

ZAL'TSMAN, G.I.; LENSKIY, G.P.

Effect of aminazine on hyperthermia produced by sulfozin. Izv. AN
Kazakh. SSR. Ser. med. i fiziol. no.2:96-100 '61. (MIRA 15:4)
(PYROGENS) (CHLORPROMAZINE) (FEVER)

LENSKIY, G.P.

Change in arterial oscillographic indexes during active treatment of schizophrenics. Zdrav. Kazakh. 21 no.1:51-56 '61.

(MIRA 14:3)

1. Iz kafedry psikhiatrii (ispolnyayushchiy obyazannosti zaveduyushchego - kandidat meditsinskikh nauk G.I.Zal'tsman) Kazakhskogo meditsinskogo instituta i Alma-Atinskoy psikhonevrologicheskoy bol'nitsy.

(SCHIZOPHRENIA)

(CHLORPROMAZINE)

ZAL'TSMAN, G.I.; LENSKIY, G.P.

Treatment of schizophrenia cases resistant to the usual methods of active treatment. Report No; 1. Zdrav. Kazakh. 21 no.8:35-39 '61.
(MIRA 14:9)

1. Iz kafedry psikhiatrii Kazakhskogo meditsinskogo instituta i klinicheskoy psikhonevrologicheskoy bol'nitsy g. Alma-Aty.
(SCHIZOPHRENIA)

ZAL'TSMAN, G.I.; LENSKIY, G.P.; ILESHEVA, R.G.

Treatment of schizophrenia resistant to the standard methods
of therapy (second report). Zdrav. Kazakh. 22 no.1:30-34
'62. (MIRA 15:3)

1. Iz Kafedry psikhiatrii Kazakhskogo meditsinskogo instituta
i Alma-Atinskoy gorodskoy klinicheskoy psikhonevrologicheskoy
bol'nitsy.

(SCHIZOPHRENIA)

ZAL'TSMAN, G.I.; LENSKIY, G.P.

Effect of hashish on the psyche. Zdrav. Kazakh. 22 no.9:
30-35 '62. (MIRA 17:2)

1. Iz kafedry psikhologii Kazakhskogo meditsinskogo instituta
i psikhonevrologicheskoy klinicheskoy bol'nitsy Alma-Aty.

LENSKIY, I.

New equipment in the communal enterprises of Kalinin. Zhil.-kom.
khoz. 6 no.3:3-5 '56. (MLRA 9:8)

1. Zamestitel' zaveduyushchego Kalininskim oblastnym otdelom kom-
munal'nogo khozyaystva.
(Kalinin--Municipal services)

LENSKIY, I.

Our help to private builders. Zhil.-kom. khoz. 7 no.6:6-7 '57.
(MIRA 10:10)

1.Zamestitel' zaveduyushchego Kalininskim oblastnym otdelem
kommunal'nogo khozyaystva.
(Kalinin Province--Building)

LENSKIY, I. (Kalinin)

So that our cities will blossom... Sov.profsoiuzy 7 no.1:
20-22 Ja '60. (MIRA 12:12)

1. Zaveduyushchiy gorkomkhozom, chlen Kalininskogo obkoma
profsoyuza rabotnikov mestnoy promyshlennosti i kommunal'nogo
khozyaystva.

(Kalinin--City planning)

LENSKIY, I.; NOVIKOV, V.; UTROBIN, N.

Readers report, advise, suggest... Zhil.-kom.khoz. 12 no.8:15
Ag. '62. (MIRA 16:2)

1. Zamestitel' zaveduyushchego Kalininskim oblastnym otdelom
kommunal'nogo khozyaystva (for Lenskiy). 2. Predsedatel'
tovarishcheskogo suda g. Novaya Ladoga, Leningradskoy obl. (for
Novikov). 3. Instruktor Kirovskogo oblastnogo ispolnitel'nogo
komiteta (for Utrobin).
(Municipal services)

LENSKIY, I.A., kand.tekhn.nauk; SAL'TSEVICH, L.A., kand.tekhn.nauk

Comments on G.E.Kashitsin and A.V.Parshin's article "Prevent burns by electrolytes." Bezop.truda v prom. 3 no.10: 24-25 0 '59. (MIRA 13:2)

1. Makeyevskiy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti.
(Electric batteries) (Kashitsin, G.E.)
(Parshin, A.V.)

LEMSKIY, I. A.

On 20 December 1946, at the Power Engineering Institute imeni Molotov, defended his dissertation on "Illuminating the Area of Industrial Enterprises with Floodlighting". Official opponents - Doctor of Technical Sciences Professor V. V. Meshkov, and Candidate of Technical Sciences M. S. Ryabov.

So: Elektrichestvo, No 4, April 1947, pp 90-94 (U-5577, 18 February 1954)

An original method was presented for calculating illumination, by means of which it is possible indirectly to construct the isoluxes of given illumination on an illuminated surface. A method was examined for selecting the optimal angle of inclination, the height of the equipment, the type of searchlight, the method of placing searchlights, and the power of the searchlights. The results were presented of experimental investigations of searchlights in the region of a metallurgical plant. On the basis of an analysis of the results of experimental investigations recommendations were worked out for normal operating conditions of searchlights. It was determined that the service life of a searchlight does not exceed 6 months. Data were advanced for investigating the causes of aging of the reflector surfaces of searchlights, and it was determined that a cause of aging is the penetration of dust from the dirty atmosphere surrounding the factory. Some type P-3 searchlights were hermetically sealed, whereupon the operation of the incandescent bulb, the cover glass, and other elements of the searchlight were not harmed, while the service life was increase 2.5 to 3 fold.

So: IBID

LENSKIY, I.A., kand.tekhn.nauk

Characteristics of portable coal mine lights. Svetotekhnika 6
no.6:16-21 Je '60. (MIRA 13:7)

1. Makeyevskiy institut po bezopasnosti rabot v gornoy promysh-
lennosti.

(Coal mines and mining—Lighting)

LENSKIY, I.A.

Lighting standards for underground coal mines. Trudy MakNII 11.
Vop.gor.elektromekh.no.3:143-150 '60.

(MIRA 16:5)

(Mine lighting)

RACHINSKIY, V.V., prof., doktor khim. nauk; LENSKIY, L.A., aspirant

Studying the interaction between tritium labeled water and
soils. Izv. TSKHA no. 13133-144 '65 (MIRA 19:1)

1. Kafedra prikladnoy atomnoy fiziki i radiokhimii Moskovskoy
sel'skokhozyaystvennoy ordena Lenina akademii imeni Timiryazova.

L 14100-66 EWT(m)/EWP(t)/EWP(b) DIAAF/IJP(c) JD

ACC NR: AP5013759

SOURCE CODE: UR/0020/65/162/002/0380/0383

AUTHOR: Rachinskiy, V.V.; Lenskiy, L.A.

32
13

ORG: Sel'skokhozyaystvennaya akademiya im. K.A. Timiryazeva (Agricultural Academy)

TITLE: Isotope exchange sorption of tritium from aqueous solution under dynamic conditions

21

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 380-383

TOPIC TAGS: sorption tritium, tracer study, isotope, porosity, physical chemistry, soil

ABSTRACT: This study was carried out because data on the sorption dynamics of tritium in porous media is of theoretical importance for the physical chemistry of isotopes and of practical importance for radiochemistry, sorption technology, hydrogeology, and soil study with tritium as tracer. The experiments were carried out in a column with hydrogen-containing porous soils consisting of soil completely water saturated, dry soil, and soil partially water saturated and using tritium water as a tracer. The experimental results give a quite distinct picture of tritium behavior during the filtration of tritium water through the soil. The effective coefficient of tritium distribution in the soil-soil liquid system amounts in the mean to 1.20. The mean velocity of the fresh hydrogen and tritium transfer is lower than the mean

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L 14100-66

ACC NR: AP5013759

velocity of the water flow in the soil pores by about 10% as a result of the isotope exchange sorption of the hydrogen by the soil. This agrees with the results obtained by W.J. Kaufman and G.T. Orlob (Trans. Am. Geophys. Union, 37, 3, 297, 1956) by a different method. The difference between the velocity of the tritium transfer and of the fresh nontagged hydrogen is insignificant and only amounts to 1-2%. It is possible to disregard this difference and consider that for practical purposes the tritium tracer reproduces the sorption dynamics of tagged water with sufficient accuracy. Orig. art. has: 14 formulas, 2 figures, and 1 table.

SUB CODE: 07,08

SUEM DATE: 09Mar64/

ORIG REF: 003

OTH REF: 001

FW
Card 2/2

LENSKIY, M.

Mari one-year school for construction foremen. Sel'.stroj. 11
no.1:27-28 Ja '56. (MLRA 9:6)

1.Zaveduyushchiy uchebnoy chast'yu Mariyskoy odnogodichnoy shkoly
desyatnikov-stroiteley.
(Mari A.S.S.R.--Building trades--Study and teaching)

ANTONOV, B.V.; LENSKIY, M.A.

Ways to increase copper ore extraction at a lower cost price. Gcr.
zhur. no.1:11-17 Ja '55. (MIRA 8:7)
(Copper mines and mining)

LENSKIY, M.A.; BYKOVA, T.D., dotsent.

"Methods of cost analysis in the mining industry." M.IA.Savarovskii.
Reviewed by M.A.Lenskii, T.D.Bykova. Gor.zhur.no.8:61-63 Ag '56.
(MLRA 9:10)

1.Nachal'nik planovogo otdela rudoupravleniya Degtyarmed'ruda (for
Lenskiy).
(Mining engineering--Costs) (Savarovskii, M.IA.)

AGEYEV, A., LENSKIY, M. A.

Sequoia

Selection and introduction of sequoia on the Black Sea littoral of the Caucasus. Les.
khoz. 5 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August, 195~~8~~² Uncl.

LENSKIY, M. M.

Mechanical Engineering

Nomogram for computing errors in dividing the circle. Vest. mash. 32
no. 5, 1952.

Monthly List of Russian Accessions, Library of Congress,
October 1952, UNCLASSIFIED.

GORDEYEV, G.N., mayor; LENSKIY, N.G., inzhener-polkovnik, redaktor;
ALEKSANDROV, V.N., starshiy leytenant, redaktor; STREL'NIKO-
VA, M.A., tekhnicheskiy redaktor.

[Problems in aerial navigation; textbook for airmen] Vozdushnaia
radionavigatsiia v zadachakh; posobie dlia letnogo sostava. Pod
red. N.G.Lenskogo. Moskva, Voennoe izd-vo Ministerstva vooruzhennykh
sil SSSR, 1948. 139 p. [Microfilm] (MLRA 7:11)
(Navigation (Aeronautics)--Problems, exercises, etc)

LENSKIY, Petr Mikhaylovich; RY7HKOV, A.S., red.; PONOMAREVA, A.A.,
tekh. red.

[Electrification is the foundation for the building of communism] Elektrifikatsiia - sterzhen' stroitel'stva kommunizma. Moskva, Ekonomizdat, 1963. 78 p. (MIRA 16:5)
(Electrification)

LENSKIY, S. M.

"A contact heat accumulator at the textile factory," Industrial Energetics, 1951.

LENSKIY, S.M.; KUZ'MOV, P.N.; KAUFMAN, V.P., redaktor; VASILEVSKIY, Ya.B.,
tekhnikheskiy redaktor.

[Planning the construction of oil and gas wells] Planirovanie stroi-
tel'stva neftiannykh i gazovykh skvazhin. Baku, Gos. nauchno-tekhn.
izd-vo neftianoi i gorno-toplivnoi lit-ry, Azerbaidzhanskoe otdelenie,
1951. 55 p. (MIRA 8:4)
(Oil well drilling)

LENSKIY, V., kand.tekhn.nauk

Small sewer system for rural settlements. Sel'. stroi. 16
no.6: insert:5-8 Je '61. (MIRA 14:7)
(Sewerage, Rural)

PAVLOV, V. I. and LENSKIY, V. A.

Vodosnabzhenie i Kanalizatsiia (Water Supply Service), 387 p., Moscow, 1951.

BORODIN, Ivan Vasil'yevich, dotsent, kandidat tekhnicheskikh nauk; LENSKIY,
V.A., dotsent, kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA,
M.A., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy redaktor

[Plumber specialized in laying pipelines in the street] Slesar' po
ukladke naruzhnykh truboprovodov. Izd. 2-e, ispr. i dop. Moskva,
Vsesoiuznoe uchebno-pedagog. izd-vo, 1954. 277 p. (MLRA 8:5)
(Plumbing)

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S/588/62/000/005/002/004
IO11/I242

16.6000

AUTHORS: Val'denberg, Yu.S., Lenskiy, V.L.

TITLE: Some features of the application of digital techniques to the solution of statistical problems

SOURCE: Avtomaticheskoye upravleniye i vychislitel'naya tekhnika. no.5. Moscow, 1962. 203-230

TEXT: Universal digital computers cannot be used efficiently for solving statistical problems for several reasons. Many specialized analogue computing devices have been designed lately. When several statistical problems of different kinds with related algorithms are to be solved the design and construction of a digital device are worthwhile. A maximally simplified control unit and a closely connected program result in these cases and eliminate programming. Such a digital device will solve a broader range of problems more reliably with a simpler scaling and adjusting procedure than its analogue counterpart. The determination of the dynamic characteris-

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I011/I242

Some features of the application...

tics of control objects consists of the following steps: (1) recording the input and output random processes and their transformation into a form convenient for further computations; (2) computation of the input self-correlation and the input-output cross-correlation functions; (3) solution of an integral equation and determination of the transfer function of the investigated system. In step (1) the random processes are recorded on film by an ordinary loop oscillograph. The recording appears in the form of an opaque curve on the transparent film. The film is passed between a scanning beam and a photoelectric element yielding short pulses with the phase proportional to the read ordinates. Some 1.5-2 thousand ordinates, each encoded by a 4-bit word (15 quantization levels), are taken. The memory has a capacity of 3 to 4 thousand 4-bit words. Cathode-ray storage tubes are used as memory devices in the proposed design. The memory is automatically switched to the information regeneration mode and the input unit is disconnected when

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I011/I242

Some features of the application...

the feeding is finished. Errors introduced by time and level quantizations are assumed to be not correlated. The ordinate value is rounded off to the nearest quantization level. This eliminates two errors; the third is minimized by a proper centering of the process. An error of 0.3% remains. The evaluation of the time quantization error is quite cumbersome, and the common empirical value of 10 samples per period of the highest harmonic is chosen. In step (2) the following formulas are used:

$$R_x(\mu) \approx \frac{1}{N - \mu_{\max}} \sum_{v=0}^{N - \mu_{\max} - 1} X_v X_{v+\mu}; \quad 0 \leq \mu \leq \mu_{\max}, \quad (19)$$

$$R_{xy}(\mu) \approx \frac{1}{N - \mu_{\max}} \sum_{v=0}^{N - \mu_{\max} - 1} Y_v X_{v+\mu}; \quad 0 \leq \mu \leq \mu_{\max}, \quad (20)$$

where N is the number of ordinates. A block diagram of the computing device is given and its operation explained. There is one feat-

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S/588/62/000/005/002/004
I011/I242

Some features of the application...

ure of special interest in the operation of the storage tubes: the electron beam "questions" the cells one by one, regenerating the information in a cell before proceeding to the next. This makes a higher density of cells possible. Investigation of errors shows that a 4% error in a correlation function allows for a 50:1 ratio between the highest and lowest frequencies in the process. No error is introduced by the finite number of ordinates when the correlation functions are to be used in integral equations. When they are used for other purposes this error will not exceed 1%. The over-all error up to this stage is ~ 5%. Step (3) is the solution of an integral relation of the form

$$\int_0^{\infty} R_{xx}(\tau-\lambda) k(\lambda) d\lambda = R_{yx}(\tau), \quad (31)$$

where $R_{xx}(\tau-\lambda)$ is the input correlation function, $R_{yx}(\tau)$ is the input-output cross-correlation function and $k(t)$ is the unknown pulse response of the investigated system. This equation is solved by Valdenberg's method (Ref.7: *Automatika i telemekhanika*, 1958,

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ЛЕНСКИЙ, В.И.
ЛЕНСКИЙ, Vasilii Alekseyovich, dots. kand.tekhn.nauk; PAVLOV, Vasilii Ivanovich, dots.kand.tekhn.nauk [deceased]; PISKUNOV, P.I., prof. doktor tekhn.nauk, retsenzent; ZANEVSKIY, M.S., dots.kand.tekhn.nauk, nauchnyy red.; POPKOVICH, G.S., kand.tekhn.nauk, dots., sauchnyy red. BORSHCHEVSKAYA, N.M., red.izd-va; SMIRNOVA, A.P., red.izd-va; GUSEVA, S.S., tekhn.red.

[Water supply and sewerage] Vodosnabzhenie i kanalizatsia. Izd. 2-oe, perer. Moskva, Gos. izd-vo lit-ry po stroit. i arkh., 1957. 379 p. (MIRA 11:2)

(Sewerage) (Water supply engineering)

LENSKIY, Vasilii Alekseyevich; PAVLOV, Vasilii Ivanovich [deceased];
ABRAMOV, N.N., retsenzent; ZHUKOV, A.I., retsenzent;
YAKOVLEV, S.V., retsenzent; LOBACHEV, P.V., retsenzent;
REZVIN, Ye.Ye., retsenzent; TIKUNOV, B.S., kand. tekhn. nauk,
red.; MARTYNOV, A.P., red.

[Water supply and sewerage] Vodosnabzhenie i kanalizatsia.
Izd.3., perer. i dop. Moskva, Vysshaia shkola, 1964. 386 p.
(MIRA 17:10)

VAL'DENBERG, Yu.S.; LENSKIY, V.L.

Some special features of using digital computing techniques in
the solution of statistical problems. Avtom. upr. i vych. tekhn.
no.5:203-230 '62. (MIRA 15:9)
(Automatic control) (Electronic calculating machines)

L 42011-65 EWT(d)/EPF(n)-2/EWP(1) Po-1/Pq-1/Pg-1/Pae-2/Pu-1/Pk-1/PL-1 IJP(c)
WM/GS/BC

ACCESSION NR: AT5009732

UR/0000/65/000/000/0113/0126

40
B+

AUTHOR: Kolotov, Yu. N.; Lenskiy, V. L.

TITLE: Principles for the design of specialized digital computers for analytical adaptive systems

SOURCE: Analiticheskiye samonastravayushchiyesya sistemy avtomaticheskogo upravleniya (Analytical adaptive control systems). Moscow, Izd-vo Mashinostroyeniye, 1965, 113-126

TOPIC TAGS: specialized digital computer, adaptive control design, correlation function calculation, pulsed transfer function, digital computer design

ABSTRACT: V. V. Solodovnikov previously presented (Analiticheskiye samonastravayushchiyesya sistemy avtomaticheskogo upravleniya, Moscow, Izd-vo Mashinostroyeniye, First article) a principle for the establishment of analytical adaptive systems which is based on the direct solution of the integral equations

$$\omega(t) = \int_0^t \omega_e(t-\tau) \omega_o(\tau) d\tau \quad (1)$$

and

$$R_{rr}(t) = \int_0^t R_{rr}(t-\tau) \omega_o(\tau) d\tau, \quad (2)$$

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ACCESSION NR: AT5009732

where $w(t)$ is the optimum pulsed transfer function of an open system which is assumed known, $w_o(t)$ is the pulsed transfer function of the object under control, and $w_d(t)$ is the sought for pulsed transfer function of the correcting device. The present work describes in more detail the actual realization of such a principle using specialized digital computers. It concentrates on quantitative checks of the quasi-stationary conditions and estimates of the time needed for the solution of the above-mentioned integral equations using the iteration approach. The presentation of the calculational algorithm for the analytical adaptation problem is followed by a diagram describing the correlation function calculation, the block-diagram of the unit for the determination of pulsed transfer function, and the block diagram of the correcting section and the entire control device. The computing operation on demand (making possible simultaneous servicing of several analogous control systems) is briefly discussed. Orig. art. has: 32 formulas and 6 figures.

ASSOCIATION: none

SUBMITTED: 15Dec64

ENCL: 00

SUB CODE: DP

NO REF SOV: 006

OTHER: 002

Card 2/2 (m)

L 41421-65 EWP(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4 GS
ACCESSION NR: AT5009736 UR/0000/65/000/000/0183/0220

33
32
B+1

AUTHOR: Baburin, V. M.; Lenskiy, V. I.; Matveyev, P. S.; Rozhdestvenskiy, Yu. B.

TITLE: Errors during the use of the statistical method for the study of control objects

SOURCE: Analiticheskiye samonastroyayushchiyesya sistemy avtomaticheskogo upravleniya (Analytical adaptive control systems). Moscow, Izd-vo Mashinostroyeniye, 1965, 183-220

TOPIC TAGS: statistical method accuracy, random process, correlation characteristic, spectral density, integral equation solution accuracy, automatic control system

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ABSTRACT: V. V. Solodovnikov based the design of analytic adaptive systems and the statistical determination of the dynamic characteristics of controlled objects under normal operating conditions on an extensive use of computers (Statisticheskaya dinamika lineynykh sistem avtomaticheskogo upravleniya, Fizmatgiz, 1960). These machines evaluate the correlation characteristics and spectral densities of random processes and generate solutions of equations of the

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type

$$R_{xy}(\tau) = \int_0^{\infty} R_x(\tau - \lambda) k(\lambda) d\lambda$$

(0.1)

from given experimental data. The present article: 1) analyzes in detail the errors in the determination of the statistical characteristics of random processes computed from experimental data; and 2) analyzes the accuracy and authenticity of the solutions of the above integral equation obtained by substituting it by a system of linear algebraic equations. "The calculations were carried out by N. F. Chernysheva." Orig. art. has: 184 formulas, 17 figures, and 1 table.

ASSOCIATION: None

SUBMITTED: 15Dec64

ENCL: 00

SUB CODE: IE, MA

NO REF SOV: 011

OTHER: 005

Card

ML
2/2

ACC NR: AP6024359

SOURCE CODE: UR/0280/66/000/002/0011/0018

AUTHOR: Solodovnikov, V. V. ^(Moscow); Lenskiy, V. L. ^(Moscow)

ORG: none

TITLE: Synthesis of minimum-complexity control systems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1966, 11-18

TOPIC TAGS: minimization, control theory, computer design, variational problem

ABSTRACT: Normally the analytic synthesis of an optimal control system reduces to the variational problem of finding a control-system operator x assuring the extremum of a functional $I(x)$. Such an operator must belong in the narrowest class of a family of classes. This, however, leads to a deterioration in the quality criterion. In this connection, it is shown that the ensuing contradiction can be resolved by redefining the problem of the analytic synthesis of control systems. The minimum-complexity principle is defined: of all the operators with a given quality level, select the operator of minimum complexity with respect to a given scale of complexity. Use of the minimum-complexity principle leads to the conditional extremum problem: find the minimum of a continuous functional $G(x)$ on condition that the functional $I(x)$,

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ACC NR: AP6024359

representing a quality criterion of the control systems, equals the permissible quality level q of the system, i.e. $I(x) = q$. The solution of this problem reduces to the minimization of the functional $\mu G(x) + I(x)$, where μ is the Lagrange multiplier. The minimum complexity principle may be effectively utilized to synthesize control systems with improved technological and operational qualities, as exemplified by its applicability to a problem of the statistical dynamics of control systems: the filtration of transient signals, since the minimization of complexity, and hence also increase in μ , leads to a decrease in the volume of binary memory and simplification of the structure of the arithmetic device and control device. Orig. art. has: 28 formulas.

SUB CODE: 12, 09 ~~24~~ / SUBM DATE: 17Mar65 / ORIG REF: 007 / OTH REF: 001

Card 2/2

LENSKIY, V.M. (Sverdlovsk)

Solving certain chemical problems. Khim. v shkole 10 no.1:65-67 no.1:
65-67 Ja-F '55. (MIRA 8:4)
(Chemistry, Analytical)

LENSKIY, V. M.

Treatment of congenital talipomanus. Ortop., travm. i protez. 22
no.8:80 Ag '61. (MIRA 14:12)

(HAND ABNORMALITIES AND DEFORMITIES)

LENSKIY, V.M.; SHTEYN, V.P.

Reconstruction of bone transplants following arthroereisis
surgery in the talocrural joint. Ortop., travm. i protez.
26 no. 10:49-54 O '65. (MIRA 18:12)

1. Iz Sverdlovskogo instituta travmatologii i ortopedii (dir. -
kand. med. nauk Z.P. Iubegina). Adres avtorov: Sverdlovsk 14,
Bankovskiy pereulok, dom 7, Institut travmatologii i ortopedii.
Submitted Sept. 15, 1964.

LENSKIY, V.M. (Sverdlovsk 14, ul. Sheynkmana, d. 32, kv. 89); MYAKOTINA, L.I.

Some biochemical indices of the effectiveness of the posterior
arthroereisis operation of the talocrural joint. Ortop., travm.
i protez. 27 no. 1:41-44 Ja '66 (MIRA 19:1)

1. Iz Sverdlovskogo instituta travmatologii i ortopedii (direktor -
kand. med. nauk Z.P. Lubgina). Submitted April 19, 1965.

LENSKIY, V. S. Cand. Physicomath. Sci.

Dissertation: "The One-dimensional Longitudinal Elastica-Plastic Vibrations of a Bar." Moscow Order of Lenin State U. imeni M. V. Lomonosov, 26 Jun. 1947

SO: Vechernyaya Moskva, Jun. 1947 (Project #17836)

Applied Mechanics
Review

Rheology (Plastic, Viscoplastic)

472. V. S. Lensky, On the elastoplastic impact of a rod against a rigid obstacle (in Russian), *Fizik. Mat. Mekh.* 13, 165-170 (Mar-Apr. 1949).

A cylindrical rod of elastoplastic material with a linear work-hardening law is considered to strike a rigid target normally. The resulting system of elastic and plastic longitudinal waves of plane stress is analyzed.

For sufficiently high velocities an elastic wave front followed by a plastic wave front emanates from the point of impact. The reflection of the elastic wave at the free end interacts with the initial plastic wave front, causing unloading. Repeated application of the momentum change conditions across wave fronts caused by repeated reflection permits complete analysis of the motion. The rod finally rebounds in elastic vibration having been subjected to plastic strain in a series of bands of constant strain magnitude adjacent to the impact end. The strain distribution and time of impact are obtained as a function of the impact velocity.

The author states that the analysis is valid only if the particle velocity can be neglected in comparison with the wave velocity. This restriction, however, is unnecessary if nominal stress and nominal strain are used in conjunction with Lagrange coordinates based on the unstrained bar. The bookkeeping of the wave interactions would be simplified by use of wave trajectories in the $x-t$ plane, as carried out by Lee and Tupper in treating the same problem with a more complex stress-strain relation (British Official Report, Armament Research Report, Theoretical Research Report 4/44, 1944) and by White for a similar problem (*J. appl. Mech.* 16, p. 39 (1949); see Rev. 2, 839).

E. H. Lee, USA

1950

LENSKIY, V. S.

Uprugost' i plastichnost'; o trudakh A. A. Il'iushina. Moskva, Gostekhizdat, 1950. 102 p. illus., port. (Uspekhi sovetskoi nauki)

Elasticity and plasticity; A. A. Il'iushin's work.

ELC: QCL91.L5⁴

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

LENSKIY, V. S.

Deformations (Mechanics)

"Against vulgarization in scientific criticism." Vest. Mosk. un. 5 No. 9, 1950.

LENSKII, V. S.

Lenskii, V. S. (Mechanics) Method of construction of dynamic dependence between tensions and deformations in the distribution of residual deformation. P. 13

Chair of Theory of Elasticity
Dec. 29, 1950

SO: Herald of the Moscow University, Series on Physics-Mathematics and Natural Sciences, No. 3, No. 5, 1951

LENSKIY, V.S.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/2 PG - 121
 AUTHOR LENSKIY V.S.
 TITLE On Ostrogradskij's method for the integration of dynamic equations of elasticity theory.
 PERIODICAL Priklad. Mat. Mech. 19, 617-620 (1955)
 reviewed 7/1956

Treating the problem on the free oscillations of an elastic space, Ostrogradskij started from the equations of elasticity. The author applies Ostrogradskij's method to the dynamic equations of the theory of elasticity with two elastic constants. He considers the equations of the type

$$(1) \frac{\partial^2 u_1}{\partial t^2} - \left[a^2 \frac{\partial^2 u_1}{\partial x_1^2} + b^2 \frac{\partial^2 u_1}{\partial x_2^2} + b^2 \frac{\partial^2 u_1}{\partial x_3^2} + (a^2 - b^2) \left(\frac{\partial^2 u_2}{\partial x_1 \partial x_2} + \frac{\partial^2 u_3}{\partial x_1 \partial x_3} \right) \right] = \chi_1(M, t)$$

with the initial conditions

$$(2) \quad u_i(M, 0) = f_i(M) \quad \left. \frac{\partial u_i}{\partial t} \right|_{t=0} = \varphi_i(M),$$

where $a^2 = \frac{\lambda + 2\mu}{\rho}$, $b^2 = \frac{\mu}{\rho}$ (λ, μ - constants of elasticity, $\rho = \text{const}$ - density, M - point with coordinates x_1, x_2, x_3). The solution is set up as a Fourier integral:

Priklad.Mat.Mech. 19, 617-620 (1955)

CARD 2/2

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$$u_i(M, t) = \left(\frac{1}{2\pi}\right)^3 \int_{-\infty}^{+\infty} T_i(A, N, t) \psi d\tau \quad \psi = e^{i\alpha(r-\nu)},$$

where α, r, ν are local vectors of the points $A(\alpha_1, \alpha_2, \alpha_3)$, $M(x_1, x_2, x_3)$
 $N(\nu_1, \nu_2, \nu_3)$ and $d\tau = d\alpha_1 d\alpha_2 d\alpha_3 d\nu_1 d\nu_2 d\nu_3$. Furthermore it is set up

$$\chi_i(M, t) = \left(\frac{1}{2\pi}\right)^3 \int_{-\infty}^{+\infty} \chi_i(N, t) \psi d\tau.$$

Then a transformation is carried out which essentially corresponds to Stokes' decomposition of a vector into a vortex component and into one component which is free of vortices. The integration of the sixfold integrals is reduced, according to Ostrogradskij, to the integration of double and threefold integrals and to operations of repeated integration. Finally the author obtains an explicit solution of Cauchy's problem for the equation (1) with the initial conditions (2). For $a = b$ this solution passes over into the Kirchhoff formula for the wave equation.

INSTITUTION: Moscow.

LENSKIY, V.S. (Moskva).

Acoustic variant of the theory of spalling. Prikl.mat.mekh.20
no.4:552-554 J1-Ag '56. (MLRA 10:2)
(Metals--Testing) (Elastic waves)

LENSKIY, V. S.

CONFERENCE ON THE PROPERTIES OF MATERIALS AT HIGH RATES OF STRAIN, Sponsored by the
Institution of Mechanical Engineers, London, England 30 Apr-2 May 57

"The Construction of a Dynamical Tension Compression Diagram Based on the Wave Propagation
Theory", by V. S. Lensky, Mechanical Institute USSR Academy of Sciences.

SO: Title page and bibliography of papers presented by USSR delegates at subject conference,
Uncl. fd

V. S. LENSKIY

16(1)

AUTHORS:

Skorzy, I.A., University Lecturer, and 507/55-58-2-35/55
Kopylov, V.D., Scientific Assistant

TITLE:

Lomonosov - Lectures 1957 at the Mechanical-Mathematical
Faculty of Moscow State University (Lomonoovskiye
obshchiny 1957 goda na mekhaniko-matematicheskoy fakul'tete
MSU)

PERIODICAL:

Vestnik Leningradskogo Universiteta. Seriya matematiki, mekhaniki,
astronomiya, fiziki, khimiya, 1959, No. 2, pp. 241-246 (USSR)

ABSTRACT:

The Lomonosov lectures 1957 took place from October 17 -
October 31, 1957 and were dedicated to the 40-th anniversary
of the October revolution. In the general meeting A.N. Kolmogorov, Academician spoke
"On Approximative Representation of Functions with Several
Variables by Superposition of Functions with One Variable and
and C-Entropy of Classes of Functions". The lecture materials
the results of Kolmogorov, A.G. Vitushkin, V.I. Arnold, and
M.K. Tikhonov. The contents has been already published
(Itskiy, Akademi nauk SSSR, 1945). Professor Kh.A. Babitskiy,
Member of the Academy of Sciences of the Uz.SSR, spoke on
"Investigation of the Boundary Layer of the Motion of a two-
component liquid".

- 7. The above lectures were given separately in the following
mechanics and mathematics. The following lectures were given:
8. A.I. Pavlenko, Lecturer: Generalization of the Theory
of the Transverse Shock Against a Flexible Thread.
- 9. A.G. Kulkovskiy, Aspirant: Flow Around Magnetized Rods
by Conducting Liquid.
- 10. M.V. Iremeyev, Lecturer: Instruments for the Analysis
and Synthesis of Mechanisms.
- 11. V.S. Lenskiy, Lecturer: Some General Laws in the Be-
havior of Multiply Loaded Metals.
- 12. V.D. Klyushnikov, Aspirant: A Variant of the Theory of
the Increase of Deformation and Electro-Plastic Stability.
- 13. Professor M.I. Lisitskiy and Professor I.A. Lyuzernik
with Sotik Behavior of the Solutions of Linear Equations
with Small Parameter in the Derivatives.
- 14. Professor G. Gleyznik: Some Non-Linear Partial
Differential Equations (Survey of the Results of T.D.
Ventsel', Chabukyan, I.M. Kalashnikov, A.S. Kalash-
nikov, Ie.S. Shtirnyagin, B.D. Tvedenakaya, A.S. Kalash-
nikov, Professor M.R. Shukhbatov and P.N. Zhukov, Senior
Scientific Assistant: Automation and Programming.

Card 3/5

AUTHORS: Il'yushin, A. A., Corresponding Member, Academy of Sciences,
USSR, Lenskiy, V. S., Candidate of Physical and Mathematical
Sciences SOV/30-58-6-6/45

TITLE: Scientific Foundation of Durability and Plasticity of Solids
(Nauchnyye osnovy prochnosti i plastichnosti tverdykh tel)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 6, pp. 49 - 55 (USSR)

ABSTRACT: Mechanics is to be considered as one of the most important
developmental foundations of engineering. Many recent achieve-
ments in the field of physics were rendered possible only
due to mechanics. Many academic and scientific branch institutes
of investigation, as well as universities work on the solution
of the problem of solidity and plasticity. Soviet Science
achieved important successes in this field. In spite of this
fact science is not able in its present state to give a
satisfactory answer to a series of important problems of
engineering, industry and natural science. The insufficient
working out of the theoretical problems of metalworking by
means of pressure, as well as of the mechanism of metal de-

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80730-58-6-6/45

Scientific Foundation of Durability and Plasticity of Solids

formation from the semiproduct to the finished product under various thermo-mechanical conditions may be given as example. The backwardness in this field makes the process of the production of metals and alloys with required thermo-mechanical characteristics difficult. 3 main trends may be outlined with respect to the working out of the solidity- and plasticity problems. The working out of formulae dealing with the connection between stresses, deformations, time and temperature, as well as the determination of the conditions of destruction of solids, both under singular and repeated stresses are the first and most important line to be determined. The second working cycle deals with the general methods of solving the mechanical problems of a deforming solid, the working out of the theoretical foundations for the engineering calculation methods for solidity and stability and deformability, as well as the experimental methods of the investigation of the solidity of structures, machines and plants. The calculation of the stresses occurring during welding may be designated as concrete technical task. The third cycle of investigation deals with the physical mechanisms of the deformation of solids. The theoretical and experimental in-

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Scientific Foundation of Durability and Plasticity of Solids

Investigation of atomic-molecular mechanisms of the plastic processes in the deformation of material of solids under different physical and physical and chemical conditions is required here. A physical explanation of the behavior of the material up to its destruction with rapidly changing stresses as impact, or explosion respectively, as well as at different temperature conditions ought to be obtained as results of these investigations. The training of specialist cadres in the field of solidity and plasticity ought to be intensified. The already existing laboratories must be extended and new ones must be built. New constructions and test machines, plants, test stands and measuring apparatus must also be built. The extension of the international scientific contacts, especially on the problems of experimental techniques, is also required.

1. Solids--Deformation
2. Plasticity--Theory

Card 3/3

AUTHOR: Lenskiy, V. S. (Moscow) SOV/24-58-11-8/42

TITLE: Experimental Verification of the Laws of Isotropy and of the Delay Effect in the case of Complex Loading (Eksperimental'naya proverka zakonov izotropii i zapazdyvaniya pri slozhnom nagruzhenii)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 11, pp 15-24 (USSR)

ABSTRACT: Investigation of the laws of plasticity in the case of complex loading is a problem which is acute and one of the most difficult of mechanics of continuous media. The aim of the work described in this paper was to verify experimentally the two general laws postulated by A. A. Ilyushin (Ref 14) on the behaviour of materials in the case of complex loading which determine the vector properties of the materials: the law of isotropy and the law of delay. These laws are of consequence also from the point of view of the theory of plasticity in the case of complex loading (Ref 14). If the isotropy law is applicable, the relation between the vector of the stress σ and the strain can be represented by means of a five-term formula, for instance:

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$$\sigma = Ae + Be + |Ce'' + |D e'' + |E e''''$$

where A, B, C, D, E are some functionals of the curvatures of the trajectory of deformation along an arc, the structure of which is determined by the scalar properties of the given material. Due to the law of delay, the dependence between σ and e in the case of deformation trajectories of small curvatures is reduced to the laws of the simpler flow theory. The here described experimental investigation was carried out in the Dynamic Test Laboratory of the Chair of the Theory of Elasticity, Moscow University in accordance with the joint plan of this Chair and the Institute of Mechanics, Ac.Sc., USSR. The experiments were carried out on a kinematic type O4-1 test machine developed jointly by the Institute of Structural Mechanics, Ac.Sc. Ukraine and the Theory of Elasticity Chair of Moscow University; a photo of it is shown in Fig.1. The machine was used for applying separately and independently tension and torsion on a tubular specimen at regulated speeds; it

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Experimental Verification of the Laws of Isotropy and of the Delay Effect in the Case of Complex Loading

was also possible to produce internal pressures up to 800 kg/cm². The control and the recording system of this machine are such that it was possible to carry out on it experiments of the kinematic and the force variants and also of the mixed and the purely force variants, i.e. to investigate a multitude of cases of the plane stress state. For measuring the forces and deformations, the method of pneumatic contact was applied. The results of the experiments, aimed at verifying the law of isotropy, are graphed in Figs. 3-6 and entered in Tables 1 and 2. The results obtained on annealed copper subjected to complex loading lead to the conclusion that certain properties of copper under such loading are determined by the law of isotropy and the delay law, i.e. to the following conclusions:

1. The law of isotropy is valid in the case of complex loading and the experimentally determined deviations from that law are within the limits of the accuracy of the experiments;

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2. the delay law is valid, the length of the delay slip

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Experimental Verification of the Laws of Isotropy and of the Delay Effect in the Case of Complex Loading

is about 0.00316 for annealed copper;
3. up to a deformation intensity of the order of 4.5%
the curvature radius is at no point smaller than
 $3h \approx 0.01$ and the flow theory of the type of the
St. Venant theory is applicable for the dependence
between the stresses and the deformation.
There are 6 figures, 2 tables and 20 references,
9 of which are Soviet, 11 English.

ASSOCIATION: MGU Kafedra teorii uprugosti (Moscow State
University, Theory of Elasticity Chair)

SUBMITTED: May 12, 1958
Card 4/4

LENSKIY, V.S.

24(6)

PHASE I BOOK EXPLOITATION

SOV/3041

Il'yushin, Aleksey Antonovich, and Viktor Stepanovich Lenskiy

Soprotivleniye materialov (Strength of Materials) Moscow, Fizmatgiz,
1959, 371 p. Errata slip inserted. 15,000 copies printed.

Ed.: I. K. Snitko; Tech. Ed.: S. N. Akhlamov.

PURPOSE: This textbook is intended for students in advanced courses on the strength of materials.

COVERAGE: This book deals with the following topics: 1) fundamental concepts of deflections, internal stresses, deformations, actions of internal forces, and the process of loading a small element of a solid body; 2) the basic mechanical properties of solid bodies, such as elasticity and ideal plasticity, flow, creep and relaxation, viscosity and dynamic strength, and fatigue and failure; 3) basic kinematic and geometric hypotheses intended to simplify the mathematical statement of problems dealing with stresses, deformations, displacements, and failures of

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Strength of Materials

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solid bodies subjected to external effects, as well as the basic equations and methods for solving problems of deformation and strength of bodies. According to the author, the methods for calculating strength of materials presented in the book differ from the stricter methods based on the theory of elasticity and plasticity. A number of simplifying assumptions of a kinematic and geometric character have been introduced. No personalities are mentioned. There are no references.

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SOV/179-59-3-19/45

AUTHORS: Lenskiy, V. S. and Fomina, L. N. (Moscow)

TITLE: Propagation of Uniform Waves in the Materials of Delayed-yield (Rasprostraneniye odnomernykh voln v materialakh s zapazdyvayushchey tekuchest'yu)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 3, pp 133-136 (USSR)

ABSTRACT: The authors describe a theory of propagation of longitudinal, elasto-plastic waves in shafts with delay in yielding. It is assumed that the relationship between the stress, deformation and time is expressed as:

$$\sigma = \sigma(\epsilon, t) \quad (1)$$

It was found from experiments that $E \geq \partial \sigma / \partial \epsilon > 0$, $\partial \sigma / \partial t \leq 0$ for $\sigma > 0$. The relation (1) for the plastic deformation of materials, where elastic waves propagate with the velocity $a_0 = \sqrt{E/\rho}$, can be written as Eq (2). The equation of the longitudinal motion in this case will have the form of Eq (3). Thus, it is possible to plot a

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Propagation of Uniform Waves in the Materials of Delayed-yield

diagram of the distribution of disturbances using the characteristics only. These can be determined as follows. If a curved part of the surface, Eq (1), crosses the curves S parallel to the plane ($\sigma\epsilon$) and is inclined to the ^{plane} (ϵt) by an angle, the tangent of which is E_1 , then Eq (2) can be written as Eq (4). The formula (3) for the elastic deformations will take the form, Eqs (5) and (6), where τ - moment of plastic deformations at the cross-section $x = 0$. The solution of Eq (5) for the conditions (7) and (8) can be defined as Eq (9) for the space I (Fig 1), and as Eq (10) for the space II, or as Eq (11) for the space III. In particular, when such an impact is applied that the end of the shaft becomes subjected to the stress σ_0 , Eq (12) will be applicable to the space I, Eq (13) - II, Eq (14) - III. Fig 2 illustrates the results obtained experimentally: a - an instantaneous deformation was delayed for $\tau \approx 500 \mu\text{sec}$, then increased rapidly - this corresponds to the spaces I and III, (Eq 14); b - the deformation is steady during the same period of time then is gradually decreased, which corresponds to

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the process of relaxation, i.e. the space I becomes II, Eq (13). In order to improve the analysis made by Johnson and others (Ref 5), the case is considered when an elastic shaft of the length l was subjected to an impact directed along its axis Ox with a velocity V_0 . Another shaft, made of delayed-yield material corresponding to Eq (4), was placed coaxially to the first one. The modulus of longitudinal elasticity of both shafts was the same. The origin of coordinates was placed at the contact point of the shafts. A diagram illustrating this case is shown in Fig 3. Since the end $x = -l$ is free, the line AB represents the impact wave of loading. Then, the parameters of motion above that line (spaces VI to VIII) are found after those belonging to spaces I to V (formulae top p 136). The stress on the surface of contact of both shafts, equal to $-EV_0/2a_0$ for $t < \tau$, becomes

$$E \frac{\partial u}{\partial x} \Big|_{x=0} = 0$$

Card 3/4 for $t = \tau$, i.e. it gradually decreases.

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Propagation of Uniform Waves in the Materials of Delayed-Yield

There are 3 figures and 11 references, all of which are English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: January 27, 1959

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SOV/32-25-1-42/51

7 14

AUTHOR: Lenskiy, V. S.

TITLE: Two-Component Feeler for Deformation With a Pneumatic Contact
(Dvukhkomponentnyy datchik deformatsii s pnevmaticheskim kontaktom)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 1, pp 116-117 (USSR)

ABSTRACT: A simultaneous independent measurement of two deformation components (e.g. expansion and torsional angle) is rather difficult in the investigations of complex states of stress. The feeler which is fixed to the sample and which is to determine only one type of deformation supplies wrong data for the deformation of another component. A feeler called "Mekhanicheskiy luch" ("mechanical feeler") was constructed which avoids the above-mentioned difficulties by using microscopic observation. A. F. Kalinin, head of the laboratory, and Yu. G. Burtsev, mechanic, took part in the construction of this instrument. This instrument is provided for deformation measurements in static investigations of tubular samples on expansion and torsion, under conditions of a complex stress with continuous recording of the data. The principle of pneumatic con-

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Two-Component Feeler for Deformation With a Pneumatic Contact

tact is employed for the latter. The base plate of the instrument (Fig) is 300x150x12 mm, the height of the instrument is 265 mm, its length with fully stretched "feeler" is 450 mm, the length of the "feeler" is 200 mm, the basis of the measurement is 19 and 14.5 mm. A description of the apparatus as well as of the operation technique are given. There is 1 figure.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

Card 2/2

L. E. N. S. K. V. S.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

- 168. A. D. Solov'ev (Moscow): On space buckling of columns in the elastoplastic range.
- 169. V. A. Lomakin (Moscow): Vibration of shells under combined loading.
- 170. A. I. Lomakin (Moscow): Plasticity of metals under combined loading.
- 171. A. I. Lomakin (Moscow): Some problems of non-stationary flow in an incompressible viscoelastic (Maxwellian) liquid.
- 172. A. I. Lomakin, N. D. Rudakov (Moscow): Some problems of quasi-steady flow in an incompressible viscoelastic (Maxwellian) liquid.
- 173. V. A. Lomakin (Moscow): The generalization of the torsion theory of thin-walled bars.
- 174. A. I. Lomakin, V. V. Puzanov (Izhevsk): The development of microcracks.
- 175. V. A. Lomakin (Moscow): Plastic flow of circular plates under loading and bending of compression and bending.
- 176. A. O. Kabanov (Leningrad): Tension of an anisotropic cylindrical bar.
- 177. A. D. Litvinov (Moscow): Free vibrations and stability of cylindrical and prestressed elastic restrained beams.
- 178. A. I. Lomakin (Izhevsk): Displacement of rocks due to excavation of elastic theory.
- 179. A. V. Litvinov (Moscow): On the application of matrix transformations to the solution of life sets of linear equations of elasticity theory.
- 180. G. I. Levin (Moscow): The selection of optimal parameters for structures of equal stability consisting of plates and shells.
- 181. A. I. Lomakin (Moscow): Long deformations of shallow shells.
- 182. A. I. Lomakin (Moscow): Method for the solution of the problems of anisotropic states of stress in shells of revolvable type.
- 183. A. A. Malakhovskiy (Moscow): Analysis of an anisotropic circular elastic shell under an arbitrary load applied to a ring.
- 184. A. V. Litvinov (Moscow): On the experimental study of strains in plates and shells.
- 185. A. I. Lomakin (Moscow): Creep strains and ruptures of cylindrical shells.
- 186. A. I. Lomakin (Moscow): Vibrations of non-circular cylindrical shells.
- 187. A. I. Lomakin (Moscow): Some problems of combined loading of quasi-anisotropic bodies.
- 188. A. I. Lomakin (Moscow): The influence of structural discontinuity in concrete on its strength.
- 189. A. O. Kabanov (Moscow): Investigation of the buckling of cylindrical shells with radial cylindrical ribs under internal pressure.
- 190. A. O. Kabanov (Moscow): Solving the plane elastic problem for anisotropic bodies by reduction to the problem of linear coupling with "displacements".
- 191. L. I. Mikhlin (Moscow): On the stability of a cylindrical shell in bending.
- 192. V. M. Kargin (Moscow): Stress and strain in naturally twisted bars.
- 193. V. I. Mikhlin (Moscow): The problem of contour transformation and plane elasticity for the exterior of an arbitrary number of holes.
- 194. A. A. Mikhlin (Moscow): The design of finite and infinite beams with a variable cross-section including the effects and without adopting the hypothesis of Timoshenko and Mindlin.
- 195. A. A. Mikhlin (Moscow): Vibrations of a curved bar in an elastic medium and on elastic supports.
- 196. A. A. Mikhlin (Moscow): An experimental study of basic creep laws for soils.
- 197. G. S. Kabanov (Moscow): On statically equivalent loadings.
- 198. A. A. Mikhlin (Moscow): Contribution to the theory of plastic shells of uniform strength.
- 199. A. A. Mikhlin (Moscow): On the bending of a simply supported parallelogram plate.
- 200. A. V. Mikhlin (Moscow): Evaluation of the rheological properties of plastic, viscoplastic materials in inhomogeneous strain-rate under combined bending strains.

LENSKIY, V.S. (Moskva)

New data on the plasticity of metals under combined loads. Izv.AN SSSR.
Otd.tekh.nauk.Mekh.i mashinostr. no.5:93-100 S-O '60. (MIRA 13:9)
(Plasticity)

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AUTHOR: Lenskiy, V.S. (Moscow)

TITLE: Effects of irradiation on the mechanical properties
of solids

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk.
Inzhenernyy sbornik, v. 28, 1960, 97 - 133

TEXT: Numerous experimental data have shown that physical and chemical properties of materials after when irradiated and that these changes are often permanent. Consequently two aspects are noted: 1) The changes are not uniform w.r. to volume and consequently improved or new theories and computing methods are required for the constructions which will be subject to irradiation; 2) Stability of changes caused by irradiation technology and, at the same time, development of shielding against harmful radiation. The author reviews the literature available, mainly Western, dealing with the above aspects and attempts to classify and generalize the information available. The units employed are mainly those used in western

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works. The mechanism of action of radiation solids is discussed first. A neutron passing through a crystal lattice will undergo a series of elastic collision with atoms (ions) of the crystal. Then, the energy lost will be

$$\Delta E = E_0 2A(A + 1)^{-2} \quad (2.1)$$

per atom (ion). As the energy of a neutron is usually up to several millions bigger than that necessary to knock the atom out of the crystal lattice, cascade phenomena occur. In some cases nuclear reactions result, while for the remaining cases Kinchin and Piz propose

$$N_1 = \frac{\eta E}{E_d (1 + \eta)^2} \quad (2.2)$$

where N_1 = number of atoms knocked out of the crystal lattice by one neutron, E - initial energy of the neutron, E_d - energy necessary for displacing the atom, η - atomic mass of the atom. The au-
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thor discusses two effects of Frenkel defects, namely the volume effect which may lead to an increase in hardness and the modulus of elasticity of the material and dislocation effect, causing changes in density and plasticity. Also the effect on self- and thermodiffusion processes is mentioned, the existing data for which are, however, controversial. A passage of a neutron may lead to the formation of so-called "displacement zones", and theoretical calculations lead to the conclusion that the latter will occur in heavier metals, while in the lighter metals, Frenkel defects will occur preferentially. The possibility of Frenkel defect formation under β - and γ - radiation is mentioned and the problem of saturation is discussed, as well as the feasibility of duplicating some effects by thermal or mechanical processes; this is followed by some remarks on the action of radiation on organic materials which result either in breakdown of long chains, or cross linking. Volume and crystalline structure changes are discussed next, in cases of barium titanate, quartz and vitreous silica, lithium fluoride and lead, and the case is mentioned of the destruction of the crystalline structure of diamond. In discussion of changes of elas-
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tic properties, the conclusions reached are that in most cases they are insignificant and can be neglected. Shifts in resonance peaks, however, are important and should be taken into account when oscillatory properties are considered. Considerations of the influence of radiation on plastic properties show that critical shear stress and tensile strength increase for metals which, however, cease to be homogeneous w.r. to their elasto-plastic properties. In case of plastics, they can be divided into three groups: 1) Those with both, tensile strength and plasticity diminishing along the curve on stress strain diagram; 2) Those for which critical tensile strength increases or decreases by constant amount; 3) Those which under a small dose of radiation exhibit an increase in plastic properties. Experiments on influence of irradiation on glide and creep are either inconclusive or changes obtained are within the experimental error interval; one of the possible explanation is that above $1/2 T_{pe}$ (T_{pe} = temperature of flow) diffusion is a main process, while below it, the main mechanism of glide is the non-diffusive motion of dislocations. In conclusion, a statis-

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tical method is indicated for bodies either being irradiated or after the irradiation. There are 33 figures and 274 references: 33 Soviet-bloc and 241 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: T.H. Blewitt, R.R. Coltman, C.E. Klabunde, T.S. Noggle, Low-temperature reactor irradiation effects in metals, J. Appl. Phys., vol. 28, No. 6, 1957; W. Primak, Fast-neutron-induced changes in quartz and vitreous silica, Phys. Rev., vol. 110, No. 6, 1958; R. Truell, J. de Klerk, P.W. Levy, Neutron irradiation effects in borosilicate glass and their detection by ultrasonic attenuation and velocity measurements, J. Appl. Phys., vol. 29, No. 2, 1958; A.C. Damask, Hardness of neutron-irradiated diamonds, J. Appl. Phys., vol. 29, No. 11, 1958.

SUBMITTED: May 12, 1959

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Card 5/5

S/030/60/000/008/008/013
B021/B054

AUTHORS: Sokolovskiy, V. V., Corresponding Member of the AS USSR,
Lenskiy, V. S., Candidate of Physical and Mathematical
Sciences

TITLE: Symposium on Plasticity

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, ³⁰ No. 8, pp. 104-105

TEXT: The authors report on the Symposium held at Brown University (USA) on April 5-7, 1960. The following reports were delivered by Soviet delegates: Yu. N. Rabotnov dealt with problems of creeping, V. V. Sokolovskiy with the plastic flow between noncircular cylinders, and V. S. Lenskiy with the experimental foundation of the theory of composite load.

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LENSKIY, V. S.

Doc Phys-Math Sci - (diss) "Study of the plasticity of metals under complicated stress." Moscow, 1961. 12 pp; (Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov); 200 copies; price not given; (KL, 6-61 sup, 191)

GRYAZNOV, Ivan Mikhaylovich; LENSKIY, Viktor Stepanovich; OGIBALOV,
Petr Matveyevich; SKORYY, Ivan Aleksandrovich; KIYKO, I.A., red.;
YERMAKOV, M.S., tekhn.red.

[Laboratory manual on the strength of materials and on deformations]
Laboratornyi praktikum po soprotivleniiu materialov, deformiro-
vaniu. Pod obshchei red. P.M.Ogibalova i I.A.Skorogo. Moskva,
Izd-vo Mosk.univ., 1961. 199 p. (MIRA 14:6)
(Strenght of materials)
(Deformations (Mechanics))

BOGATYREV, I.S. (Moskva); IL'YUSHIN, A.A. (Moskva); LENSKIY, V.S. (Moskva);
PANFEROV, V.M. (Moskva)

The SN testing machine for investigating plastic deformations of
metals under composite loading. Inzh.zhur. 1 no.2:182-193 '61.
(MIRA 14:12)

(Testing machines) (Metals--Testing)

LENSKIY, V.S. (Moskva)

D.D. Ivlev's erroneous comments. Izv. AN SSSR. Otd. tekhn. nauk. Mekh.
i mashinostr. no. 3: 172-175 My-Je '61. (MIRA 14:6)
(Plasticity)

LENSKIY, V.S.

General theory of plasticity. Vest. AN SSSR 31 no.10:137-138
0 '61. (MIRA 14:9)

(Plasticity--Congresses)

LENSKIY, Viktor Stepanovich; LITVIN-SEDOY, Mikhail Zinov'yevich;
KAPUSTINA, V.S., red.; KOZLOVA, T.A., tekhn. red.

[Mechanics; course in mechanics offered by the Department of
Mechanics and Mathematics of Moscow State University] Mekhanika;
o spetsial'nosti "mekhanika" na mekhaniko-matematicheskoy fa-
kul'tete Moskovskogo gosudarstvennogo universiteta. Moskva,
Izd-vo Mosk. univ., 1962. 41 p. (MIRA 15:7)
(Mechanics--Study and teaching)

LENSKIY, V.S., (Moskva)

Hypothesis of the local definiteness in the theory of plasticity.
Izv. AN SSSR. Otd. tekhn. nauk. Mekh. i. mashinostr. no. 5:154-158 S-0 '62.
(MIRA 15:10)

(Plasticity)

ARIYEVICH, A.M.; LENSKIY, Yu.V.; USKOVA, G.V.

New lamp for the luminescent diagnosis of skin diseases. Vest. dermat. i ven. 38 no.4:54-55 Ap '64. (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy Institut meditsinskih instrumentov i oborudovaniya (dir. I.P.Smirnov) i Tsentral'nyy kozhno-venerologicheskiy institut (dir. - kand.med.nauk N.M. Turanov), Moskva.

LENSKOY, D.N.

Comment on the Hensel lemma. Izv. vys. ucheb. zav.; mat. no.4:128-
132 '60. (MIRA 13:10)

(Fields, Algebraic)

LENSKOY, Dmitriy Nikolayevich; VINNIKOVA, I.A., red.; ZENIN, V.V.,
tekhn. red.

[Functions in non-Archimedean normed fields] Funktsii v
nearkhimedovski normirovannykh poliakh. Saratov, Izd-vo
Saratovskogo univ., 1962. 108 p. (MIRA 17:1)

LENSKOY, D.N.

Behavior of analytic functions in non-Archimedean normalized fields. Izv.vys.ucheb.zav.; mat. no. 4:62-68 '62. (MIRA 15:12)

1. Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo.

(Functions, Analytic)

LENSKOY, D.N.

Representation of prime numbers by polynomials in two indeterminates.
Vest. LGU. 18 no.19:150-154 '63. (MIRA 16:11)

LENSKOY D.N.

Upper bound of some number-theoretical functions in algebraic
number fields. Dokl. AN SSSR 150 no.4:251-253 My '63.
(MIRA 16:5)

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(Fields, Algebraic)

GENSKOY, D. N.

Study of the arithmetical properties of polynomial values. Vest.
IGU 19 no.7:19-28 1954. (MIRA 17:7)

LENSKOY, D.N. (Saratov)

A generalization of prime pairs. Volzh. mat. sbor. no.1:
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LENSKOY, D.N.; LINNIK, Yu.V.

Nikolai Grigor'evich Chudakov, 1905- ; on his 60th birthday.
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Before the gates of the exhibition opened.

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