN SSSR. Ser. fiz.-mat. i tekh. nauk no.5:52-69 '54. (MLRA 8:7)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.
(Petroleum engineering) (Mathematical physics)

DANILOV, V. L.

✓ 1067. Danilov, V. L., The problem of determining the pressure field in the case of the given law of contraction of a petroleum-bearing contour (in Russian), *Izv. Kazansk. fil. Akad. Nauk SSSR. Ser. Fiz. Mat. i Tekhn.* no. 6, 53–62, 1955; *Ref. Zh. Mekh.* 1956, Rev. 5310.

The problem of determining the pressure field in the petroleum region of a seam for the known law of displacement of the petroleum-bearing contour is reduced to the Newman problem. A similar problem for the water region of the seam leads to the Cauchy problem for the Laplace equation; in connection with this the error of the problem examined is noted. Under some additional conditions imposed on the contraction law it is possible to have the existence and singularity of the solution of the problem of pressure distribution in the water section.

As an example an examination is made of the problem of the displacement of the circular petroleum-bearing contour which is contracted to the center of the contour. Inside the circular petroleum-bearing region there are n fixed crevices which act with given discharges. The solution of the particular problem comes to the fact that, with a given contraction law of the contour in the water section of the seam, there should be mobile characteristics of the seam of the type of "floating crevices". From this the conclusion is drawn that the problem of controlling the displacement of the petroleum-bearing contour should be solved approximately by assuming the condition of immobility of the crevices in the water zone.

B. P. Pilatovskii, USSR

Courtesy Referativnyi Zhurnal

Translation, courtesy Ministry of Supply, England

DANILOV, V.L.

Controlling the displacement of water-oil boundary considering the difference in viscosity of water and oil. Izv.Kazan.fil.AN SSSR. Ser.fiz.mat.i tekh.nauk no.8:30-54 '55. (MLRA 10:8)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR.

(Oil field flooding)

124-58-6-6886

Translation from Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 90 (USSR)

AUTHOR Danilov, V L

TITLE On the Displacement Control of the Contours of Oil Deposits (K zadache upravleniya peremeshchen'yem kontura neftenosnosti)

PERIODICAL Izv Kazansk fil AN SSSR Ser fiz-matem i tekhn n, 1955, Nr 8, pp 55-67

ABSTRACT The problem of the displacement control of the contour of oil deposits by means of an injection shaft located in a limited, homogeneous, horizontal layer of constant thickness is studied It is assumed that the pressure at the "feeding contour" constituting the layer boundary is constant In the solution of the problem the difference between the viscosities of the petroleum and the water is taken into consideration Both liquids are considered incompressible It is assumed that seepage in either respective region takes place according to a linear law The location of the wells and their yields in the petroleum-bearing portion of the layer are given The injection shaft, which is located inside the feeding contour within the water zone, is assumed to envelop the petroleum-bearing contour The problem is to

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124-58-6-6886

On the Displacement Control of the Contours of Oil Deposits

determine the rate of water pumping per unit length of the injection well that is required to move the contour of the petroleum deposit according to the given requirements By making use of the boundary conditions existing on the boundary interface between the two liquids the author reduces the problem to the solution of Fredholm's second-rank system of bi-linear integral equations In cases where the feeding contour is absent, the problem is reduced to the solution of a single linear integral Fredholm equation of second rank A particular case of oil-bearing contour control is examined when the contour, located in a horizontal layer of unit thickness having constant permeability and porosity, is concentrically reduced in circumference The solution of the appropriate system of integral equations consisting of double series is given The uniform convergence of the series is proved The volume of water required per unit length of the injection shaft is determined

M D Rozenberg

1. Petroleum--Control systems 2. Water--Pumping

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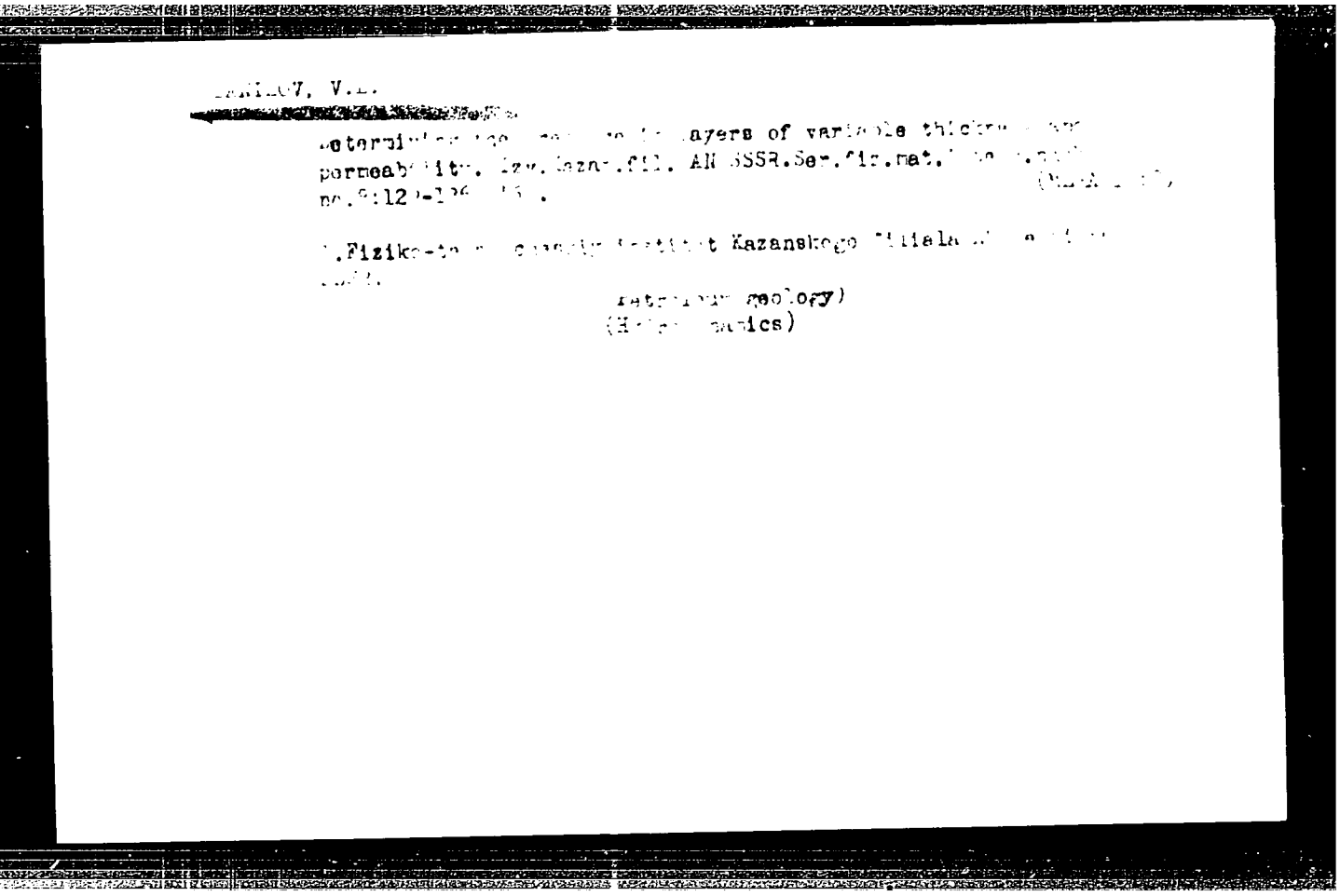

[illegible], V.[illegible]

[illegible] layers of variable thick[illegible]
permeab[illegible]. Izv. Kazan. fil. AN SSSR. Ser. fiz.-mat. [illegible]
no. 2:123-[illegible].

[illegible] Fizika-[illegible] Institut Kazanskogo [illegible]

(Petroleum geology)
(Hydrodynamics)

SOV/124-57-3-3281

Translation from: Referativnyy zhurnal Mekhanika, 1957, Nr 3, p 93 (USSR)

AUTHOR: Danilov, V L.

TITLE: Integro-differential Equation of the Motion of the Water-petroleum Contact Interface in a Porous Medium (Integro-differentsial'noye uravneniye dvizheniya vodoneftyanogo kontakta v poristoy srede)

PERIODICAL: Tr. 3-go Vses. matem s"yezda Vol 1. Moscow, AN SSSR, 1956, p 203

ABSTRACT: Bibliographic entry

Card 1/1

DANILOV V. L.

124-11-12921

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 91 (USSR)

AUTHOR: Danilov, V. L.

TITLE: On the Simultaneous Management of Several Petroliferous Contours, with Due Account of the Difference in the Viscosity of the Water and the Petroleum. (Ob odnovremennom upravlenii neskol'kimi konturami neftenosnosti s uchetom razlichiya vyazkosti vody i nefti)

PERIODICAL: Izv. Kazansk. fil. A N SSSR, ser. fiz.-matem. i tekhn. n., 1956, Nr 9, pp 13-33

ABSTRACT: A study is made of several methods for the solution of the problem of the simultaneous management of several petroliferous contours in a homogeneous horizontal layer with constant capacity. It is assumed that a certain number of finite, singly connected sectors exists in the layer, each of which is saturated with a liquid having a viscosity μ_H (petroleum), while outside of these sectors the layer is saturated with another liquid (water) having a viscosity μ_B. Under the action of a number of injection and operating wells, located on the layer according to a certain pattern, the contour of each sector is displaced. It is necessary to find the debits (withdrawal rates) of the operating wells

Card 1/2

124-11-12921

On the Simultaneous Management of Several Petroliferous Contours, with Due Account of the Difference in the Viscosity of the Water and the Petroleum (continued).

for which the displacements of the various contours will approximate the optimal mode of withdrawal. The work appears to be a generalization of the well-known investigations of G. S. Salekhov (Izv. Kazansk. fil. A N SSSR, ser. fiz. matem. i tekhn. n., 1955, Nr 8, p 129 -- Ref. Zhurnal, Mekhanika, 1957, Nr 6, 6761) and of the Author (Izv. Kazansk. fil. A N SSSR, ser. fiz. matem. i tekhn. n., 1955, Nr 8, pp 30-54). The well-known methods of logarithmic potential theory are supplied for the solution of the problem. The application of the method is illustrated by a numerical example of the management of the displacement of two circular petroliferous contours.

Bibliography: 11 references.

(V. P. Pilatovskiy)

Card 2/2

124-58-9 10134

Translation from: Referativnyy zhurnal Mekhanika, 1958, Nr 9, p 104 (USSR)

AUTHORS: Danilov, V. L., Salekhov, G. S., Tsybul'skiy G. P.

TITLE: Investigations on the Theory of Filtration of Liquids in Oil bearing Sands in the Kazan Branch of the Academy of Sciences USSR 1951-1957 (Brief Survey) [Issledovaniya po teorii fil'tratsii zhidkostey v neftyanykh plastakh v Kazanskom filiale Akademii nauk SSSR v 1951-1957 gg. (Kratkiy obzor)]

PERIODICAL: Izv. Kazansk. fil. AN SSSR Ser. fiz.-matem. i tekhn. n. 1957, Nr 11, pp 5-14

ABSTRACT: A brief survey of investigations performed by the Mathematics Section of the Institute of Engineering Physics of the Kazan Branch Academy of Sciences, USSR on the theory of filtration. During 1951-1957 the solution of the problem of controlling the displacement of oil banks was accomplished; therein special cases were analyzed, comprising the displacement by means of the yield control of the wells alone, the disposition of the wells alone and the combined yield control and location of only a specified number of wells. A number of investigations were devoted to problems of tracking the movement of an oil bank, the

Card 1/2

124 58-9-10134

Investigations on the Theory of Filtration of Liquids (cont)

exploitation of wells with bottom water and the determination of the pressure function for nonhomogeneous layers; also investigated, among others, was the optimization problem from the point of view of recovery for the exploitation of wells, the problem of the yield of a well with an arbitrary circle of influence, etc Bibliography: 55 references

V A Karpychev

1. Petroleum industry--USSR 2. Geophysics--USSR 3. Liquids--Properties 4. Sand --Properties 5. Mathematics--Applications

Card 2/ 2

DANILOV, V.L.

Discussion. Trudy VNII no.25:178 '59. (MIRA 15:4)

1. Kazanskiy filial AN SSSR.
(Oil reservoir engineering)
(Electronic calculating machines)

DANILOV, V. L. (Moscow)

"The Motion of the Interface of Viscous Fluids in a Narrow Crack and the Outline of a Model to Study the Shift of Water-Oil Contact Surface."

"The determination of the Shifts of a Water-Oil Contact Surface and of the Period of Water-Free Operation of a Well on a Digital Computer." with V. V. Skvortsov

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

TROYANOV, Andrey Konstantinovich; GOLUBEVA, K.A., inzh., retsenzent; MASLIY, K.Ya., zuborez, retsenzent; ZHUKOV, M.N., red.; DANILOV, V.L., red. vypuska; BELYAKOV, M.N., red.; ROZENBERG, I.A., kand. ekon.nauk, red.; SMIRNITSKIY, Yu.K., kand.ekon.nauk, red.; SUSTAVOV, M.L., inzh., red.; DUGINA, N.A., tekhn.red.

[Organization of the manufacture of machinery] Kak organizovano proizvodstvo mashin. Moskva, Mashgiz, 1960. 30 p. (Biblioteka rabochego mashinostroitelia. Seriia: "Osnovy konkretnoi ekonomiki," no.2) (MIRA 14:5)

(Machinery industry)

DANILOV, V.L. (Moskva); SKVORTSOV, V.V. (Kazan')

Calculating displacements of the water-oil contact and the time of water flooding of wells with an electronic digital computer. Izv. AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.4:182-184 Jl-Ag '60. (MIRA 13:8)

(Oil field flooding)

DANILOV, V.L.; IVANOVA, A.N.; ISAKOVA, Ya.K.; LYUSTERNIK, L.A.; SALEKHOV, G.S.; KHOVANSKIY, A.N.; TSLAF, L.Ya.; YANPOL'SKIY, A.R., dots.; LAPKO, A.F., red.; KRYUCHKOVA, V.N., tekhn. red.

[Mathematical analysis; functions, limits, series, continued fractions] Matematicheskii analiz; funktsii, predely, riady, tsepnye drobi. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 439 p. (MIRA 14:8)

1. Chlen-korrespondent AN SSSR (for Lyusternik).
(Mathematical analysis)

DANILOV, V. L., Dr. Phys-Math. Sci. (Thesis) "R[illegible] Tasks of Hydrodynamic Theory of Filtration and Hydrodynamics with Movable Boundaries," Kazan', 1961 15 p. (Min of Higher and Specialized Secondary Education RSFSR. Kazan State Univ. im V. I. Ul'yanov-Lenin), 100 copies (KL Supp, 10-61, 243)

DANILOV, V.L.

Movement of the separation boundary between two viscous liquids in a narrow slit. Dokl. AN SSSR 137 no.2:299-302 Mr '61. (MIRA 14:2)

1. Predstavleno akademikom P.Ya.Koc inoy.
(Fluid dynamics)

DANILOV, V.L. (Moskva)

Analytical solution of the problem of the reduction of edge water line. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr no.1:185-188 Ja-F '62. (MIRA 15:3)

(Oil reservoir engineering)

DANILOV, V.L.; TEPLOV, Yu.A.

Modeling the contraction of an oil-water boundary on a slotted tray. Izv. Kazan. fil. AN SSSR. Ser. fiz.-mat. i tekh. nauk. bo. 15:33-44 '62. (MIRA 17:7)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.

DANILOV, V.L.

Computer mathematics and techniques in petroleum production.
Neft. khoz. 43 no.5:68-70 My '65. (MIRA 18:6)

ARBUZOVA, N.I.; DANILOV, V.L.

A problem in stochastic linear programming and its stability.
Dokl. AN SSSR 162 no.1:33-35 My '65. (MIRA 18:5)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
Submitted October 23, 1964.

L 29868-66 EWT(1)/EWP(m) WW

ACC NR: AP6013214 SOURCE CODE: UR/0421/66/000/002/0137/0139

AUTHOR: Danilov, V. L. (Moscow, Kazan); Skvortsov, E. V. (Moscow, Kazan') 47 B

ORG: none

TITLE: Solution of the problem of the contraction of an almost circular drop of liquid under the action of interphase stress

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 2, 1966, 137-139

TOPIC TAGS: fluid flow, hydrodynamics

ABSTRACT: The article considers the plane flow of a system of two viscous, immiscible, and incompressible liquids in a narrow slot between parallel plates. The initially known interface of the liquids is characterized by the mean cross section parallel to the walls of the slot--the closed contour Γ_0. (See Fig. 1). The article proceeds to set up and solve the integro-differential equation for the contraction of the contour Γ under the action of interphase stress. Sample numerical calculations based on the method are given. Orig. art. has: 7 formulas and 2 figures.

Card 1/2

L 29868-66

ACC NR: AP6013214

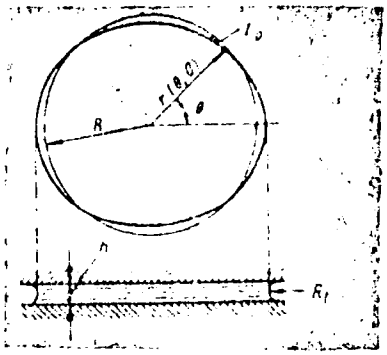

Figure 1

SUB CODE: 20/ SUBM DATE: 01Feb65/ ORIG REF: 004.

Card 2/2

L 57122-65 EWT(d)/T/EWP(1) Pg-4 IJP(c)

ACCESSION NR: AP5013436 UR/0020/65/162/001/0033/0035

26
25
B

AUTHOR: Artuzova, N. I.; Danilov, V. I.

16

TITLE: One problem of stochastic linear programming and its stability

SOURCE: AN SSSR. Doklady, v. 162, no. 1, 1965, 33-35

TOPIC TAGS: linear programming, programming

ABSTRACT: It is required to minimize this linear function $F(x)$, $x = x_1, \ldots, x_n$, with these linear constraints: $\sum_j a_{ij}x_j \leqslant b_i(\xi)$, $i = 1, \ldots, m$, where $b_i(\xi)$ are independent random quantities having a mathematical expectation b_i and dispersion σ_i^2. A stochastically modulus- ε -stable solution of the convex-programming problem is sought. The problem can be solved on a computer in an once-through manner: a solution on the average, stability analysis, isolation of A-matrix, and finding A^{-1} matrix. The practical applications of the above programming problem include: Determination of optimal production capacity on the basis of a statistical prognosis of consumption; determination of optimal mining of raw materials on the basis of a probabilistic estimate of prospective reserves, etc. Orig. art. has: 6 formulas.

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L 57122-65
ACCESSION NR: AP5013436

ASSOCIATION: Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut
(All-Union Petroleum and Gas Scientific Research Institute)

SUBMITTED: 22Oct64 ENCL: 00 SUB CODE: DP

NO REF SOV: 002 OTHER: 003

Card 2/2

14(7) PHASE I BOOK EXPLOITATION SOV/3200

Danilov, Vasiliy Matveyevich, Semen Yakovlevich Koltunov, and Georgiy Vital'yevich Likhnitskiy

Prakticheskoye rukovodstvo po vodorodnoy naplavke babbita (Manual On Hydrogen Babbitting) Moscow, Mashgiz, 1959. 94 p. 10,000 copies printed.

Reviewer: F.P. Voloshenko, Candidate of Technical Sciences, Docent; Ed.: M.S. Soroka; Chief Ed. (Southern Division, Mashgiz): V.K. Serdyuk, Engineer.

PURPOSE: This manual is intended for technical personnel of machine-building plants and repair shops.

COVERAGE: The manual discusses the lining of metal parts with babbitt and the newly developed method of utilizing a hydrogen flame for this purpose. Chemical composition of babbitt metals having a tin base or lead base is analyzed, specifications for different types of babbitt metals are given, and the operation in which each type of babbitt is employed is indicated. The method of hydrogen babbitting of bearings or other metal parts is discussed

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Manual on Hydrogen (Cont.) SOV/3200

in detail, its advantages and disadvantages pointed out, and the equipment used for this operation described. Major defects of babbitted parts, which may develop during their usage, are analyzed and the procedure of reconditioning these parts is outlined. Designs of various metal parts which can be babbitted by using the hydrogen flame method or some other methods are illustrated and possibilities of applying hydrogen babbitting in repair work or coating, to protect metal parts against corrosion and cavitation, are explored. Safety regulations enforced in Soviet plants for protection of personnel during the babbitting operation are enumerated and described. No personalities are mentioned. There are 6 Soviet references.

TABLE OF CONTENTS:

Foreword 3

Ch. I. Methods of Lining Metal Parts With Babbitt 5

Ch. II. Babbitting Bearings and Other Parts With the Aid of a Hydrogen Flame 16

Ch. III. Equipment, Tools, Apparatus and Preparation of Material for Hydrogen Babbitting 70

Card 2/4

Ch. IV. Requirements Pertinent to Planning a Babbitting Shop 83

Ch. V. Possibilities of Utilizing Hydrogen in Repair Work and in Coating Which Protects Parts Against Corrosion and Cavitation 86

Ch. VI. Protection of Workers and Safety Techniques 91

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AVAILABLE: Library of Congress

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Card 3/3

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[Methods for calculating the stability of pit sides in open-cut mining] O metodakh rascheta ustoichivosti otkosov otkrytykh gornykh vyrabotok. Moskva, TSentr.biuro tekhn.inform., 1960. 47 p. (MIRA 14:1)

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[illegible] Forestry - Central Asia

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9. Monthly List of Russian Accessions, Library of Congress, [illegible] 1953, Uncl.

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Problem of the origin of centers of recrystallization. Dop.AN URSR no.9:1236-1240 '60. (MIRA 13:10)

1. Kiyevskiy politekhnicheskiy institut. Predstavleno akademikom AN USSR V.N.Svechnikovym.
(Crystallization)

DANILOV, V.N., burovoy master

Let us be worthy pupils. Neftianik 5 no. 12:7 D '60.
(MIRA 13:12)

1. Kontora bureniya No. 4 tresta "Tuymazaburneft'".
(Tuymazy region--Oil well drilling)

DANILOV, V. N.

V.N. Danilov. Priority of D.I. Mendeleev in the invention of the sclerometric pendulum. P. 1492

So: Factory Laboratory, No. 12, 1950

DANILOV, V.N., inzh.

New canning plant. Kons. i ov.prom. 19 no.1:43 Ja '64.
(MIRA 17:2)

1. Stroitel'noye upravleniye "Otdelstroy" tresta "Astrakhanprom-zhilstroy".

DANILOV, V. [illegible].

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SO: Sum. No 480, 9 May 55

DANILOV, V. N.

Metallurgical Abst.
Vol. 21 May 1954
Properties of Metals

"Dynamic Coefficient under Concentrated Loading." V. N. Danilov. (*Doklady Akad. Nauk S.S.S.R.*, 1951, 78, (6), 1135-1136).—[In Russian]. The dynamic coeff. was found from the ratio of the energy of impact (measured with a ballistic machine) to the energy of static indentation of a ball (determined with a Schopper machine, the energy being calculated from the area under the load/depth of impression graph). The specimens were in the form of parallelepipeds measuring 70 × 24 × 12 mm., with one polished surface, and were all annealed above the recrystn. temp. The metals studied were Al, Cu, mild steel, Pb, Sn, and Pb-Sn alloys. The curve of dynamic coeff. versus m.p. is similar to that for dynamic coeff. determined by compression of cylinders, except in the case of the high-m.p. metals, where the indentation method gives greater values, probably because the stresses are more complex. The coeff. for mild steel increases gradually from ~2·1 to ~2·25 as the amount of previous cold work increases from 0 to 47%; that for Cu rises sharply from ~1·6 at 0% to ~1·95 at 50% and then more gradually to ~2·05 at 57% cold work; that for Al is almost const. at ~1·5 for 0-20% cold work, rises sharply for 20-40%, and is then const. again at ~1·85 for 40-50% reduction. The curve of dynamic coeff. versus compn. for Pb-Sn alloys shows two minima (at 10 and 90% Sn) and a max. at 50% Sn, the values of the coeff. at 0, 10, 20, 40, 60, 80, and 100% Sn being 1·81, 1·69, 1·97, 2·6, 2·55, 2·35, and 4·0, resp.—G. V. R. T.

USSR/Solid State Physics - Structure of Deformable Materials, E-8

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34814

Author: Danilov, V. N.

Institution: None

Title: On the Determination of Hardening and Recrystallization of Plastically-Deformed Metals

Original Periodical: Izv. Kievsk. politekhn. in-ta., 1955, 18, 31-41

Abstract: The temperature dependence of the thermal emf of a thermocouple consisting of a deformed and annealed specimen of the same metal was investigated. Specimens of copper, aluminum, iron, and steel, were studied. The singular points on the curve of emf vs temperature were observed. The temperature at which the maximum value of the thermal emf was observed is the crystallization temperature. The latter depends on the degree of relative deformation, and also on the value of the applied load. For copper at relative deformations of 41, 54, 60 and 80%, the recrystallization temperature is 300, 275, 265, and 200° respectively. For the same relative deformation, the external load raises the thermal emf and reduces the recrystallization temperature. The micro-hardness and the coefficient of thermal emf were studied for copper and

USSR/Solid State Physics - Structure of Deformable Materials, E-8

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34814

Author: Danilov, V. N.

Institution: None

Title: On the Determination of Hardening and Recrystallization of Plastically-Deformed Metals

Original Periodical: Izv. Kievsk. politkhn. in-ta., 1955, 18, 31-41

Abstract: iron specimens. A linear relationship was established between these quantities. Conclusions: (1) hardening of plastically-deformed metals is due to the distortion of the lattice and to the change in the energy spectrum of the collectivized electrons; (2) the coefficient of thermal emf can serve as a characteristic of the hardening; (3) the recrystallization temperature of hardened metals can be determined by measuring the thermal emf.

DANILOV V.P.

"On the Nature of Hardening and Softening of Plasticity-Deformed Metals.—I. V. N. Danilov (*Zhur. Tekhn. Fiziki*, 1955, 25, (5), 816-824). (In Russian). Experiments on Cu, Fe, Al, and steel show that if E_T is the thermo-e.m.f. at temp. T, then the thermoelect. coeff. $\alpha\left(=\frac{dE_T}{d_T}\right)$ is directly proportional to the plastic hardening. From this, D. concludes that plastic working produces changes in the energy distribution of the free-electron cloud. Moreover, the approx. linear relation between E_T and T breaks down in the neighbourhood of the recrysta. temps., which itself depends on the amount of hardening. This gives a method of predicting the recrysta. temp. from measurements of E_T.—A. F. H.

AUTHOR: Danilov, V. N., Cand. of Tech. Sc. 656

TITLE: On the softening of plastically deformed metals. (O razuprochnenii plasticheski deformirovannykh metallov).

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.6, pp. 15 - 16 (U.S.S.R.)

ABSTRACT: V. S. Ivanova (3) established by high speed filming that the plastic deformation at the flow surface develops suddenly and that thereby each deformed element of the volume has a residual deformation equalling the critical one. In an earlier paper (4) the author showed that hardening and the coefficient of thermo e.m.f. are linearly inter-related and that the softening, being the inverse process, can be determined from the change in the e.m.f. value. Experimental investigation of the softening of plastically deformed metal by measuring the thermo e.m.f. and the microhardness was effected on low carbon steel (0.03 C), pure aluminium and pure copper specimens made of annealed metallic wire. Fig.1 shows the dependence of the thermo e.m.f. coefficient on the annealing time of steel previously deformed by 68%; Fig.2 shows the respective dependence for copper annealed at 200 C in the case of reductions of 61.8 and 74.5% respectively; Fig.3 shows the respective

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On the softening of plastically deformed metals. (Cont.)

dependence for aluminium, annealed at 105 C, preliminarily reduced by 85.2 and 71.4% respectively; Fig.4 shows the dependence of the microhardness of copper on the annealing time at 200 C with a preliminary reduction of 32% without load (curve 1) and with load (curve 2). It can be seen from the last mentioned curve that the softening of previously plastically deformed copper is more intensive if tensile stresses are applied and this confirms earlier expressed views on the stimulating effect of external loads (6-9). 4 figures and 9 Slavic reference.

ASSOCIATION: Kiev Polytechnical Institute. (Kievskiy Politekhnicheskiy Institut).

AVAILABLE:

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24 (3, 6) SOV/170-59-6-[illegible]

AUTHORS: Sidyakin, V.G., Danilov, V.N.

TITLE: Effect of Ductile Deformation on the Hall Constant in Bismuth

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 6, pp 84-87 (USSR)

ABSTRACT: Ductile deformations in metals were the subject of studies by many investigators: Frenkel' [Ref 1], Vonsovskiy, Lashko [Ref 2] and Rovinskiy [Ref 3]. One of the authors, V.N. Danilov [Ref 4] arrived at a conclusion that the origination of different thermo-electromotive forces, t.e.m.f., for the same metal is due to changes in energy spectra of collectivized electrons at different degrees of ductile deformation. To check this hypothesis, the authors have experimentally investigated the effect of ductile deformation in bismuth on its Hall constant. The measurements of the Hall e.m.f. were carried out at a constant intensity of magnetic field, equal to 13,000 oersted, in Bi samples which were first deformed by one-sided pressure from 1 to 10 tons (these measurements yielded the value of Hall constant for deformed sample, R_d) and then after eliminating internal stresses by annealing in vapor of boiling water (these measurements yielded the value of Hall

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Effect of Ductile Deformation on the Hall Constant in Bismuth

constant for the annealed sample which is considered to be equal to that of an undeformed sample, R_o). The relationship of the ratio R_o/R_d on the magnitude of deformation ε is presented in Graph 1 and Table 1 from which is to be seen that this ratio has a peak value at a relative deformation of 4%. This is explained by the change in the electronic density distribution and in the energy spectrum of collectivized electrons. A further increase in this ratio leads to the break of the sample. The results arrived at can not be generalized to other metals, in view of the special position of bismuth, being a metal of low ductility.
There are: 1 graph, 1 table and 5 Soviet references.

ASSOCIATION: Politekhnicheskiy institut (Polytechnical Institute), Kiyev.

DANILOV, V.N.

Electrical method for measuring recrystallization temperatures. (MIRA 13:4)
Zav.lab. no.11:1338-1341 '59.

1.Gosudarstvennyy nauchno-issledovatel'skiy traktornyy.institut.
(Metals crystals) (Temperature-- Measurement)

S/1[illegible]/60/000/00[illegible]/0[illegible]/[illegible]

E073/E535

AUTHORS: Danilov, V. N. and S[illegible]tkovskiy, G.F

TITLE: Detection of Boundary and Screw Dislocations in Silver

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No.4, pp.122-125 + 2 plates

TEXT: Paper presented at the All Union Conference on Crystal Structure Defects, Kiyev, October, 1959.
Dislocation observations were made directly on the surface of polycrystalline silver during thermal etching in air and in vacuum. 99.9% purity silver was used in the experiments since this metal hardly oxidizes at all at elevated temperatures. After rolling, grinding and polishing, the specimens were placed into a metallographic microscope: individual machining lines could be distinguished on the mirror surface. Annealing at relatively elevated temperatures was by means of an electric current whereby the temperature was measured by a thermocouple and maintained constant for each of the specimens. During the process of annealing changes in the reflecting surface of the silver were observed. At the initial instant of heating all non-uniformities which arose during grinding and polishing disappeared and the surface became perfectly smooth.

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E073/E535

Detection of Boundary and Screw Dislocations in Silver

At the initial instant of heating its reflection is uniform. After a certain time, the grain boundaries and the defects start to be apparent, whereby the grains boundaries and defects show up in the same way which indicates that they have a similar structure Figs.1 3 (plate) show photographs of the surface of the silver with etching dislocation pittings after annealing at 800°C. On one photo the etching pittings are on the surface of one grain and are located in parallel rows. However, there are grains in which the etching pittings are ordered in the centre of the grain and chaotic at the grain boundary. On the basis of the results it is concluded that for detecting boundary and screw dislocations no special reagents are necessary. In the same way as in germanium and tellurium boundary dislocations may occur as ordered or chaotic etched pittings. Screw dislocations can be detected during thermal etching along the growth spiral as well as along the etching spiral There are 6 figures and 36 references 19 Soviet 1 German and 16 English.

ASSOCIATION Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev Lenin Order Polytechnical Institute)

SUBMITTED May 6 1959 (initially)
February 29 1960 (after revision)

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IK 7500
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S/021/60/000/009/008/009
D210/D303

AUTHOR: Danylov, V.N.

TITLE: On the problem of the appearance of recrystallization center

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 9, 1960, 1236 - 1240

TEXT: The author considers different theories about recrystallization and its centers in the light of experiments. It is not possible, for example, to explain why there is no recrystallization for high degrees of deformation (a threshold), below which even at maximum temperatures it is not possible to show any noticeable recrystallization. There is also a supposition that the non-homogeneity of deformation or difference in energies is necessary for the appearance of recrystallization. For example, using the lead samples at temperatures of 150°C in crystals consisting of extended and non-extended particles, the centers of recrystallization always appear on the border between such particles. In his experiments, the au-

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On the problem of the appearance ...

thor used samples of armco - iron (0.025 % C, 0.09 % Mn, with some traces of Si) or pure silver (99.9 %) baked after deformation in an electric stove at a temperature of 450°C for two hours. For the samples with a macro-gradient the recrystallization was intensive; for the samples with a microgradient it did not start. Only when the temperature was increased to 600°C did the recrystallization start in the microgradient samples. It is generally known that the growth of crystals is connected with screw dislocations. If the appearance of the new subblock is understood as the formation of the recrystallization center, then the screw dislocation at high temperatures may be recrystallization centers, since atomic layers grow round them. On the basis of numerous experiments the author concludes that at low temperatures the mechanism of recrystallization is dislocational and at high temperatures diffusive. Therefore, he comes to the same conclusion as Ya.Ye. Gegusin and I.I. Vishnevskiy (Ref. 32: Fizika metallov i metallovedeniye, 7, 371, 1959). There are 5 figures and 33 references: 17 Soviet-bloc and 16 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: I.M. Dawson. Proc. Roy. Soc., 214

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On the problem of the appearance ...

72, 1952; I.M. Dawson, N.G. Anderson, Proc. Roy. Soc. 218, 255, 1953; I.M. Dawson, V. Vand, Proc.Roy. Soc., 206, 555, 1951; B.B. Meckel and R.A. Swalin, J. Appl. Phys., 30, 92, 1959.

ASSOCIATION: Kyyivskyy politekhnichnyy instytut (Kyyiv Polytechnic Institute)

PRESENTED: by Academician V.M. Svyechnikov, AS UkrSSR

SUBMITTED: December 15, 1959

Card 3/3

S/181/62/004/005/045/055
B139/B102

AUTHORS: Deryugin, I. A., Danilov, V. N., and Danilov, V. V.

TITLE: Visualization of dislocations in hexagonal ferrite single crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 5, 1962, 1364-66

TEXT: The effect of impurities on ferromagnetic resonance in ferrite single crystals of garnet structure has already been investigated by J. Dillon and J. Nielson (Phys. Rev. Lett. 3, 68, 1959 and 120, 105, 1960), but fewer data are available for the effect of crystal lattice defects, as there is no suitable method of visualizing these. The present authors investigated the (0001) faces of $PbFe_{12}O_{19}$ and Fe_2O_3 single crystals, grown from an emulsification of ferrite-forming components in PbO. Specimens of about 10 mm size were washed in H_2O and then etched in 1% hydrofluoric acid for 40 hrs. An MIM-8 (MIM-8) metallographic microscope of 200-fold magnification was used for observation and photographing. The etch pits on the micrograph of the Fe_2O_3 crystal

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S/181/62/004/005/045/055
B102/B102

Visualization of dislocations ...

are of hexagonal shape and randomly distributed over the whole area of the specimen. Fig. 3, a also shows hexagonal etch pits, but often these extend along block boundaries. The hexagonal shape of the etch pits indicates that they are positioned where "pure" dislocations (without impurities) emerge at the surface. For cubic crystals (ferromagnetic spinels and yttrium garnet) no suitable corrosive to visualize dislocations has hitherto been discovered. There are 3 figures.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko
(Kiyev State University imeni T. G. Shevchenko)

SUBMITTED: January 23, 1962

Card 2/2

S/658/62/000/010/003/008
A059/A126

AUTHOR: Danilov, V.N.

TITLE: Bipolar flow in a particular magnetic field

SOURCE: Moscow. Fiziko-tekhnicheskiy institut. Trudy, no. 10, 1962. Issledovaniya po fizike i radiotekhnike. 67 - 79

TEXT: The ion flow obtained according to the flow pattern of the given task can be expressed as follows:

$$j_+ = \frac{1}{9\pi}\sqrt{\frac{2e}{m_+}}\,\frac{u_0^{3/2}}{d_0^2} = \frac{1}{9\pi}\sqrt{\frac{2e}{m_+}}\,\frac{u_0^{3/2}}{a^2}\left(\frac{a}{d_0}\right)^2,$$

where m_+ is the mass of the ion, j_+ the characteristic density of flow of ions in the case of full volume charge, u_0 is the characteristic potential difference, and a the characteristic dimension. From this relation, for the determination of the quality of a system as an accelerating gap, the relation

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