GUTKHEN, B.I., inzh.

Earth-working and cutting machinery. Transp. stroi. 12 no.6:31-34 Je '62. (MIRA 15:6)
(Excavating machinery)

GUTKIN, A.A.

66179

~~9(2,7)~~ 24.2600 SOV/146-58-5-2/24

AUTHORS: Vyatskiy, A.Ya., Candidate of Physical Mathematical Sciences, Docent, Gutkin, A.A., Engineer, and Makhov, A.F., Assistant

TITLE: Germanium Phototriode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Priborostroyeniye, 1958, Nr 5, pp 11-13 (USSR)

ABSTRACT: The article gives preliminary results of tests on flat germanium phototriodes. They are examined for their sensitivity. Qualities of voltage and amperage under varying lighting are also taken into consideration. Zh.I. Alferov, B.M. Konovalenko, S.M. Ryvkin, V.M. Tuchkevich, and A.I. Uvarov have done extensive studies in the field of flat hermanium phototriodes. Figure 1 shows the lighting layout of the germanium phototriode. Figure 3 shows statical volt-ampere characteristics of the phototriode under varying lighting. (1 - no light; 2 - lighting of 25 lux; 3 - lighting of 44 lux; 4 - lighting of 57 lux; 5 - lighting of 80 lux, and 6 - lighting of 124 lux). Figure 4

Card 1/2

Germanium Phototriode

3 illustrates the distribution of sensitivity on the lighted surface of the phototriode. Finally, the authors investigate measurement of sensitivity in connection with the location of the lighted spot on the surface of the phototriode. There are 2 graphs, 1 layout and 2 Soviet sources.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Fine Mechanics and Optics)

Card 2/2

VELIKORETSKIY, D.A.; LORIYE, K.M.; FINKEL', I.I.; GRIGORCHUK, Yu.F.; BERGER, L.Kh.; UTROBINA, V.V.; KHARCHENKO, V.P.; MESHCHERYKOV, A.V., student V kursa; OBEREMCHENKO, Ya.V., kand.med.nauk; NIKITIN, A.V.; MUKHOYEDOVA, S.N.; KUSMARTSEVA, L.V., assistent; KUZNETSOV, V.A., dotsent; KUKHTINOVA, R.A., assistent; BONDARENKO, Ya.D. (g. Fastov); KURTASOVA, L.V. (g. Fastov); PEVCHIKH, V.V.; CHURAKOVA, A.Ye.; BABICH, M.M.; KUZ'MIN, K.P.; PAVLOV, S.S.; SHEVLYAKOV, L.V., kand. med.nauk; IGNAT'YEVA, O.M.; ZEYGERMAKHER, G.A.; GUTKIN, A.A.; POLYKOVSKIY, T.S.

Resumes. Sov.med. 25 no.11:147-152 N '61. (MIRA 15:5)

1. Iz Instituta grudnoy khirurgii AMN SSSR (for Velikoretskiy, Loriye, Finkel'). 2. Iz bol'nitsy No.3 Gorlovki Stalinskoy oblasti (for Grigorchuk). 3. Iz Tyumenskoy oblastnoy bol'nitsy (for Berger, Utrobina). 4. Iz Karatasskoy rayonnoy bol'nitsy Yuzhno-Kazakhstanskoy oblasti (for Kharchenko). 5. Iz Gospital'noy khirurgicheskoy kliniki I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova (for Meshcheryakov). 6. Iz kliniki propedevticheskoy terapii Stalinskogo meditsinskogo instituta na baze oblastnoy klinicheskoy bol'nitsy imeni Kalinina (for Oberemchenko). 7. Iz kliniki gospital'noy terapii Voronezhskogo meditsinskogo instituta (for Nikitin, Mukhoyedova). 8. Iz kafedry obshchey khirurgii Kishinevskogo meditsinskogo instituta (for Kusmartseva). (Continued on next card)

VELIKORETSKIY, D.A.---(continued) Card 2.

9. Iz akushersko-ginekologicheskoy kliniki Stalinskogo meditsinskogo instituta na baze bol'nitsy imeni Kalinina (for Kuznetsov, Kukhtinova). 10. Iz gospital'noy terapevticheskoy kliniki Izhevskogo meditsinskogo instituta (for Pevchikh, Churakova). 11. Iz Nosovskoy rayonnoy bol'nitsy Chernigovskoy oblasti (for Babich). 12. Iz Vyborgskoy mezhrayonnoy bol'nitsy (for Pavlov). 13. Iz 1-y gorodskoy bol'nitsy Tyumeni (for Ignat'yeva). 14. Iz 2-y infektsionnoy bol'nitsy g. Zaporozh'ya (for Zeygermakher). 15. Iz infektsionnogo i prozektorskogo otdeleniy Petrozavodskoy gorodskoy bol'nitsy (for Gutkin, Polykovskiy).

(MEDICINE--ABSTRACTS)

SOV/137-58-9-19722

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 228 (USSR)

AUTHORS: Makhov, A.F., Gutkin, A.A.

TITLE: Investigation of the Retardation of Electrons of Be and Ge by the Method of Secondary Emission (Issledovaniye tormozheniya elektronov v Be i Ge metodom vtorichnoy emissii)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Fizika, 1958, Nr 1, pp 113-119

ABSTRACT: Results are adduced of an investigation of the secondary emission (SE) of thin films of Be, applied in a vacuum on a Ni base (I) and of thin films of Ge applied on Be (II). The coefficient of SE was determined for energies of primary electrons (PE) E_n ranging from 100 to 4000 ev. It was discovered that for I the $\sigma = f(E_n)$ curves have a minimum, the appearance of which can be explained by a large portion of the fast electrons emitted by the base when it is reached by the PE beam. From the relationships $\sigma = f(E_n)$ for I and $\sigma = f(\theta)$ (θ being the thickness of the Be layer) at various energies of the PE beam for II, the laws governing the retardation of electrons with energies from 1 to 3.5 ev were obtained. It is established that the law for the retardation for I and II has the form of $d \sim E^{1.4}$. R.O.

Card 1/1

1. Beryllium films 2. Germanium films 3. Secondary emission 4. Electrons --Energy

37945

S/181/62/004/005/043/055
B101/B108

26.249-0
9.4177

AUTHORS: Gutkin, A. A., and Nasledov, D. N.

TITLE: The dependence of the long-wave limit of the photo-effect in p-n junctions of GaAs on the electric field

PERIODICAL: Fizika tverdogo tela, v. 4, no. 5, 1962, 1360 - 1363

TEXT: The variation of the photocurrent from GaAs crystals under the action of a strong electric field was investigated. The long-wave edge of the spectral characteristic was determined for a GaAs photo-diode with p-n junction. Results: (1) In the photon-energy range of 1.39 - 1.415 ev, the spectral characteristic is parallel to the curve for the absorption coefficient $k = f(\hbar\omega)$ (cf. T. S. Moss. J. Appl. Phys., 38, 2136, 1961) in the absence of an electric field. (2) When $\hbar\omega$ is less than 1.39 ev, the spectral characteristics for various voltages in the back direction begin to diverge. Hence, k becomes a function of the field strength. It was found that $I_{ph} = \int_{-w/2}^{+w/2} k\,dx$ when $k \ll 1/W$. Here, I_{ph} is the

Card 1/2

The dependence of the...

photo-current, W is the width of the space-charge region (= crystal), x is the coordinate counted from the center of the space charge. (3) The probability $\alpha(\omega)$ of quantum absorption was calculated from $\alpha(\omega) = \left[AE^2/m_{\parallel}\omega(\varepsilon_o-\hbar\omega)^{5/2}\right]\exp\left[-(4\sqrt{2m_{\parallel}}/3e\hbar E)(\varepsilon_o-\hbar\omega)^{3/2}\right]$, where E is the field strength, A is a constant, $m_{\parallel}$ is the reduced mass of the carrier pairs, and ε_o is the forbidden band width. Assuming $m_n = 0.07\ m_o$, $m_p = 0.6\ m_o$, and $\varepsilon_o = 1.38$ ev qualitative agreement with experimental data was obtained. (4) If $\hbar\omega \geq \varepsilon_o$, carriers excited by light in regions where $E = 0$ make large contributions to the photo-current. There are 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR
(Physicotechnical Institute imeni A. F. Ioffe, AS USSR)
Leningrad

SUBMITTED: January 19, 1962

Card 2/2

GUTKIN, A.A.; NASLEDOV, D.N.; SEDOV, V.Ye.; TSARENKOV, B.V.

Photoelectric properties of GaAs p-n junctions. Fiz. tver. tela 4 no.9 2338-2348 S '62. (MIRA 15:9)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR, Leningrad.
(Junction transistors) (Gallium arsenide)
(Photoelectricity)

GUTKIN, A.A.; NASLEDOV, D.N.; SEDOV, V.Ye.; TSARENKOV, B.V.

Photoelectric solar energy converters using GaAs.
Radiotekh. i elektron. 7 no.12:2095-2096 D '62.
(MIRA 15:11)

1. Fiziko-tekhnicheskiy institut im. A.F. Ioffe AN SSSR.
(Photoelectric cells)
(Solar batteries)

L 14978-63 EWA(l)/EWG(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3/SSD
Px-4/Pz-4 AT/JD/WG/IJP(C)
ACCESSION NR: AP3004916 S/0120/63/000/004/0187/0188

AUTHOR: Gutkin, A. A.; Rogachev, A. A.; Sedov, V. Ye.; Tsarenkov, B. V.

TITLE: Low-inertia gallium arsenide light-generating diode

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1963, 187-188

TOPIC TAGS: gallium arsenide light generator, light-generating diode, gallium arsenide diode, carrier injection luminescence, injection luminescence, gallium arsenide laser, laser, carrier, luminescence, injection

ABSTRACT: A light-generating diode made of single crystal n-type gallium arsenide diffused with p-type zinc has been constructed and tested. Light emission was produced at room temperature by applying a pulsed current with pulse duration of 1—10 μsec across the p-n junction. The obtained light spectrum showed two maxima centered at 0.95 and 1.3 μ. The time constant was less than 5×10^{-8} sec. At a maximum injection current of 20 amp the efficiency of the generator was about 0.1%. The authors hope to increase the photon flux several times by constructional refinements and the use of higher quality material. The author acknowledges that while the present article was being prepared for printing, the journal

Card 1/2

L 14978-63
ACCESSION NR: AP3004916

4

Electronics (July 1962, 13, 7; 1962, 27, 24) disclosed the construction (in the U. S.) of a gallium arsenide light-generating diode with a power of 3 w operated at liquid-nitrogen temperatures. "The authors thank D. N. Nasledov and S. M. Ryvkin for their interest in the work." Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute, AN SSSR)

SUBMITTED: 14Sep62 DATE ACQ: 28Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 001

Card 2/2

Gutkin, A.A

AID Nr. 975-15 23 May

NONLINEAR PHOTOEFFECT OF GaAs p-n JUNCTIONS (USSR)

Gutkin, A. A., D. N. Nasledov, and V. Ye. Sedov. Fizika tverdogo tela, v. 5, no. 4, Apr 1963, 1138-1142. S/181/63/005/004/027/047

Two types of GaAs photodiodes were studied. The specimens were obtained by diffusion of acceptor-type dopants into n-type material with a carrier concentration of ~ 10^{17} cm^{-3} and a carrier mobility of ~ 3200 $cm^2/v \cdot sec$. The p-region of the first type of sample was ~ 10 μ thick after diffusion and was decreased by etching in a boiling mixture (5NaOH (5%) + 1 H_2O_2 (30%) + 24H_2O) to ~ 1 μ. The p-region of the second type was 1 μ thick after diffusion and the specimens were not etched. Diffusion conditions were designed to produce a dopant-atom concentration of ~ 10^{18} cm^{-3} at the surface of the samples. Photocurrent characteristics, dependence of photosensitivity on bias light intensity, spectral distribution of photosensitivity with constant-spectrum bias light, dependence of photosensitivity on bias light wavelength, and spectral distribution of photosensitivity with a constant electric field applied to the illuminated p-surface were obtained. Specimens of the first type

Card 1/2

NONLINEAR PHOTOEFFECT [Cont'd] S/181/63/005/004/027/047

had nonlinear photocurrent characteristics and exhibited increased photosensitivity with an increase in bias-light intensity. The nonlinear properties of the first type of diode are attributed to light-induced changes in the recombination rate at the illuminated p-surface. Specimens of the second type had linear photocurrent characteristics, and exhibited no dependence of photosensitivity on bias light. [BB]

GUTKIN, A.A.; KOZLOV, M.M.; NASLEDOV, D.N.; SEDOV, V.Ye.

Long-wave edge of the photoeffect and recombination emission in GaAs p - n-junctions. Fiz. tver. tela 5 no.12:3617-3620 D '63. (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR, Leningrad.

GUTKIN, A.A.; KOZLOV, M.M.; NASLEDOV, D.N.; SELOV, V.Ye.; TALALAKIN, G.N.

Detection of p—n-junctions in gallium arsenide with the aid of an MIK-1 infrared microscope. Prib. i tekh. eksp. 9 no.5:184-186 S-O '64. (MIRA 17:12)

1. Fiziko-tekhnicheskiy institut AN SSSR.

L 15679-65 EWT(m)/EWP(t)/EWP(b) ASD-3/AFFTC/ESD-3/IJP(c)/ESD(t)/SSD/
AFWL/RAEM(a) JD/JG
ACCESSION NR: AP4047485 S/0120/64/000/005/0184/0186

AUTHOR: Gutkin, A. A.; Kozlov, M. M.; Nasledov, D. N.; Sedov, V. Ye.; Talalakin, G. N.

TITLE: Localization of p-n junctions in gallium arsenide by means of an MIK-1 infrared microscope

SOURCE: Pribory* i tekhnika eksperimenta, no. 5, 1964, 184-186

TOPIC TAGS: gallium arsenide, pn junction, infrared microscope / MIK-1 infrared microscope

ABSTRACT: Specimens were prepared from n-GaAs single crystals having an electron concentration of $10^{17}-5\times10^{18}$ /cm^2 and a mobility of 2,000--3,500 cm^2/v sec; the p-n junction was obtained by diffusing Zn whose concentration on the surface of the p-region was $5\times10^{18}-10^{20}$ /cm^3; the specimens were 0.1--1 mm thick. Three methods were used for localizing p-n junctions: (a) in

Card 1/2

L 23950-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD
ACCESSION NR: AP5003416 S/0181/65/007/001/0081/0087

AUTHOR: Gutkin, A. A.; Nasledov, D. N.; Sedov, V. Ye.

TITLE: Spectral characteristics of gallium arsenide photoelements

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 81-87

TOPIC TAGS: gallium arsenide, photoelectric effect, photoelectricity, photoelement, spectral characteristic, spectroscopy

ABSTRACT: Measurements of the spectral distribution of the effective quantum yield of GaAs photoelements have been made at temperatures of 78—430K and the results compared with Subashiyev's data (V. K. Subashiyev. FTT, 3, 3571, 1961). The measurements, carried out in the photon energy region of 1.3—3 ev, showed a strong effect of surface recombination on the photosensitivity of the samples; they showed also that the contribution of carriers generated by light in areas other than the p-n junction cannot be neglected in evaluating the photocurrent. The above findings apply principally to samples with highly alloyed surfaces not subjected to etching, the characteristics of which do not conform with those derived theoretically. It was also

Card 1/2

L 23950-65
ACCESSION NR: AP5003416

established that the spectral characteristics of gallium arsenide near the main absorption edge do not agree with the spectral distribution of the absorption coefficient of the starting material, which is due to the introduction of acceptor impurity in preparing the p-n junction. No recombination constants can be determined from the spectral characteristics in the region of the main absorption edge because of the optical nonhomogeneity there. Orig. art. has: 5 figures and 3 tables. [ZL]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe, AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 24Jun64 ENCL: 00 SUB CODE: EM, EC

NO REF SOV: 005 OTHER: 011 ATD PRESS: 3177

Card 2/2

L 6337-66 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG

ACCESSION NR: AP5019882 UR/0181/65/007/008/2538/2539

AUTHOR: Gutkin, A. A.; Kagan, M. B.; Sedov, V. Ye.; Chernov, Ya. I.

TITLE: Effect of orientation of GaAs crystals on the depth and photoelectric properties of diffusion pn junctions

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2538-2539

TOPIC TAGS: gallium arsenide, pn junction, zinc, photoelectric cell, spectral distribution, photosensitivity

ABSTRACT: In view of some contradiction in earlier results (M. T. Minamoto and H. T. Malafi, J. Appl. Phys. v. 34, 1876, 1963) the authors have investigated the influence of orientation on the rate of diffusion of zinc by producing deep p-n junctions in plates having the same orientations as used in the preparation of photocells. The spectral distributions of the photosensitivity at photon energies 1.3--3 ev, of diffusion GaAs photocells which the authors produced under identical conditions, turned out to be practically the same, in spite of the fact that earlier results indicated that the position and form of the p-n junction should depend on the concentration and distribution of the dislocation. The initial material was single-crystal GaAs of n-type with electron density (2--3) x 10^{17} cm^{-3} and mobility 3500--4000 $cm^2v^{-1}sec^{-1}$ grown horizontally by the Bridgman method.

Card 1/2

0702004

L 6337-66

ACCESSION NR: AP5019882

The treatment of the crystals is described. The results show that the thickness of the p-layer, and consequently the diffusion coefficient of the zinc, does not depend on the orientation. Addition of arsenic into the ampoule greatly reduces the diffusion coefficient of zinc. This result agrees with that of L. J. Vieland (J. Phys. Chem. Sol. v. 21, 318, 1961). Orig. art. has: 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute AN SSSR)

SUBMITTED: 20Mar65 ENCL: 00 SUB CODE: SS

NR REF SOV: 001 OTHER: 005

Card 2/2

L 21185-66 EWT(m)/EWP(t) LIP(c) JD
ACC NR: AP6009647 SOURCE CODE: UR/0181/66/008/003/0712/0716

AUTHOR: Gutkin, A. A.; Magerramov, E. M.; Nasledov, D. N.; Sedov, V. Ye. 40 10

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Spectral characteristics of GaAs p-n junctions in the near-ultraviolet 27-21

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 712-716

TOPIC TAGS: gallium arsenide, p n junction, spectral energy distribution

ABSTRACT: The photosensitivity of GaAs p-n junctions was measured up to photon energies of 5.4 ev and at temperatures of 90, 293, and 370K. The investigations were made with the use of a quartz double monochromator during illumination of both the n- and p-surfaces of the samples. At photon energies higher than 3 ev, the photosensitivity increased slightly and then leveled off, only to increase again slightly at about 5 ev. The shapes of the characteristics remained similar during the illumination of the n- and p-surfaces. It is considered probable that the structure of the spectral characteristics of GaAs in the

Card 1/2

L 21185-66
ACC NR: AP6009647 O

ultraviolet region, where the photon energy is more than two times the width of the forbidden zone, is due to a change of the quantum output of the photoconductive effect, caused by impact ionization. [ZL]
Orig. art. has: 2 figures.

SUB CODE: 20 SUBM DATE: 15Jul65/ ORIG REF: 004/ OTH REF: 008
ATD PRESS: 4222

Card 2/2 BK

L 04791-67 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) JD/AT

ACC NR: AP6024462 SOURCE CODE: UR/0181/66/008/007/2044/2047

AUTHOR: Gutkin, A. A.; Magerramov, E. M.; Mikhaylova, M. P.; Nasledov, D. N. 65 63 B

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Photosensitivity spectra of p-n junctions in InAs in the photon energy range 0.9 - 5 ev 27 11

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2044-2047

TOPIC TAGS: pn junction, photosensitivity, internal photoeffect, indium compound optic material, arsenide, spectral distribution, absorption coefficient, quantum yield

ABSTRACT: This is a continuation of earlier work (FTT v. 8, 712, 1966), where it was observed that the spectral distribution of the quantum yield of the internal photoeffect in the short-range region is connected with singularities of the band structure of GaAs. The present work extends the investigation to InAs. The InAs p-n junctions were obtained by diffusion of Cd in n-type material with electron density (0.5 - 1) x 10^{17} cm^{-3} and were produced at a depth of several microns. The hole concentration in the illuminated surface of the sample was approximately 10^{18} cm^{-3}. Several p-n junctions illuminated from the n-side were also tested. The long-wave part of the spectral characteristic of the junction was plotted with the aid of a ZMR-2 monochromator, and the measurements at higher energies were by the procedure described in the earlier paper. The measurements showed a narrow long-wave photosensitivity peak,

Card 1/2

connected with the change of the absorption coefficient near the edge of the ground-state band, followed by a region of weak variation, a faster growth at ~0.7 - 1 ev photon energy, a reversal followed by minimum near 3.2 ev, and a renewed growth at higher energies. The results are shown to be connected with the variation of the quantum yield of the internal photoeffect as a result of secondary ionization. The threshold energy of the photon, starting with shich the quantum yield begins to grow, is found to be 0.7 - 0.8 ev at 293K and 0.9 - 1 ev at 100K, in agreement with theoretical calculations by others. The various sections of the spectrum are interpreted on this basis, and it is indicated in the conclusion that the actual quantum yield may not be as large as what follows from theoretical considerations, since account must be taken of the probability ratios of the different electronic transitions. The authors thank N. P. Yesina and N. N. Smirnova for preparing the InAs p-n junctions. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 03Dec65/ ORIG REF: 002/ OTH REF: 006

Card 2/2 afs

L 08129-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6033579 SOURCE CODE: UR/0181/66/008/010/3097/3099

AUTHOR: Gutkin, A. A.; Kagan, M. B.; Magerramov, E. M.; Chernov, Ya. I.; Gutkin, A. A. Kagan, M. B.; Magerramov, E. M.; Chernov, Ya. I.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR); All-Union Scientific-Reseach Institute of Current Sources, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka)

63
60
B

TITLE: Spectral characteristics of GaP--GaAs photocells in the photon energy region up to 5.4 ev

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 3097-3099

TOPIC TAGS: gallium arsenide, gallium phosphide, gallium optic material, pn junction, photoelectric cell, photosensitivity

ABSTRACT: This is a continuation of earlier work (Kosmicheskiye issledovaniya, IV, 128, 1966 and preceding papers) where the possibilities of GaP--GaAs p-n junctions were first revealed and studied. The present paper describes investigations of the photosensitivity of junctions prepared by diffusion of zinc in a GaAs plate in which a region of variable composition $GaP_xAs_{(1-x)}$ was produced beforehand by heating in phosphorus vapor. The preparation procedure and some properties of such a junction were described earlier. The illuminated surface was subjected to various degrees of

Card 1/2

etching. The tests consisted of plotting the photocurrent spectra and the spectrum of the diffuse reflection from the surface. X-ray analysis of the junction structure, and the presence of a peak near 3.6 ev, reveal that the surface layer of the photocell contains not less than 90% of GaP and consequently its photosensitivity spectrum is governed by the band structure of GaP. Comparison of the reflection and photosensitivity spectra shows that the photocurrent per incident absorbed photon is constant (at $\hbar\omega \gtrsim 2.5$--4.6 ev) and then drops off slightly towards 5.4 ev. This is also confirms the GaP-type band structure, which precludes any possible increase of the quantum yield for photons with energy lower than ~ 5.2 ev, when the internal photoeffect and impact ionization come into play. The fact that the quantum yield remains constant over a wide range of photon energies extending over different parts of the Brilluoin zone shows that the minority nonequilibrium carriers (electrons) excited by the photons in different parts of the conduction band have time to go over to the equilibrium state at room temperature within a time shorter than the carrier lifetime ($\leq 10^{-9}$ sec). Consequently the drop in photosensitivity in the 2.6--3.5 ev region, which decreases strongly when the cell surface is etched, may be due to an increased role of surface recombination with increasing absorption coefficient, and not to a decrease in lifetime. The authors thank A. S. Toporets, A. V. Sheklein, and N. B. Rekant for measuring the diffuse-reflection spectra. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 13Apr66/ ORIG REF: 007/ OTH REF: 005/
ATD PRESS: 5102

L 08129-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6033579 SOURCE CODE: UR/0181/66/008/010/3097/3099

AUTHOR: Gutkin, A. A.; Kagan, M. B.; Magerramov, E. M.; Chernov, Ya. I.; Gutkin, A. A.; Kagan, M. B.; Magerramov, E. M.; Chernov, Ya. I.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR); All-Union Scientific-Reseach Institute of Current Sources, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka)

63 60 B

TITLE: Spectral characteristics of GaP—GaAs photocells in the photon energy region up to 5.4 ev

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 3097-3099

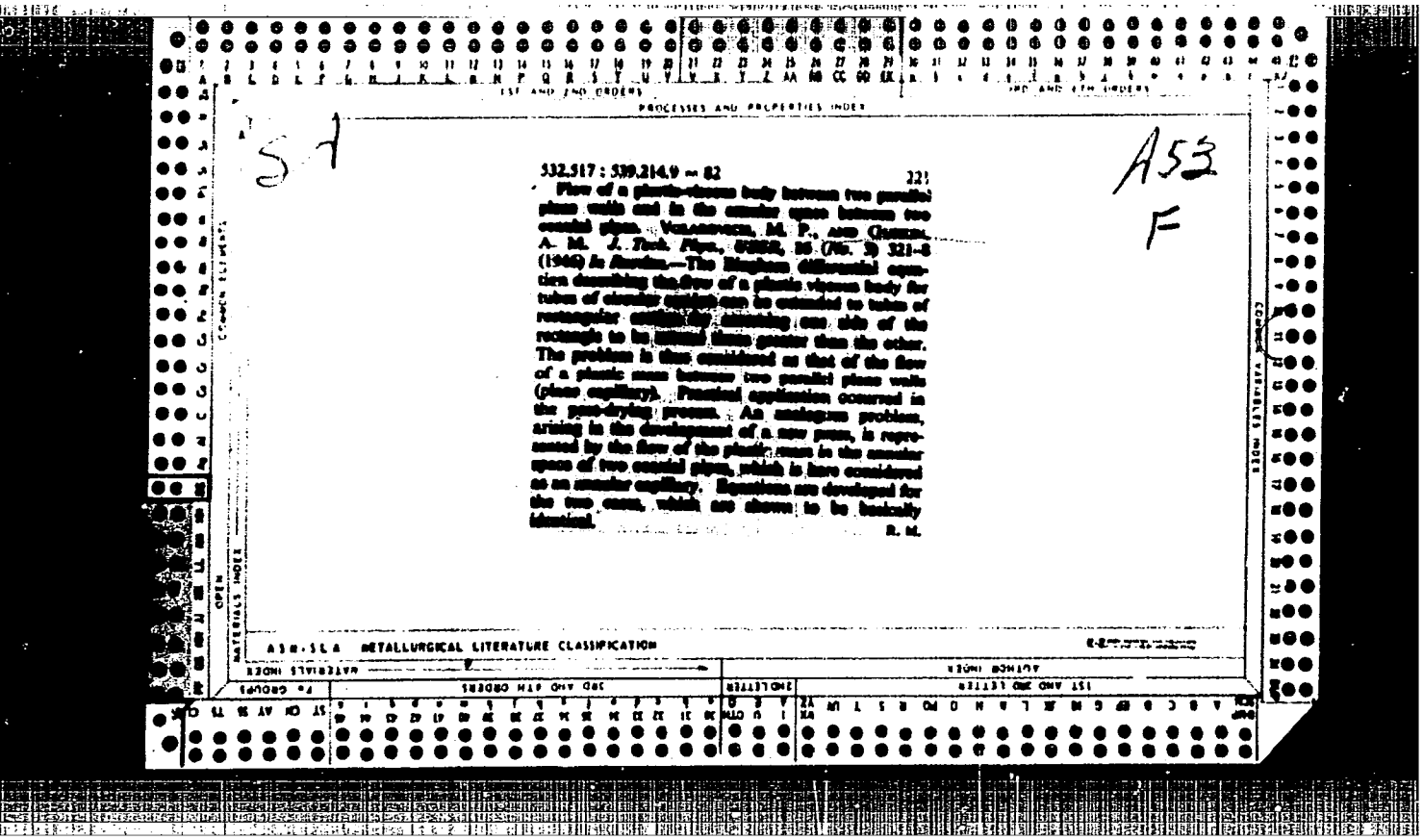
TOPIC TAGS: gallium arsenide, gallium phosphide, gallium optic material, pn junction, photoelectric cell, photosensitivity

ABSTRACT: This is a continuation of earlier work (Kosmicheskiye issledovaniya, IV, 128, 1966 and preceding papers) where the possibilities of GaP—GaAs p-n junctions were first revealed and studied. The present paper describes investigations of the photosensitivity of junctions prepared by diffusion of zinc in a GaAs plate in which a region of variable composition $GaP_xAs_{(1-x)}$ was produced beforehand by heating in phosphorus vapor. The preparation procedure and some properties of such a junction were described earlier. The illuminated surface was subjected to various degrees of

Card 1/2

etching. The tests consisted of plotting the photocurrent spectra and the spectrum of the diffuse reflection from the surface. X-ray analysis of the junction structure, and the presence of a peak near 3.6 ev, reveal that the surface layer of the photocell contains not less than 90% of GaP and consequently its photosensitivity spectrum is governed by the band structure of GaP. Comparison of the reflection and photosensitivity spectra shows that the photocurrent per incident absorbed photon is constant (at $\hbar\omega \approx 2.5$--4.6 ev) and then drops off slightly towards 5.4 ev. This is also confirms the GaP-type band structure, which precludes any possible increase of the quantum yield for photons with energy lower than ~ 5.2 ev, when the internal photoeffect and impact ionization come into play. The fact that the quantum yield remains constant over a wide range of photon energies extending over different parts of the Brilluoin zone shows that the minority nonequilibrium carriers (electrons) excited by the photons in different parts of the conduction band have time to go over to the equilibrium state at room temperature within a time shorter than the carrier lifetime ($\lesssim 10^{-9}$ sec). Consequently the drop in photosensitivity in the 2.6--3.5 ev region, which decreases strongly when the cell surface is etched, may be due to an increased role of surface recombination with increasing absorption coefficient, and not to a decrease in lifetime. The authors thank A. S. Toporets, A. V. Sheklein, and N. B. Rekant for measuring the diffuse-reflection spectra. Orig. art. has: 1 figure.

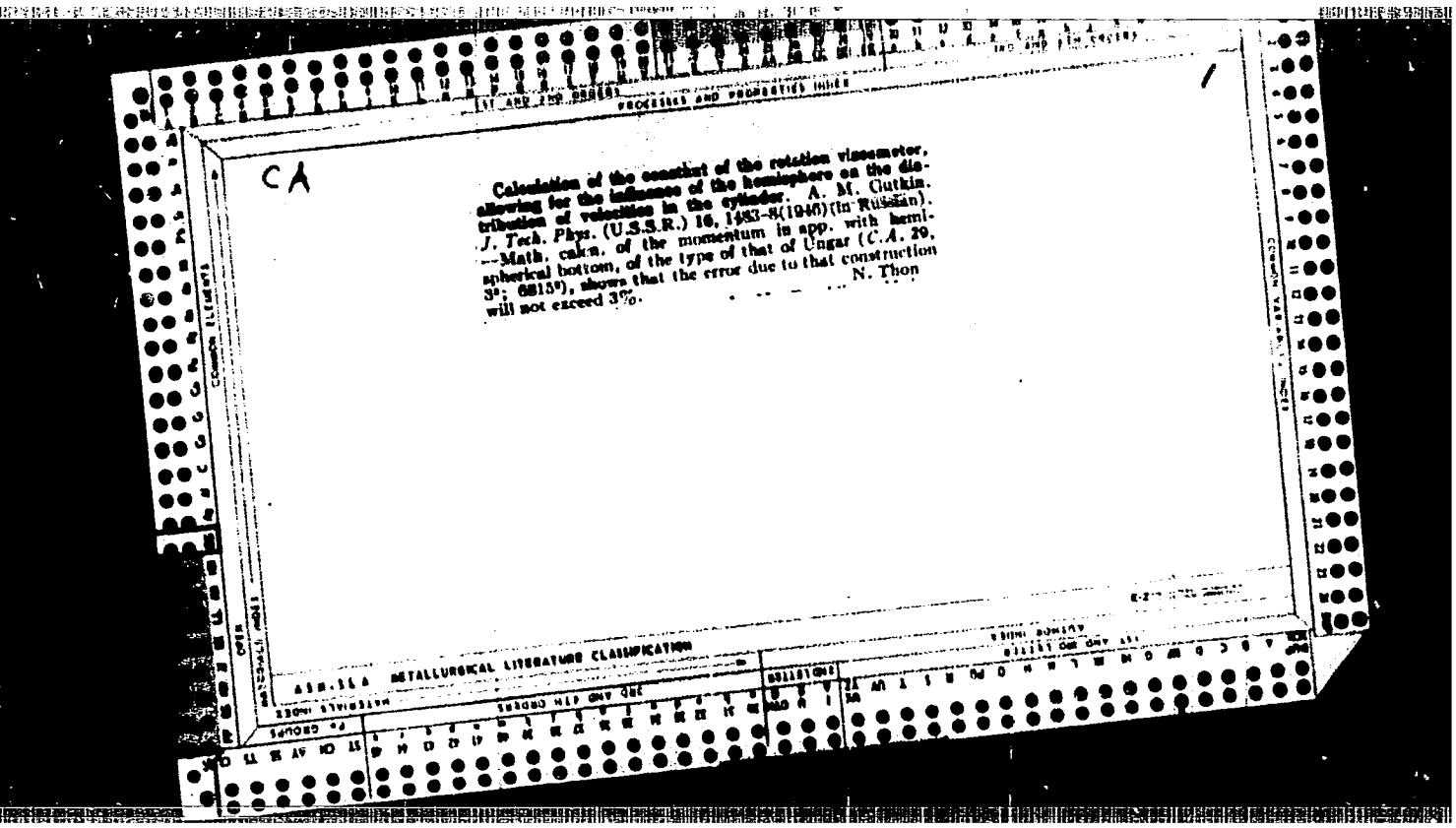
SUB CODE: 20/ SUBM DATE: 13Apr66/ ORIG REF: 007/ OTH REF: 005/
ATD PRESS: 5102



532.517 : 539.214.9 — 82 321

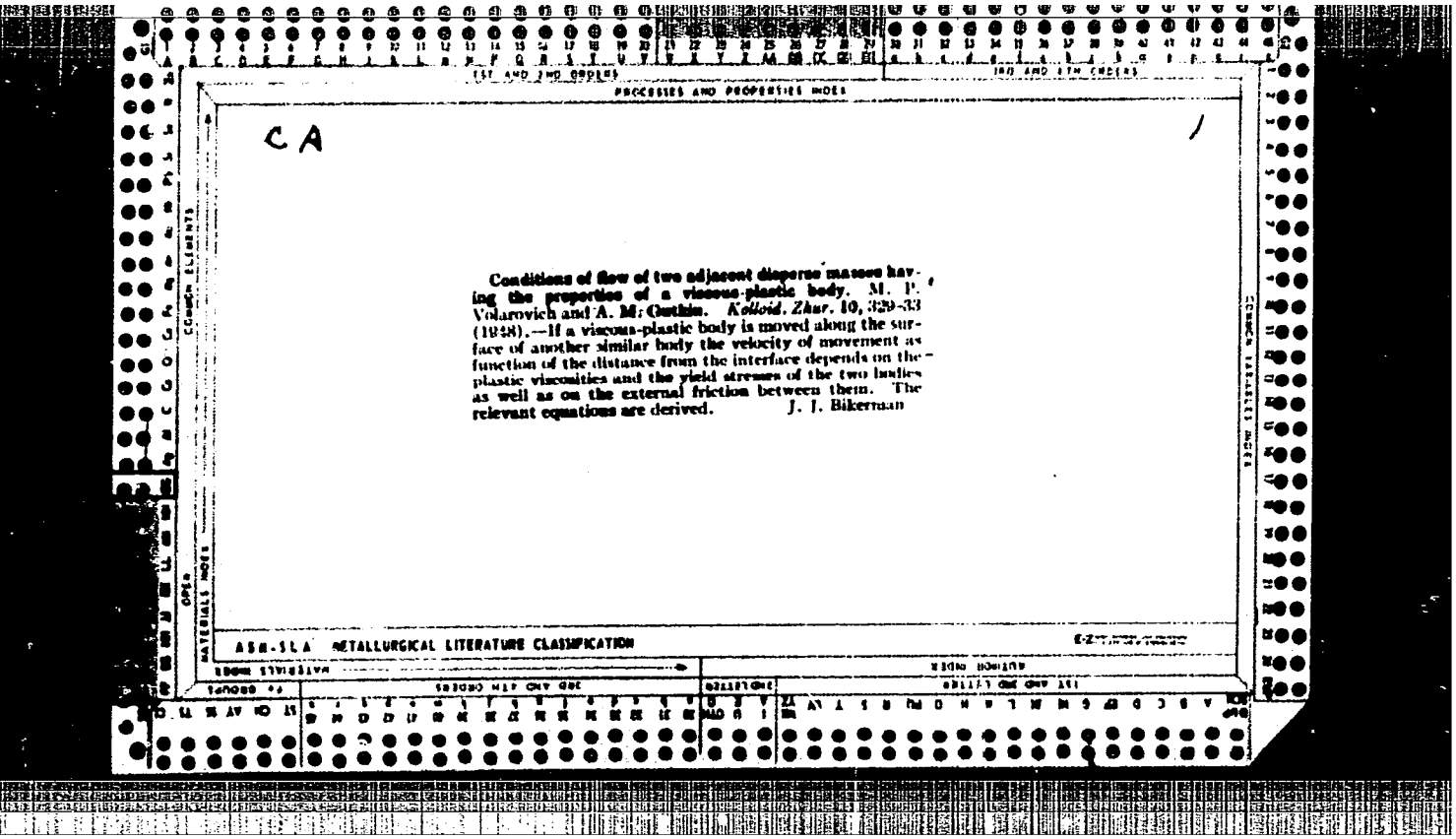
Flow of a plastic-mass body between two parallel plates with and in the annular space between two coaxial pipes. Vinogradov, M. P., and Chernov, A. M. *J. Tech. Phys., USSR*, 10 (No. 3) 321–8 (1940) *In Russian.*—The Stephen differential equation describing the flow of a plastic viscous body for tubes of circular section can be extended to tubes of rectangular section by assuming one side of the rectangle to be infinitely greater than the other. The problem is thus considered as that of the flow of a plastic mass between two parallel plates with (plane capillary). Practical application occurred in the paint-drying process. An analogous problem, arising in the development of a new press, is represented by the flow of the plastic mass in the annular space of two coaxial pipes, which is here considered as an annular capillary. Equations are developed for the two cases, which are shown to be basically identical.

R. M.



CA

Calculation of the constant of the rotation viscometer, allowing for the influence of the hemisphere on the distribution of velocities in the cylinder. A. M. Clutkin. *J. Tech. Phys.* (U.S.S.R.) 16, 1483-8(1946)(In Russian). —Math. calcn. of the momentum in app. with hemispherical bottom, of the type of that of Ungar (*C.A.* 29, 3°; 6815°), shows that the error due to that construction will not exceed 3%. N. Thon



CA

Conditions of flow of two adjacent disperse masses having the properties of a viscous-plastic body. M. P. Volarovich and A. M. Guthin. *Kolloid. Zhur.* 10, 329-33 (1948).—If a viscous-plastic body is moved along the surface of another similar body the velocity of movement as function of the distance from the interface depends on the plastic viscosities and the yield stresses of the two bodies as well as on the external friction between them. The relevant equations are derived. J. J. Bikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GUTKIN, A M

Gutkin, A. M. Concerning the theory of vapor. Akad. Nauk SSSR. Žurnal Eksper. Teoret. Fiz. 20, 538–546 (1950). (Russian)

Pour étudier théoriquement les propriétés d'une vapeur saturée et surchauffée on considère fréquemment la vapeur comme un mélange d'un grand nombre de gaz. Le premier gaz du mélange est composé de molécules sans action les unes sur les autres; chaque particule du second gaz est formée d'une paire de molécules en interaction, mais sans action sur le reste des molécules, etc. La particule du $n$ème gaz est composée de n-molécules en interaction mais sans influence sur les autres. Pour chacun de ces gaz on calcule son énergie libre, et l'énergie libre de la vapeur, ainsi que le nombre des molécules de chaque gaz, sont calculées par la condition de minimum d'énergie libre dans un mélange gazeux. Frenkel [Kinetic Theory of Liquids, Oxford, 1946; ces Rev. 9, 168] considère chacun de ces gaz comme un gaz parfait. Band [J. Chem. Phys. 7, 324–326, 927–931 (1939)] et Tseng, Feng, Cheng, et Band [ibid. 8, 20–23 (1940)] introduisent une correction en calculant le volume propre de la vapeur. L'auteur reprend le calcul du volume propre de la molécule de vapeur en deux approximations successives et montre que, pour certaines valeurs de la densité de la vapeur, les termes de la seconde approximation peuvent devenir comparables à ceux de la première approximation. Il étudie le rôle des chocs élastiques et non élastiques. Il donne deux méthodes pour calculer la somme des états de la vapeur, l'une analogue à celle d'Ursell et une autre à celle de Frenkel. Il montre finalement que certaines considérations de Band paraissent improbables. *M. Kinchnovich*

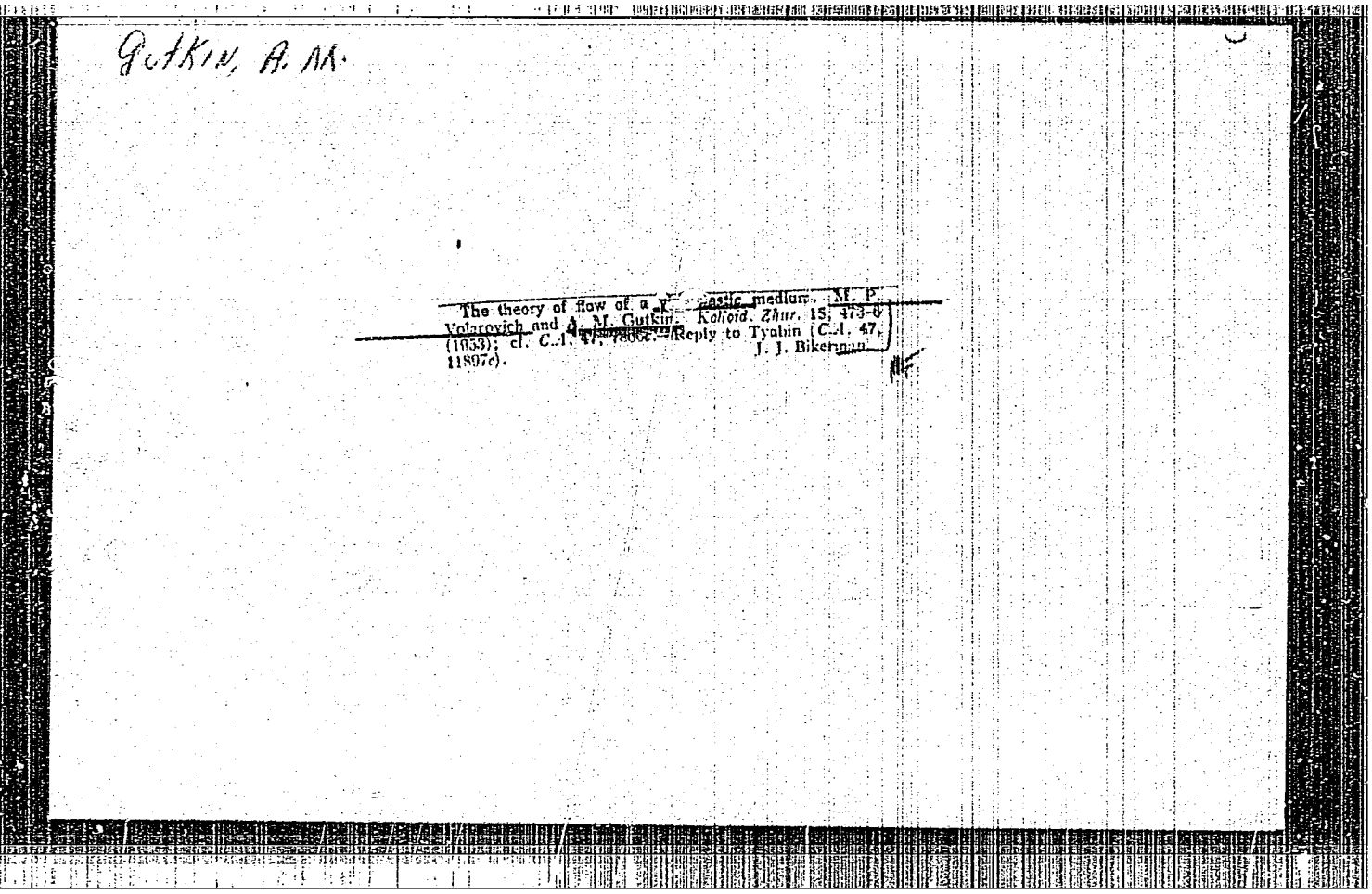
Source: Mathematical Reviews, Vol 12, No. 3

GUTKIN, A.M.

3

The theory of flow of viscoplastic media. M. P. Volarovich and A. M. Gutkin. *Colloid J. U.S.S.R.* 15, 153-0 (1953)(Engl. translation). See *C.A.* 47, 7890c.

H. L. H.



Gutkin, A. M.

The theory of flow of a [illegible] astic medium. M. P. Volarovich and A. M. Gutkin. *Kolloid. Zhur.* 15, 473-6 (1953); cf. *C.A.* 47, 7806c. Reply to Tyabin (*C.A.* 47, 11897c). J. J. Bikerman

USSR/Physics - Flow FD-3014

Card 1/1 Pub. 41 - 3/15

Author : Volarovich, M. P. and Gutkin, A. M., Moscow

Title : Some questions on the theory of plastic flow

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 9, 37-42, Sep 55

Abstract : The article was originally presented at the conference on the theory of elasticity, the theory of plasticity and theoretical structural mechanics held at the Institute of Mechanics Acad Sci USSR on 25 December 1954. Presents mathematical solution of two cases of plastic flow. Relates flow to linear, conical and spherical motion. Lists series of theoretical conclusions for cases studied. Formulae, diagram. Fifteen references, 10 USSR.

Institution:

Submitted : June 8, 1955

GUTKIN, A.M.

847. Gutkin, A. M., Motion of a viscous-plastic medium in a gap between two rotating cones (in Russian), *Kolloid. Z.*, 17, 6, 421-423, 1955; *Ref. Zh. Mekh.* 1956, Rev. 5336.

Solution of the problem of motion of a viscous-plastic medium in a gap between two rotating co-axial cones having a common apex.

By integration of the state equations of the viscous-plastic medium in spherical coordinates an expression was obtained for the case when the displacement covers the whole region between the cones:

$$\omega = \left(\frac{3M}{2\pi R^3\mu} - \frac{2\tau_0}{\mu}\right)\int_\alpha^\beta \frac{d\theta}{\sin^2\theta} + \frac{\tau_0}{\mu}\left(\frac{\cos\alpha}{\sin^2\alpha} - \frac{\cos\beta}{\sin^2\beta}\right)$$

where ω is the angular velocity of the rotating cone, M is the rotational moment, R is the portion of the gap filled according to the generatrix of the cone, τ_0 is the limiting stress of the displacement, μ is the plastic viscosity, and 2α and 2β are the cone angles.

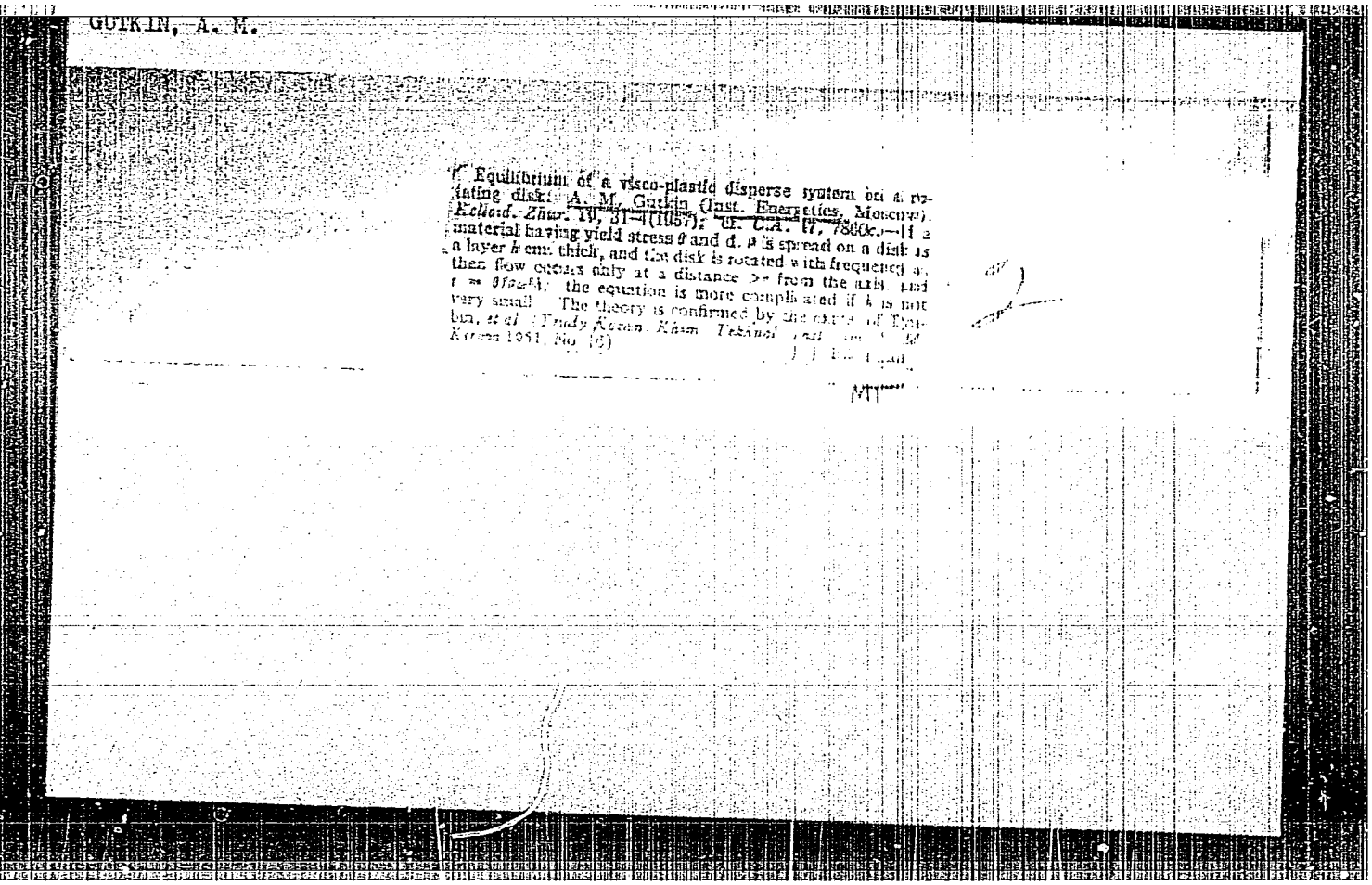
A similar equation was obtained for the case when the displacement does not cover the whole region between the cones, i.e., there is a zone of elastic deformation where the stress is less than τ_0.

In solving the problem it was assumed that the boundary of the viscous-plastic medium filling the space between the cones is a spherical surface.

N. I. Malinin, USSR

Courtesy Referativnyi Zhurnal

Translation, courtesy Ministry of Supply, England



GUTKIN, A. M.

Equilibrium of a visco-plastic disperse system on a rotating disk. A. M. Gutkin (Inst. Energetics, Moscow). *Kolloid. Zhur.* 19, 31–4 (1957). C. A. 51, 7800e.—If a material having yield stress θ and d. ρ is spread on a disk as a layer h cm. thick, and the disk is rotated with frequency ω, then flow occurs only at a distance $>r$ from the axis, and $r = \theta/\omega^2\rho h$; the equation is more complicated if h is not very small. The theory is confirmed by the curve of Tyabin, *et al.* (*Trudy Kazan. Khim. Tekhnol. Inst.* No. 15, 1951, No. 15).

MIT

GUTKIN, A.M.

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

68. M. S. Ganeeva, Kh. M. Mushtari, R. G. Surkin (Kazan): On a method of solving problems of the bending theory of shallow shells with the use of electronic digital computers.

69. G. T. Gasanov, S. G. Gurbanov (Baku): Solution of unsteady problems of hydrodynamics of viscous and visco-plastic fluids.

70. A. V. Gemmerling (Moscow): An approximate stability analysis of frames in the elastic-plastic range.

71. G. A. Geniev (Moscow): Some problems concerning the plane flow of compressible plastic media.

72. G. P. Geondshian (Erevan): On a problem of elastic-plastic torsion of an anisotropic shaft.

73. I. S. Gerasimov (Moscow): A dynamic problem for a conical shell.

74. M. V. Gzovskii (Moscow): Tectonophysics — a new domain of application of mechanics to geological problems.

75. M. V. Gzovskii, D. Osokina (Moscow): Simulating of processes of plastic deformation and rupture of solids with great variations of time and size.

76. V. G. Gmoshinskii (Moscow): Development of a theory of pressure in rocks with the use of the methods of continuum mechanics.

77. I. I. Golberg (Moscow): Some generalizations of the basic equations of visco-elasticity.

78. I. I. Golberg (Moscow): The propagation of longitudinal waves in a visco-elastic rod.

79. A. M. Goliberg, V. G. Korotkin (Leningrad): Theoretical and experimental methods of design of the locks of the Stalingrad hydroelectric power plant.

80. I. I. Goldenblat (Moscow): A generalized theory of plastic flow.

81. I. I. Goldenblat (Moscow): The theory of finite deformations of anisotropic elastic media.

82. I. I. Goldenblat, N. A. Nikolaenko (Moscow): A general creep theory of shells.

83. A. L. Goldenveizer (Moscow): Development of the theory of thin elastic shells.

84. A. L. Goldenveizer (Moscow): Asymptotic integration of the equations of the theory of thin elastic plates.

85. M. I. Gorbunov-Posadov (Moscow): Determination of the elastic zone boundary in a sand foundation, which approaches failure under the pressure of a rigid footing.

86. A. Ia. Gorgidze (Tbilisi): On secondary effects in torsion and bending of nearly prismatic bars.

87. L. V. Goryalik (Leningrad): On filtration force and viscous friction in water-saturated sand under dynamical conditions.

88. O. A. Goroshko, G. N. Savin (Kiev): Contribution to the dynamics of inelastic one-dimensional continua of variable length.

89. A. S. Grigoriev (Moscow): On elastic-plastic deformation of non-homogeneous plates and disks.

90. A. S. Grigoriev (Moscow): Equilibrium of membrane shells of revolution for large displacements and strains.

91. G. S. Grigorian (Erevan): Creep design of thin orthotropic sandwich shells.

92. S. S. Grigorian (Moscow): The general equations of soil dynamics and some particular solutions.

93. D. V. Grilitskii (Lvov): Torsion of an elastic layer.

94. A. N. Grubin (Leningrad): Stress concentration in notched tension strips under large creep deformations.

95. V. S. Gubenko, V. I. Mossakovskii (Dnepropetrovsk): The pressure of an annular die on an elastic half space.

96. I. I. Gudushauri (Tbilisi): Effect of shear stresses in the design of foundation strips of arbitrary rigidity under arbitrary loads.

97. N. O. Gulkanian (Erevan): The bending of a hollow prismatic rod with a rectangular hole.

98. A. M. Gutkin (Moscow): The limit equilibrium of an elastic-plastic disc that is compressed between rough rigid plates.

99. S. G. Gutman (Leningrad): A plane multiply-connected region subjected to a conservative body force and non-uniform heating.

100. S. G. Gutman (Leningrad): The equilibrium of a hollow cone under its own weight and hydrostatic pressure on one of its surfaces when the axis of the cone has an arbitrary orientation.

101. V. M. Darevskii, P. I. Kutnakii (Moscow): Buckling of cylindrical cantilever shell with ring-stiffened edge under internal pressure.

34

VOLAROVICH, M.P.; GUTKIN, A.M.

Compression of a viscoelastic disperse system in the form of a rectangular bar. Koll. zhur. 22 no. 5:543-545 S-O '60.
(MIRA 13:10)

1. Kalininskiy torfyanoy institut.
(Colloids)

82317

S/089/60/008/06/19/021
B006/B063

18.5200
21.7100

AUTHORS: Kondashevskiy, V. V., Chertovskikh, A. N., Pogorelyy, V. S., Gutkin, A. M.

TITLE: The Use of the Alpha Radiation of Radioactive Isotopes in Instruments for the Control of the Dimensions of Workpieces During Their Grinding

PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 6, pp. 576-578

TEXT: The authors have developed a new method for the automatic control of the size of workpieces that are being ground. This method has a high degree of accuracy, and has been tested by the authors under laboratory and industrial conditions. It is based on the dependence of the number of particles reaching a counter upon the area of the cross section of the workpiece penetrated by them. Fig. 1 shows the circuit diagram of the primary element (radioizotopnyy datchik), which is then described. An end-window counter of the type MCT-17 (MST-17) is used. When the instrument is adjusted for a certain size of the piece to be ground, the grinding process is automatically interrupted as soon as this size is attained.

Card 1/2

82317
The Use of the Alpha Radiation of Radioactive Isotopes in Instruments for the Control of the Dimensions of Workpieces During Their Grinding

S/089/60/008/06/19/021
B006/B063

A thorium isotope is used as alpha source. A photograph of the whole instrument is shown in Fig. 3. It was first tested in a laboratory, and then introduced in the "Sibzavod" at Omsk. One command proved to be insufficient in many cases. The feeler shown in Fig. 3 can transmit three commands to the machine: 1) one command for the change from rough to fine machining as soon as the dimension of the workpiece exceeds the final size by 30 - 60 microns; 2) one command for stopping the fine machining as soon as the dimension exceeds the final dimension by 10 - 15μ; machining is continued when the feed of the grinding wheel has been switched off; 3) a signal for the quick removal of the grinding wheel as soon as the workpiece has attained its final size. The individual stages of this process are indicated by the lighting of three different lamps (1,2,3 in Fig. 3) on the instrument. Accordingly, the instrument has two dials (rough and fine) indicating the amount to be removed. The change from the "rough" to the "fine" dial also takes place automatically. There are 3 figures and 1 Soviet reference.

Card 2/2

S/069/60/022/005/004/011
B015/B064

AUTHOR: Gutkin, A. M.

TITLE: Spiral Motion of a Cylinder in a Visco-plastic Disperse System

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 5, pp. 569-572

TEXT: The author has already reported on a theoretical investigation of the spiral flow of visco-plastic disperse systems (Ref. 1) at the 1-y Vsesoyuznyy s"yezd po mekhanike (First All-Union Conference on Mechanics) in 1960. Since this flow with double shearing is important for rheological measurements, the author discusses a flow of this kind assuming that the motion is caused by a long round cylinder of radius a, and that is the visco-plastic medium unlimited. It is further assumed that no gliding takes place between the cylinder surface and the medium in which it is immersed. Proceeding from the Henki-Il'yushin equation (Ref. 2), the velocity distribution in the visco-plastic medium, caused by the spiral motion of the cylinder, is determined. The relationship between torque axial force (acting upon the cylinder), and velocity components of the spiral motion of the cylinder is determined. A method is suggested for the

Card 1/2

Spiral Motion of a Cylinder in a Visco-plastic Disperse System

S/069/60/022/005/004/011
B015/B064

experimental determination of the limiting shearing stress and the plastic viscosity from the measured values of spiral motion of the cylinder in the visco-plastic disperse system is illustrated by two examples. There are 2 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Institute of Power Engineering)

SUBMITTED: February 25, 1960

Card 2/2

84275

S/069/60/022/005/005/011
B015/B064

26.2182
24.4100 also 2308

AUTHOR: Gutkin, A. M.

TITLE: The Flow of a Visco-plastic Disperse System on a Rotating Disk

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 5, pp. 573-575

TEXT: The most simple method of studying the behavior of visco-plastic consistent lubricants in rotating friction units is to examine the flow of a lubricant on a revolving disk. This problem has already been investigated (Ref. 1); since, however, wrong theoretical assumptions had been made the results were also incorrect. In the present paper, first the case is investigated where a thin layer h of the lubricant is applied to the disk which is caused to rotate so quickly that the thickness of the lubricant layer does not change before a certain speed ω has been reached. In the following it is shown that the limiting shearing stress τ_o of the lubricant can be expressed by the following equation:

$$\tau_o = \rho \omega^2 r(1-z_o) \quad (7)$$ (ρ = density of the lubricant, ω = angular velocity,

Card 1/2

The Flow of a Visco-plastic Disperse System on a Rotating Disk

S/069/60/022/005/005/011
B015/B064

r = radius of the cylinder) wherefrom the value for z_c may be calculated. This leads the equation for the amount of lubricant passing through the cylinder surface of radius r:

$Q = \frac{\pi\rho\omega^2 r^2}{3\mu}\left(1 - \frac{\tau_o}{\rho\omega^2 r}\right)^2\left(5 - \frac{\tau_o}{\rho\omega^2 r}\right)$ (13). In the second approximation, the following relation can be written down: $l = h - \frac{h^2}{3\mu}\left(5\rho\omega^2 h - \frac{11}{2}\frac{\tau_o}{r}\right) + \frac{25\rho^2\omega^4 h^5}{6\mu^2}$ (17), where μ = plastic viscosity of the lubricant, t = time, and l = thickness of the lubricant layer. If equation (17) is introduced into (13) instead of l, the lubricant consumption can be determined as a function of time if the values of t are not too high. There are 2 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)

SUBMITTED: February 25, 1960

Card 2/2

84825

S/020/60/134/005/008/023
B019/B060

26,2120

AUTHOR: Gutkin, A. M.

TITLE: The Flow of a Viscoplastic Medium Between Rotating Disks

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 5, pp. 1048 - 1050

TEXT: The parallel rotating disks are supposed to be rigid and coarse, and the distance between the two disks to be smaller than their linear dimensions. Since the medium between the disks is relatively low, the following relations can be written in first approximation after equilibrium is established: $-\partial p/\partial r + \partial \tau_{rz}/\partial z + \rho\omega^2 r = 0$ (6) $\partial p/\partial z = 0$ (7). From these relations, the equation $\tau_{rz} = (dp/dr - \rho\omega^2 r)z + C$ (8) is obtained for the shearing stress, and thence, in turn, $v_r = \frac{\tau_0}{\mu}(z-h) + \frac{1}{2\mu}(dp/dr - \rho\omega^2 r)(z^2-h^2)$ (10). Next, the following relation is obtained for the output Q:

Card 1/3

The Flow of a Viscoplastic Medium Between Rotating Disks

S/020/60/134/005/008/023
B019/B060

$$Q = 4\pi r v_0 z_0 + 4\pi r \int_{z_0}^{h} v_r dz = \frac{4\pi r}{3\mu}\left[(\rho\omega^2 r - dp/dr)(h^3 - z_0^3) + \frac{3}{2}\tau_0(z_0^2 - h^2)\right].$$

Finally, two special cases are examined. In the first one, two massive disks are considered to be approaching at the small velocity U, while in the second case, a viscoplastic medium is supposed to be steadily added between the disks. The differential equation $dp/dr = \rho\omega^2 r - 3\tau_0/2h - 3\mu Q/4\pi r h^3$ (20), and, by integration $p_1 - p_2 = \frac{\rho\omega^2}{2}(a^2 - R^2) + \frac{3\mu Q}{4\pi h^3}\ln\frac{R}{a} + \frac{3\tau_0}{2h}(R - a)$ (21), are obtained. Here, p_1 is the pressure at $r = a$ (a being the aperture diameter, through which there enters the viscoplastic medium), and p_2 is the pressure at $r = R$. N. V Ryabin (Ref. 1) is mentioned. There is 1 Soviet reference.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)

84825

The Flow of a Viscoplastic Medium Between Rotating Disks

S/020/60/134/005/008/023
B019/B060

PRESENTED: May 23, 1960, by Yu. N. Rabotnov, Academician

SUBMITTED: May 17, 1960

Card 3/3

GUTKIN, A.M.; NOVODVORSKAYA, Ye.M.; GRIDASOVA, L., red. izd-va; YEZHOVA, L.L., tekhn. red.

[Methods for conducting exercises in physics (in institutes of higher education); methodological manual for teachers in tekhnical colleges]Metodika provedeniia uprazhneii po fizike (Vo vtuze); metodicheskoe posobie dlia prepodavatelei vysshikh tekhnicheskikh uchebnykh zavedenii. Moskva, Gos.izd-vo "Vysshaia shkola." Pt.1. [Mechanics and molecular physics] Mekhanika i molekuliarnaia fizika, 1961. 174 p. (MIRA 15:1)
(Physics—Study and teaching)

20017
S/069/61/023/001/002/009
B020/B056

// 2320

AUTHOR: Gutkin, A. M.

TITLE: Extrusion of a viscoplastic medium between sliding plane-parallel walls

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 1, 1961, 20-24

TEXT: The problem of the flow of a viscoplastic Shvedov-Bingham medium in a plane capillary under the action of pressure, which acts in one direction, as well as of the tangential stress is dealt with, which acts in perpendicular direction. The axis is orientated perpendicular to the walls (Fig.). The flow per unit length of the capillary tube is

$$Q = 2\left(v_z x_1 + \int_{x_1}^{a} v_z dx\right) = -(2/3\mu)(dp/dz)(a^3 - x_1)^3 - (\theta/\mu)\, a\sqrt{a^2 + \frac{\tau^2}{(dp/dz)^2}}$$

$$- x_1\theta/|(dp/dz)| + \theta\tau^2/\mu(|dp/dz|)^2 \ln\left[a(|dp/dz|)\right.$$

Card 1/6

$+\sqrt{\tau^2+a^2(|dp/dz|)^2}\Big]\Big/(\theta+\sqrt{\theta^2-\tau^2})$ (15), (where τ denotes tangential stress, θ - the limiting tensile stress), which is correct only when $\tau \leq \theta$. When $\tau \geq \theta$, the width of the elastic zone vanishes and for the flow through the unit length of the capillary tube, relation (16) holds.

$$Q=-\frac{2a^3}{3\mu}\frac{dp}{dz}-\frac{\theta a}{\mu}\sqrt{a^2+\frac{\tau^2}{\left|\frac{dp}{dz}\right|^2}}+\frac{\theta\tau^2}{\mu\left(\frac{dp}{dz}\right)^2}\ln\frac{a\left|\frac{dp}{dz}\right|+\sqrt{\tau^2+a^2\left|\frac{dp}{dz}\right|^2}}{\tau} \quad (16)$$

The velocity v_y is obtained from equation

$dv_y/dx = \tau/\mu - \theta/\mu\sqrt{1+(x^2/\tau^2)(dp/dz)^2}$ (12), if it is assumed that the left layer of liquid of the capillary tube is immobile, i.e., $v_y=0$; with $x=-a$

S/069/61/023/001/002/009
B020/B056

Extrusion of a viscoplastic ...

$$v_y = \frac{\tau(x+a)}{\mu} - \frac{\theta\tau}{\mu\left|\frac{dp}{dz}\right|} \ln \frac{\left|\frac{dp}{dz}\right| x + \sqrt{\tau^2 + x^2\left(\frac{dp}{dz}\right)^2}}{-\left|\frac{dp}{dz}\right| a + \sqrt{\tau^2 + a^2\left(\frac{dp}{dz}\right)^2}} \qquad (17)$$

and with $-a \leq x \leq -x_1$

$$v_y = \frac{\tau(a-2x_1+x)}{\mu} - \frac{\theta\tau}{\mu\left|\frac{dp}{dz}\right|} \ln \frac{\left(-x_1\left|\frac{dp}{dz}\right| + \sqrt{\tau^2 + x_1^2\left(\frac{dp}{dz}\right)^2}\right)\left(x\left|\frac{dp}{dz}\right| + \sqrt{\tau^2 + x^2\left(\frac{dp}{dz}\right)^2}\right)}{\left(x_1\left|\frac{dp}{dz}\right| + \sqrt{\tau^2 + x_1^2\left(\frac{dp}{dz}\right)^2}\right)\left(-a\left|\frac{dp}{dz}\right| + \sqrt{\tau^2 + a^2\left|\frac{dp}{dz}\right|^2}\right)} \qquad (18)$$

The velocity of the right liquid layer for given quantities dp/dz and τ is given by

Card 3/6

S/069/61/023/001/002/009
B020/B056

Extrusion of a viscoplastic ...

$$v_y = \frac{2\tau(a-\dot{x}_1)}{\mu} - \frac{20\tau}{\mu\left|\frac{dp}{dz}\right|}\ln\frac{\left(a\left|\frac{dp}{dz}\right|+\sqrt{\tau^2+a^2\left(\frac{dp}{dz}\right)^2}\right)\left(-\dot{x}_1\left|\frac{dp}{dz}\right|+\sqrt{\tau^2+\dot{x}_1\left|\frac{dp}{dz}\right|^2}\right)}{\tau^2} \qquad (19)$$

In the absence of the elastic zone, i.e., if $\tilde{\tau} \geqslant \theta$, with $\dot{x}_1=0$, equation

$$v_y = \frac{2\tau a}{\mu} - \frac{20\tau}{\mu\left|\frac{dp}{dz}\right|}\ln\frac{a\left|\frac{dp}{dz}\right|+\sqrt{\tau^2+a^2\left(\frac{dp}{dz}\right)^2}}{\tau}. \qquad (20)$$

is obtained for the velocity of the right liquid layer from (19). From this it follows that for a viscoplastic disperse system, in contrast to a truly viscous liquid, both components of the flow velocity tensor depend upon the amount of both flow-effecting stresses. Finally, it is said that the equations obtained in the present paper hold also for the case of extrusion of a disperse system in a narrow clearance between two coaxial

Card 4/6

Extrusion of a viscoplastic ...

cylinders, one of which rotates. An exception exists only if the tangential stress τ applied to any cylinder differs only little from the limiting tensile stress θ, and if also the pressure gradient is small, i.e., if the conditions

$$|\theta - \tau|/\theta \leq 1, \text{ a } |dp/dz|/\theta \leq 1.$$

are satisfied. In this case, the inequality of tensile stress on the surface of the inner and outer cylinder acquires decisive importance. Within the entire remaining region of tensile stresses, the flow θ through a narrow clearance between two cylinders of radii R_1 and R_2 and height L may be calculated from (15) and (16). For this purpose, θ may be multiplied in the equations (15) and (16) by $\pi(R_1+R_2)$, and instead of $a = (R_2-R_1/2)$ (21), instead of $\tau = M/[\pi(R_1+R_2)L]$ (22), and $x_1 = (\sqrt{\theta^2 - \tau^2})/|dp/dz|$ at $\tau < \theta$ (23) and $x_1 = 0$ must be substituted at $\tau > \theta$. The angular velocity of the inner cylinder may be calculated from the equations (19) and (20), if v is divided by $R=1/2(R_1+R_2)$, and is substituted from equations (21)-(23). G. V. Vinogradov, V. P. Pavlov,

Card 5/6

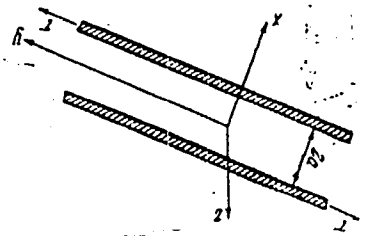
S/069/61/023/001/002/009
B020/B056

Extrusion of a viscoplastic ...

and A. A. Mamakov are mentioned. Professor M. P. Volarovich and Professor G. V. Vinogradov are thanked. There are 1 figure and 3 Soviet-bloc references.

ASSOCIATION: Moskovskiy energeticheskiy institut, Kafedra fiziki
(Moscow Power Engineering Institute, Chair of Physics)

SUBMITTED: December 19, 1959



LOMIZE, G.M.; GUTKIN, A.M.; ZHUKOV, N.V.

Measurement of the conditionally instantaneous modulus of elasticity in tenacious soils. Inzh.-fiz. zhur. 5 no.6:61-66 Je '62. (MIRA 15:12)

1. Energeticheskiy institut, Moskva.
(Elasticity)
(Soil research)

S/069/62/024/001/001/003
B119/B101

AUTHOR: Gutkin, A. M.

TITLE: Slow compression of a viscoplastic disperse system

PERIODICAL: Kolloidnyy zhurnal, v. 24, no. 1, 1962, 8 - 10

TEXT: The slow flow of a viscoplastic disperse system between two coarse, rigid, parallel plates in the form of a band or disc was studied. For the band-shaped system, the force F acting during compression of the plates per unit length of the band is:

$$F = 2bp_o + \tau_o b^2/a + (4/5)(\eta U \tau_o/a^4)^{1/2} + 4\eta U b^3/9a^3$$

(2a = thickness of the system; 2b = breadth), for the disc-shaped system:

$$F = \pi R^2 p_o + \pi R^3 \tau_o/2a + (2\pi/7)(\eta U \tau_o R^7/2a^4)^{1/2} + \pi\eta U R^4/12a^3$$

(R = radius). The relationship between the acting force and the velocity U at which the compressed plates are approaching is expressed by equation

Card 1/3.

Slow compression of a viscoplastic ...

$$U = \frac{25}{32}\frac{\left(F - 2bp_0 - \frac{\tau_0 b^2}{a}\right)^3 \tau_0 a^4}{\eta b^5}\left[1 - \frac{25a\left(F - 2bp_0 - \frac{\tau_0 b^2}{a}\right)}{18\tau_0 b^2}\right]. \quad (9)$$

for the band-shaped, and by equation

$$U = \frac{49a^4\left(F - \pi R^2 p_0 - \frac{\pi R^2 \tau_0}{2a}\right)^2}{2\pi^2 \eta \tau_0 R^7}\left[1 - \frac{49a\left(F - \pi R^2 p_0 - \frac{\pi R^2 \tau_0}{2}\right)}{12R^2\tau_0}\right]. \quad (13)$$

for the disc-shaped system. The lateral pressure coefficient $\varkappa$ depends on the shape of the system and on the value of the lateral pressure. $\varkappa = p_0/(p_0 + \tau_0 b/2a)$ for the band-shaped system , and $\varkappa = p_0/(p_0 + \tau_0 R/2a)$ for the disc-shaped system. There are 1 figure and 2 Soviet references.

Card 2/3

VOLAROVICH, M.P.; GUTKIN, A.M.

Calculating ultimate shearing stress in suspensions with particles having a rigid dipole moment. Dokl. AN SSSR 143 no.4:896-897 Ap '62. (MIRA 15:3)

1. Kalininskiy torfyanoy institut. Predstavleno akademikom P.A.Rebinderom.
(Colloids--Dipole moments) (Strains and stresses)

LOMIZE, G.M.; GUTKIN, A.M.; ZHUKOV, N.V.

Study of the rheological properties of plastic clays. Ozn., fund i mekh grun. 5 no.2:1-4 '63. (MIRA 16:3)
(Clay--Testing)

GUTKIN, A.M. (Moscow):

"On unsteady and quasi-steady flows of a visco-plastic medium."

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

VOLAROVICH, M. P.; GUTKIN, A. M. (Moscow)

"The flow of a visco-plastic medium under combined stresses"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 1964.

GUTKIN, A.M.

Extrusion of a viscoplastic disperse mass between sliding plane-parallel walls. Koll. zhur. 23 no.1:20-24 Ja-F '61.
(MIRA 17:2)

VOLAROVICH, M.P.; GUTKIN, A.M.

Flow of viscoplastic disperse systems in the clearance between two coaxial tubes. Koll.zhur. 25 no.6:642-645 N-D '63. (MIRA 17:1)

1. Kalininskiy torfyanoy institut, kafedra fiziki i Moskovskiy energeticheskiy institut, kafedra fiziki.

[illegible], [illegible]; [illegible], [illegible]

Effect of the heat [illegible] in the [illegible] of a viscoplastic peat mass on its [illegible]. Trudy [illegible] no.[illegible] 59-63 '63. (MIRA 17:12)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617630005-3"

GUTKIN, Abram Markovich, dots., FEDOROVA, Irina Petrovna, dots.; FOMINA, Irina Aleksandrovna, dots., red.

[Errors in physical measurements] Pogreshnosti pri fizicheskikh izmereniiakh. Moskva, Energ. in-t, 1964. 28 p. (MIRA 18:5)

GUTKIN, A.S.; SHLYAPNIKOVA, A.G.

New methods for housing construction; practices of the Obukhovo Combine. Bet.i zhel.-bet. no.4:148-152 Ap 60. (MIRA 13:8)

1. Glavnyy inzhener Obukhovskogo kombinata (for Gutkin). 2. Glavnyy tekhnolog Obukhovskogo kombinata (for Shlyapnikova).
(Leningrad--Precast concrete construction)

IVANOV, A.Ya., prof., otv.red.; AGRANOVSKIY, Z.M., prof., red.; ANDREYEVA-GALANINA, Ye.TS., prof., red.; ANICHKOV, S.V., prof., red.; BABAYANTS, R.A., prof., red.; BASHENIN, V.A., prof., red.; GUTKIN, A.Ya., prof., red.; KAMYSHANOV, A.F., dotsent, red.; KLIONSKIY, Ye.Ye., prof., red.; RYSS, S.M., prof., red.; SMIRNOV, A.V., prof., zasluzhennyy deyatel' nauki, red.; TIKHOMIROV, P.Ye., prof., red.; CHISTOVICH, G.N., prof., red.

[New informative material on the methodology for sanitation of the environment, and the prevention, diagnosis and treatment of some diseases; results of research at the Leningrad Medical Institute of Sanitation and Hygiene to assist in the practice of public health] Novye informatsionnye material po metodike ozdorovleniia vneshnei sredy, preduprezhdeniiu, diagnostike i lecheniiu nekotorykh zabolevanii; rezul'taty nauchnykh issledovanii LSGMI v pomoshch' praktike zdravookhraneniia. Leningrad, 1961. 105 p. (Leningrad. Sanitarno-gigienicheskii meditsinskii institut. Trudy, vol.73). (MIRA 17:3)

1. Deystvitel'nyy chlen AMN SSSR (for Anichkov). 2. Chleny-korrespondenty AMN SSSR (for Babayants, Ryss).

GUTKIN, A.Ya.

23587 ANALIZ NORM PROYeKTIROVANIYa DETSKIKh SADOV I TIPOVYKh PROYeKTOV K NIM V GIGIYeNIChESKOM OTNShENII. GIGIYeNA I SANITARIYa, 1949, No. 7, C. 38-44.

SO: LETOPIS' NO. 31, 1949.

GUTKIN, A. Ya.

GINTSBERG, A.S., arkhitektor; GUTKIN, A.Ya., professor, doktor meditsinskikh nauk.

An efficient design must be worked out for the new schools. Gor. khoz.Mosk. 25 no.6:23-24 Je '51. (MLRA 10:9)
(Schoolhouses)

GUTKIN, A. YA.

Gigienicheskie osnovy planirovki, stroitel'stva i sanitarno-tekhnicheskogo oborudovaniia shkoly /Principles of hygiene in the planning and building of schools and their equipment/. Leningrad, Medgiz, 1952. 208 p. (Trudy Leningr. san.-gigien. med. in-ta)

SO: Monthly List of Russian Accessions, Vol. 7, No. 3, June 1954.

GUTKIN, A.Yn.

Problem of school hygiene in the framework of city sanitary inspection. Gig. sanit., Moskva no.3:42-47 Mar 1953. (CIML 24:3)

KRACHKOVSKAYA, N.G. [author]; GUTKIN, A. [reviewer].

"Education of children with poor eyesight." N.G.Krachkovskaia. Reviewed by A.Gutkin. Gig.i san. no.7:62-63 Jl '53. (MLRA 6:7)
(Children, Abnormal and backward) (Defective sight in children) (Krachkovskaia, N.G.)

GUTKIN, A.Ya., professor.

Principles of sanitation in the planning of buildings for general schools. Trudy LSGMI 14:162-176 '53. (MLRA 7:9)
(School hygiene)

AID P - 2902

Subject : USSR/Medicine

Card 1/1 Pub. 37 - 19/20

Author : Gutkin, A. Ya.

Title : Review of symposium "Problems of School Hygiene". Proceedings of the Scientific Research Institute of Physical Training and School Hygiene, Academy of Pedagogical Sciences, RSFSR, 1953, No. 51, 336 p.

Periodical : Gig. i san., 9, 60-62, S 1955

Abstract : A favorable review of the nine articles by five authors contained in the above symposium.

Institution : None

Submitted : No date

GUTKIN, A.Ya., prof.

Teaching a course in school hygiene. Trudy LSGMI 36:89-99 '56.
(MIRA 14:1)

(SCHOOL HYGIENE--STUDY AND TEACHING)

GUTKIN, A.Ya.

Research work of the Leningrad Sanitary Hygiene and Medical Institute in the field of child and adolescent hygiene. Trudy LSGMI 31:5-10 '56. (MIRA 12:8)

1. Kafedra shkol'noy gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. A.Ya.Gutkin).
(SCHOOL HEALTH,
research in Russia (Rus))

GUTKIN, A. Ya.

Hygienic principles and controversial problems in school planning during the past 20 years, 1935-54. Trudy LSGMI 31:11-30 '56. (MIRA 12:8)

1. Kafedra shkol'noy gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. A.Ya.Gutkin).
(SCHOOL HEALTH,
hyg. aspects of school planning (Rus))

GUTKIN, A.Ya., prof.

"Endemic goiter among schoolchildren in Costa Rica. Gig. i san. 22 no.11:100-101 N '57. (MIRA 11:1)
(COSTA RICA--GOITER)

GUTKIN, A.Ya.

GUTKIN, A.Ya., prof.

Some peculiarities and tasks in the hygiene of children and adolescents. Gig. i san. 23 no.1:27-32 Ja '58. (MIRA 11:2)

1. Iz Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta .
(CHILD WELFARE
in Russia)

GUTKIN, A.Ya., prof.

Planning, construction and equipment of schools abroad; review of literature. Gig. & san. 23 no.3:63-69 Mr '58. (MIRA 11:4)

1. Iz kafedry gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(SCHOOLS
planning, construction & equipment, review)

GUTKIN, A.Ya., prof. (Leningrad)

Role of G.V. Khlopin in the organization of Public Health Sanitary-Hygiene Research Institute in Leningrad. Gig. i san. 23 no.7:85-87 Jl '58. (MIRA 12:1)

(SANITATION
contribution of G.V. Khlopin (Rus))
(HYGIENE
same)
(BIOGRAPHIES
Khlopin, G.V. (Rus))

GUTKIN, A.Ya., prof.

New illumination standards. Gig. i san. 23 no.8:50-52 Ag '58
(MIRA 11:9)

1. Iz Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(ILLUMINATION,
standards (Rus))

GUTKIN, A.Ya., prof. (LENINGRAD)

Construction of children's institutions in the German Democratic Republic. Gig. i san. 23 no.9:56-59 S'58 (MIRA 11:11)
(CHILD WELFARE, in Germany (Rus))

GUTKIN, A.

"Bibliography of Russian disertations on pediatrics, children's infections, the history of pediatrics and the organization of pediatric public health during the past 150 years (1804-1954) by V.S. Vail'. Reviewed by A. Gutkin. Pediatriia 36 no.6:95 Je '58 (MIRA 11:6)

(PEDIATRICS)

GUTKIN, A.Ya.

Child hygiene as basis for the prevention of senescence [with summary in English]. Trudy LSGMI 44:246-265 '58 (MIRA 11:12)

1. Kafedra gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. A. Ya. Gutkin).

(HYGIENE
child hyg. as basis for retardation of senescence (Rus))
(AGING,
sme (Rus))

GUIKIN, A. YA., SOVETOVA, S. YE.

"Modern Status and Tasks of Hygiene of Children and Adolescents."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

[illegible], [illegible].

"Hygienic principles of school planning (according to construction data for 1935-1958)."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

GUTKIN, Abram Yakovlevich; FREYDLIN, S.Ya., red.; RULEVA, M.S., tekhn.red.

[Hygiene in the polytechnical training of schoolboys] Gigiena politekhnicheskogo obucheniia shkol'nikov. Leningrad, Gos.izd-vo med.lit-ry Medgiz, Leningr.otd-nie, 1959. 154 p. (MIRA 13:3)
(VOCATIONAL EDUCATION--HYGIENIC ASPECTS)
(SCHOOL HYGIENE)

AGGEYEV, P.K., prof.; ANDREYEVA-GALANINA, Ye.TS., prof.; BASHENIN, V.A., prof.; BENENSON, M.Ye., doktor med.nauk; VYSHEGORODTSEVA, V.D., prof.; GESSEN, A.I., dotsent; GUTKIN, A.Ya., prof.; ZHDANOV, D.A., prof., laureat Stalinskoy premii; ZNAMENSKIY, V.F., prof.; KLIONSKIY, Ye.Ye., prof.; MONASTYRSKAYA, B.I., prof.; MOSKVIN, I.A., prof.; MUCHNIK, L.S., kand.med.nauk; PETROV-MASLAKOV, M.A., prof.; RUBINOV, I.S., prof.; RYSS, S.M., prof.; SMIRNOV, A.V., prof., zasluzhennyy deyatel' nauki; TIKHOMIROV, P.Ye., prof.; TROITSKAYA, A.D., prof.; UDINTSEV, G.N., prof.; UFLYAND, Yu.M., prof.; FEDOROV, V.K., prof.; KHILOV, K.L., prof., zasluzhennyy deyatel' nauki; VADKOVSKAYA, Yu.V., prof.; MARSHAK, M.S., prof.; PETROV, M.A., kand.med.nauk; POSTNIKOVA, V.M., kand.med.nauk; RAPOPORT, K.A., kand.biolog.nauk; ROZENTUL, M.A., prof.; YANKELEVICH, Ye.I., kand.med.nauk; LYUDKOVSKAYA, N.I., tekhn.red.

[Book on health] Kniga o zdorov'e. Moskva, Gos.izd-vo med.lit-ry, Medgiz, 1959. 446 p. (MIRA 12:12)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Zhanov, Udintsev). 2. Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut (for all, except Vadkovskaya, Marshak, Petrov, Postnikova, Rapoport, Rozentul, Yankelevich, Lyudkovskaya).
(HYGIENE)

GUTKIN, A.Ya., prof.; GLAUER, G.A.; NIKOLAYEV, A.N.; PREOBRAZHENSKAYA, N.N.; RODINA, A.P.

Physical growth of school children in Kirovsk (Arctic region). Gig.i san. 25 no.8:23-27 Ag '60. (MIRA 13:11)

1. Iz kafedry gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(COLD--PHYSIOLOGICAL EFFECT)
(KIROVSK--CHILDREN--GROWTH)

GUTKIN, A.Ya., prof.

Preliminary data on some hygienic principles in designing boarding schools. Gig. i san. 26 no.7:45-51 Jl '61. (MIRA 15:6)

1. Iz kafedry gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(SCHOOLHOUSES)

GUTKIN, A.Ya., prof.

Research on child and adolescent hygiene in the coming years.
Gig. i san. no. 10:89-91 O '60. (MIRA 13:12)

1. Iz kafedry gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(SCHOOL HYGIENE)

GUTKIN, A.Ya., prof.

Topic outline of scientific research carried out by young hygienists of the Leningrad Medical Institute of Sanitation and Hygiene. Biul. Uch. med. sov. 2 no.6:30-32 N-D '61. (MIRA 15:1)
(PUBLIC HEALTH RESEARCH)

GUTKIN, A.Ya., prof. (Leningrad)

By various ways towards one goal. Zdorov'e 8 no.8:10-11 Ag '62.
(MIRA 15:8)

(CHILDREN—CARE AND HYGIENE)

GUTKIN, A.Ya., prof.; RODINA, A.P., dotsent

Hygienic aspects of teaching. Zdorov'e 8 no.12:16-17 D '62.
(MIRA 16:1)
(TEACHING--HYGIENIC ASPECTS)

GUTKIN, A.Ya., prof.

Hygiene of the training process and problems of raising the working capacity of schoolchildren. Vrach.delo no.3:115-119 Mr '63. (MIRA 16:4)

1. Kafedra gigiyeny detey i podrostkov (zav. - prof. A.Ya.Gutkin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(SCHOOL HYGIENE)

GUTKIN, A.Ya., prof.

Current tasks of the school physician. Vop.okh. mat. i det. 8 no.2:84-87 F'63. (MIRA 16:7)

1. Iz kafedry gigiyeny detey i podrostkov (zav. - prof. A. Ya. Gutkin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(SCHOOL PHYSICIANS)

GUTKIN, A. Ya., prof.

Hygiene for children and adolescents as a basis for prolonging the average life span of the population. Gig. i san. 28 no.6: 76-82 Je '63 (MIRA 17:4)

1. Iz kafedry gigiyeny detey i podrostkov Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.