ALFEROV, K.S.

133-58-3-26/29

AUTHORS: Braynin, I.Ye., Professor, Bornatskiy, I.I., Candidate of Technical Sciences and Alferov, K.S., Engineer

TITLE: Increasing the Durability of Large Ingot Moulds by Means of Reinforcement (Povysheniye stoykosti krupnykh izlozhnits putem armirovaniya)

PERIODICAL: Stal', 1958, Nr 3, pp 267 - 270 (USSR)

ABSTRACT: In the open-hearth melting shop of the Makeyevsk Works, two types of ingot moulds were in general use: wide end up, closed bottom with hot tops for ingots weighing 6.2 tons and both ends open moulds for rimming steel for ingots weighing 6.7 tons (data in Table 1). The service life of the first type of mould was 27 casts (consumption 42.5 kg/t of steel) and of the second type 68 casts (18.9 kg/ton). Efforts to increase the life of moulds by suitable adjustment of the chemical composition of iron did not produce any substantial results. As the next step, the use of reinforcing bandages was tried without any change in the design of the moulds. As the results obtained were encouraging, various designs of bandages were tried (Fig.1) with simultaneous increase in the wall thickness of moulds. The final design adopted for both types of moulds is shown in Figs. 2 and 3. These modifications considerably improved the life of the moulds (approximately 2.2 - 2.5 times). The

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133-58-3-26/29

Increasing the Durability of Large Ingot Moulds by Means of Reinforcement

comparison of the consumption of moulds without and with reinforcing bandages is given in Table 2. The following members of the NTOChM participated in the work: S.V. Vasil'-yev, V.S. Kaprov, Ye.I. Baranov, L.Z. Yemets, V.I. Kharina and L.B. Dolmat. There are 2 tables and 3 figures.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute) and
Makeyevskiy metallurgicheskiy zavod (Makeyevka Metallurgical Works)

AVAILABLE: Library of Congress

Card 2/2

MAL'KOV, V.G., inzh.; PRILEPSKIY, V.I., inzh.; DUBROV, V.S., inzh. V rabote prinimali uchastiye: KHIL'KO, M.M., inzh.; MERSHCHIY, N.P., inzh.; CHERVENKOV, V.Ya., inzh.; KUROV, I.N., inzh.; RATNER, B.R., inzh.; BUDYCHOV, G.D., inzh.; ALFEROV, K.S., inzh.; PAVLENKO, N.M., inzh.; FINKEL'SHTEYN, M.M., inzh.; PLUZHKO, N.F., inzh.; SAMSONOV, T.F., inzh.; HABENKO, N.N., inzh.; LAD'YANOV, N.I., inzh.; TUPIL'KO, V.S., inzh.

Deoxidizing and alloying 25G2C steel with ferromanganese and ferrosilicon in 200-ton ladles. Stal' 20 no.9:803-806 S '60. (MIRA 13:9)
(Steel, Structural--Metallurgy)

VECHER, N.A., inzh.; GERMAIDZE, G. Ye., inzh.; PANFILOV, M.I., dotsent; KHIL'KO, M.M., inzh.; MERSHCHIY, N.P., inzh.; ALYEROV, K.S., inzh.; ANTONOV, S.P.; DYKSHTEYN, Ye.I.; YAGNYUK, M.I.; BELIKOV, K.N.; OONCHAREYSKIY, Ya.A.; TRIFONOV, A.G.; SEDACH, G.A.

"Open-hearth plants with large-capacity furnaces" by D.A. Smoliarenko, N.I. Kfanova. Reviewed by N.A. Vecher and others. Stal' 21 no.2:125-126 F '61. (MIRA 14:3)

1. Sverdlovskiy sovet narodnogo khozyaystva (for Vecher, Germaidze, Panfilov).

(Open-hearth furnace—Design and construction)
(Smoliarenko, D.A.) (Kfanova, N.I.)

S/133/63/000/002/004/014
A054/A126

AUTHORS: Alfarov, K.S., Mershchiy, N.P., - Engineers

TITLE: At the Makeyevskiy metallurgicheskiy zavod im. S.M. Kirova (Makeyevka Metallurgical Plant im. S.M. Kirov)

PERIODICAL: Stal', no. 2, 1963, 131

TEXT: To increase the output of the blooming mill, the ingot weight was increased from 6.8 - 7.0 tons to 7.4 - 7.8 tons by raising the height. The dimensions of the blind-bottom molds for killed steel were $\frac{750 \times 670}{650 \times 670}$ x 2,130 mm and those of removable-bottom molds for rimming steel $\frac{717 \times 647}{770 \times 700}$ x 2,650 mm (internally). Killed steel was bottom-poured in 4-mold stools at a linear rate of 0.3 - 0.5 m/min, rimming steel in 8-mold stools (at 0.15 - 0.25 m/min). As to macrostructure and mechanical characteristics the 7.4-ton killed steel ingots are not inferior to the 6.8-ton ones. Decreasing the relative volume of the ingot-head by 0.8 - 1.0% made it also possible to reduce the head crop from 13.0 to 12.5% for common grade killed steel and from 14.5 to 13.5% for high-quality

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S/133/63/000/002/004/014
A054/A126

At the Makeyevskiy metallurgicheskiy zavod ....

steel. When bottom pouring was applied, the conicity of killed steel blooms could be reduced to 2.3%, without the macrostructure being affected. The blooming mill output was increased by an average of 4%.

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ALFEROV, K.S.; PRILEPSKIY, V.I.; MERSHCHIY, N.P.

New developments in research. Stal' 23 no.9:851 S '63.
(MIRA 16:10)

ELIMELAKH, R.Z., inzh.; MERSHCHIY, N.P., inzh.; ALFEROV, K.S., inzh.

Comparing the mechanical and chemical capping of rimmed steel ingots. Met. i gornorud. prom. no.4:14-19 Jl-Ag '63. (MIRA 16:11)

1. Maksyevskiy metallurgicheskiy zavod im. Kirova.

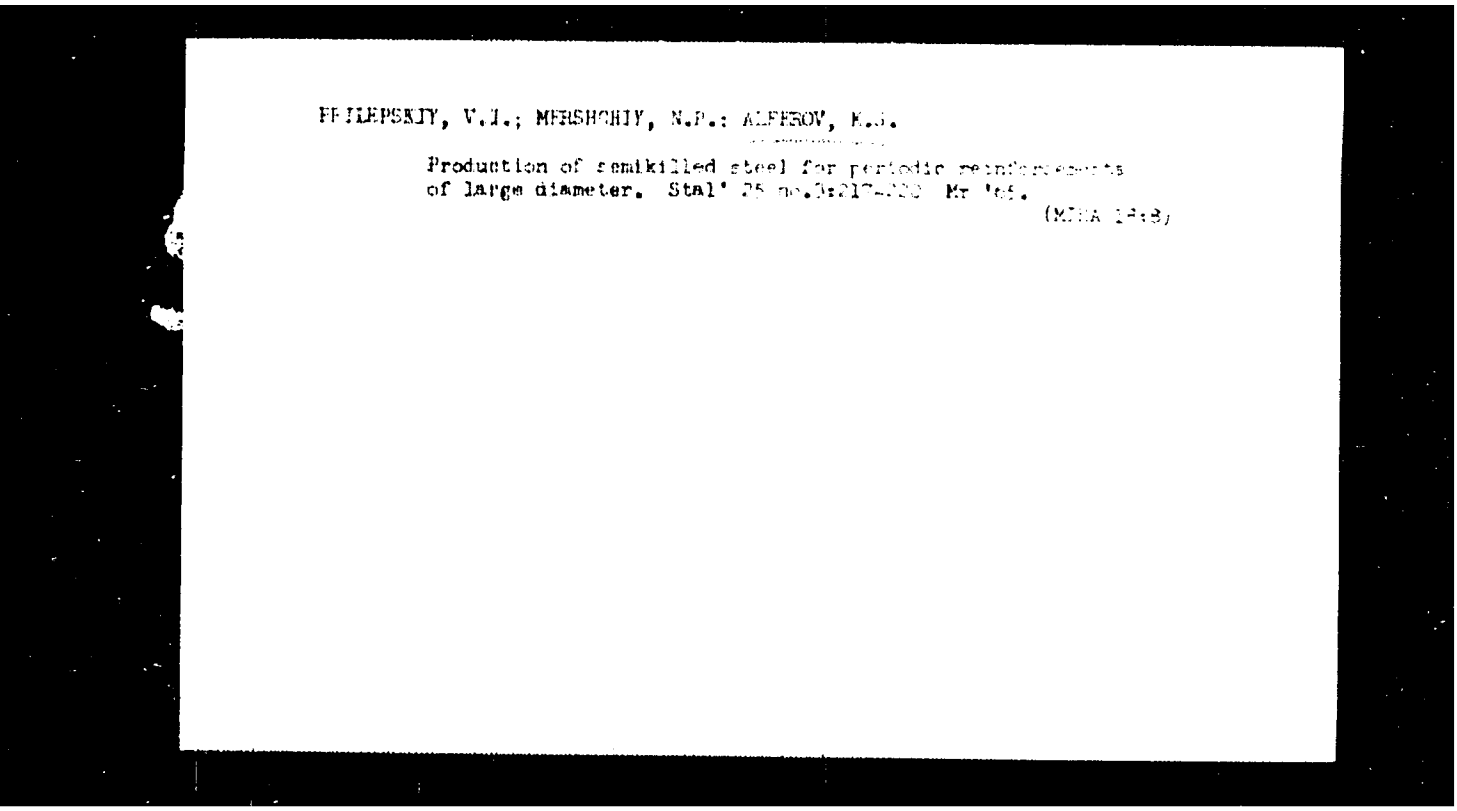
ALFEROV, K.S.; MERSHCHIY, N.P.; PRILEPSKIY, V.I.

Production of semikilled St.5ps reinforcement steel at the Makeevka Metallurgical Plant. Stal' 23 no.7:615-618 Jl '63.(MIRA 16:9)
(Makeevka--Iron and steel plants)
(Concrete reinforcements)

ALPEROV, R.S.; SHTAL'MAN, M.V.; SVETLICHNAYA, S.S.

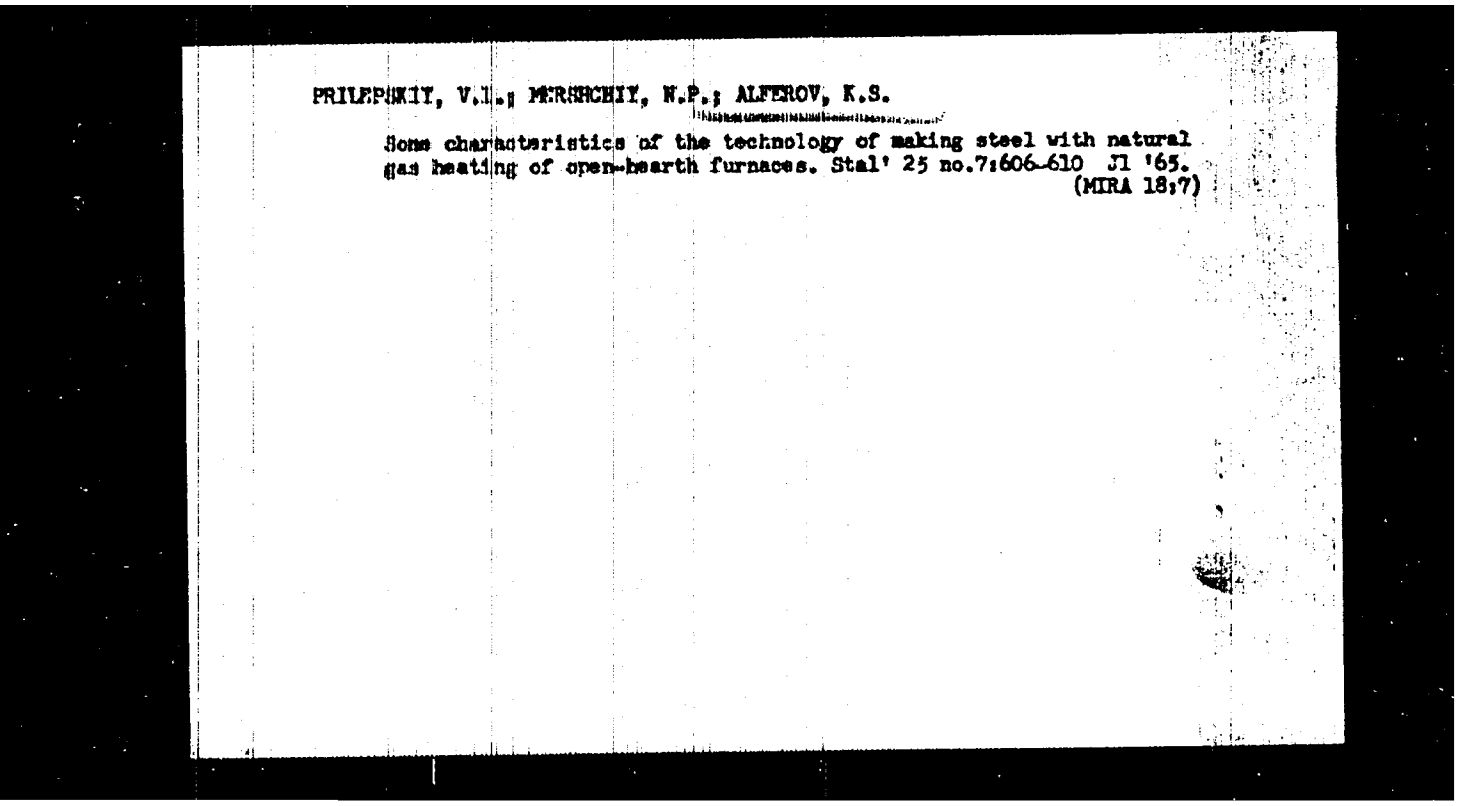
X-ray diffraction study of steel for reinforcements. Metalloved. i term.obr.met. no.1:28-32 Ja '65. (MIRA 18:3)

1. Makeyevskiy metallurgicheskiy zavod.



FILIPSKIY, V.I.; MERSHCHIY, N.P.; ALFEROV, K.I.

Production of semikilled steel for periodic reinforcements of large diameter. Stal' 25 no.3:217-220 Mr '65. (MIRA 18:3)



PRILEPSKIY, V.I.; MERKHEIY, N.P.; ALFEROV, K.S.

Some characteristics of the technology of making steel with natural gas heating of open-hearth furnaces. Stal' 25 no.7:606-610 Jl '65.
(MIRA 18:7)

ALFEROV, K.S.; MERSHCHIY, N.P.

Selecting the optimum composition of powders and the technology of repairing bottoms of open-hearth furnaces. Stal' 25 no.10:910 O '65. (MIRA 18:11)

ALFEROV, K.S.; DOLGOKER, Yu.P.

New developments in research. Stal' 25 no.10:967 O '65.
(MIRA 18:11)

L 42318-66 EWT(1) WW/GD

ACC NR: AT6021836 (A) SOURCE CODE: UR/0000/65/000/000/0060/0078

AUTHOR: Alferov, N. S.; Rybin, R. A.

ORG: Central Boiler and Turbine Institute im. I. I. Polzunov (Tsentral'nyy kotloturbinnyy institut)

TITLE: Heat transfer in annular channels

SOURCE: Teplo- i massoperenos. t. III: Teplo- i massoperenos pri fazovykh prevrashcheniyakh (Heat and mass transfer. v. 3: Heat and mass transfer in phase transformations). Minsk, Nauka i tekhnika, 1965, 60-78

TOPIC TAGS: convective heat transfer, heat transfer coefficient

ABSTRACT: The experiments were carried out in concentric annular channels with a gap width of 0.001, 0.0015, 0.003, and 0.005 meters. The internal diameter of the channel was 0.015 meters. The tests were made in a closed loop with forced circulation of water at a pressure of 147 bars. The circulation rate was varied from 0.4 to 8 meters/sec, the preheating temperatupe from 6 to 70°K, and the heat loads from 23.3×10^4 to 17.45×10^5 watts/m^2. The experimental results are given in tabular and graphic form. The following conclusions are drawn. In

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L 42318-66

ACC NR: AT6021836

the turbulent flow of water in annular channels with heating from one side, convective heat transfer from the internal surface depends on the width of the gap (a calculation formula is proposed). Heat transfer from the outer surface does not depend on the width of the gap. In the surface flow of a liquid with forced motion in annular channels at high values of water underheating, with heating from one and two sides, the heating does not depend on the width of the gap. A second formula is proposed for calculating the heat transfer coefficient under these conditions. Orig. art. has: 12 formulas, 5 figures and 3 tables.

SUB CODE: 20,13/SUBM DATE: 09Dec65/ ORIG REF: 015/ OTH REF: 013

Card 2/2

ACC NR: AR6035104 SOURCE CODE: UR/0137/66/000/008/D034/D034

AUTHOR: Alferova, N. S.; Bernshteyn, M. M.; Kurdyumova, G. G.

TITLE: Mastering of technology for making pipe from N36KhT steel

SOURCE: Ref. zh. Metallurgiya, Abs. 8D233

REF SOURCE: Sb. Proiz-vo trub. Vyp. 16. M., Metallurgiya, 1965, 41-45

TOPIC TAGS: pipe, pipe manufacture/N36KhT steel

ABSTRACT: A detailed analysis was made of the manufacturing technology of pipe from austenitic precipitation hardenable N36KhT steel. With this technology, more than 8000 m of various gages of pipe were produced from centrifugal hollow billets by cold rolling and drawing. The results of technological tests (flattening and expanding) indicated that the finished pipes meet all requirements. Comparison of their qualities with the qualities of cold-formed pipe produced from rolled drilled billets, indicated that the two types of pipe did not differ one from another in mechanical properties and impurity contentration of nonmetallic inclusions. Orig. art. has: 3 figures. L. Kochenova. [Translation of abstract] [NT]

SUB CODE: 11/

Card 1/1 UDC: 621.774.35

ALFEROV, V.E.

The role of microorganisms in geological processes; conference in the Institute of Microbiology. Vest. AN SSSR 27 no.5:110-112 My '57. (MLRA 10:6)

(Micro-organisms) (Geology)

MIKHEL'SON, M.L. KARLIKOV, D.N.; ALFEROV, V.F.

The "three-thermometer" method for measuring the supersaturation of steam in a flow. Zav. lab. 31 no.9:1109-1110 '65. (MIRA 18:10)

1. Institut gornogo dela AN UkrSSR, Krivorozhskiy filial.

ACC NR: AP6037053 SOURCE CODE: UR/0056/66/051/005/1281/1287

AUTHOR: Alferov, V. I.; Bushmin, A. S.; Kalachev, B. V.

ORG: none

TITLE: Experimental investigation of the properties of an electric discharge in an air stream

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1281-1287

TOPIC TAGS: electric discharge, arc discharge, glow discharge, corona discharge, high frequency discharge, volt ampere characteristic, air flow

ABSTRACT: This is a continuation of earlier studies (ZhETF v. 44, 1775, 1963) and is devoted to discharges between electrodes in an air stream. The measurements were made with apparatus described in the earlier paper, at an air velocity 600 m/sec (Mach number M = 3), air densities 0.127, 0.27, and 1.29 kg/m^3, and currents not exceeding 5 amp. Particular attention was paid to conditions under which transitions take place between pre-breakdown (streamer), spark, nonstationary-arc, and diffuse (glow) discharges. The tests consisted of obtaining the volt-ampere characteristics of the discharge, oscillograms of the current, and photographs of the discharge. The tests show that pre-breakdown discharge occurs at sufficiently high voltage on the electrodes in the air stream and is similar in character to corona discharge. It changes either into a spark or a diffuse discharge. At low velocities (~7 m/sec) a discharge occurs with pinched channel, but the discharge is unstable, the arc being carried away by the

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ACC NR: AP6037053

stream. The discharge voltage increases with the current remaining constant. At some value of the current, breakdown occurs, a new channel is produced, the voltage drops, and the process is repeated at a frequency that increases with increasing stream speed. At higher speeds (>38 m/sec) the nonstationary arc discharge turns into a diffuse discharge under certain conditions. The features distinguishing it from other types of discharge are: the discharge channel consists of two branches not connected by a clearly pronounced section, a much higher voltage is required to produce a given current, and the voltage and current execute high-frequency pulsations. The frequency increases with the air speed and with decreasing density, reaching as high as ~2300 cps. All other parameters of the diffuse discharge do not depend on the air speed. The diffuse discharge becomes unstable under certain conditions, at speeds >100 m/sec. Orig. art. has: 8 figures.

SUB CODE: 20/ SUBM DATE: 15Jan66/ ORIG REF: 004/ OTH REF: 002
ATD PRESS: 5108

Card 2/2

ALFEROV, Vyacheslav Il'ich; TYLKIN, M.N., red.; PULIN, L.I., tekhn. red.

[Advanced technological equipment] Progressivnaia tekhnologicheskaia osnastka. Tula, Tul'skoe knizhnoe izd-vo, 1962. 25 p. (MIRA 16:8)
(Interchangeable mechanisms)

[illegible]

ACCESSION NR: [illegible] S/0056/63/044/006/1775/1779

AUTHOR: Alferov, V. I.; [illegible]

TITLE: Electric discharge in supersonic air flow

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1775-1779

TOPIC TAGS: electric discharge, supersonic air flow, breakdown in air, magnetohydrodynamic generator

ABSTRACT: Electric discharges in a closed supersonic tube with two supersonic jet [illegible] have been investigated. By using variable nozzles, the gas velocities were adjusted to Mach numbers of 0.0, 0.8, 1.5, 3.0, and 4.5 at gas densities of 0.135, 0.270, 0.405, and 0.540 kg/m sup 3. Cylindrical molybdenum electrodes, a [illegible] and voltmeters were used. Two procedures were utilized. In the first a stabilizing ballast resistance was included in the electric circuit; in this case resistance R = 950 ohms, inductance L = 7.4 x 10 sup -3 H, and capacitance C = 15 x 10 sup -6 F. The second procedure included a means for the elimination of ballast resistance; here R = 0.28 ohms, L = 24 x 10 sup -6 H, and C = 15 x 10 sup -6 F. Results with the

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L 1009-63

ACCESSION NR: AP3003087

first procedure showed that 1) with the gas at zero velocity the discharge is [illegible] for a number of [illegible]; at [illegible] speed it has a relatively high mobility, indicating an increase in the resistance of a discharge interval; 2) in discharge [illegible] a [illegible] between the electrodes is evident which can be separated from one to three zones, depending on gas velocity; 3) current amplitudes and breakdown voltages are a function of the Mach velocity of a flowing gas. In general, [illegible] resistance have falling volt-ampere characteristics and a high electrode voltage during burning. The second procedure shows that 1) the discharge [illegible] and exhibits a violet glow near the [illegible]; 2) the [illegible] of brightest glow coincides with the location of the shock wave at the time of breakdown; and 3) the magnitude of breakdown voltage increases with an increase in the Mach number, beginning at a certain density and interelectrode distance. "The authors thank B. V. Polyakov for taking an active part in the experiment and for a discussion of the results." Orig. art. has: 1 table and 6 figures.

ASSOCIATION: none

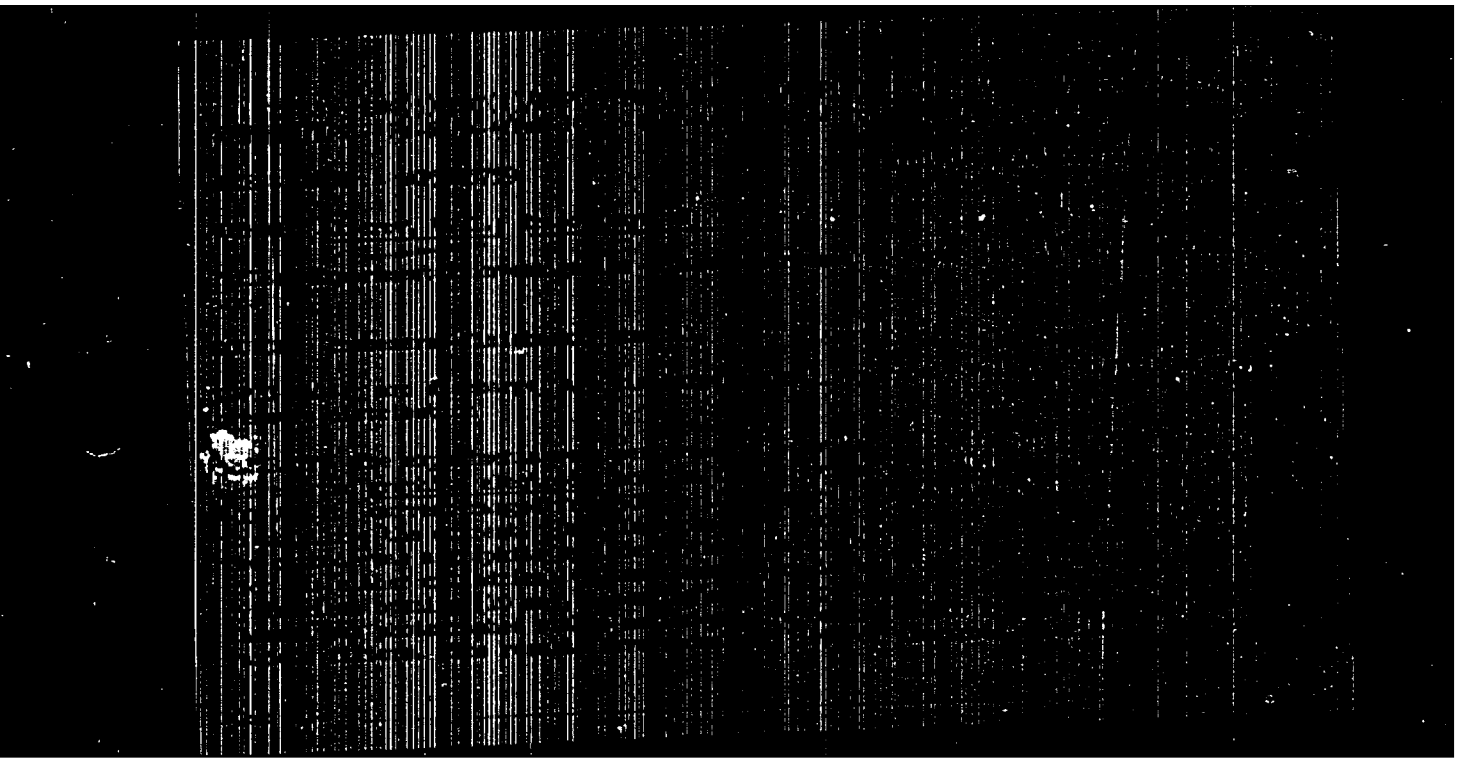
SUBMITTED: 25Dec62 DATE ACQ: 23Jul63 ENCL: 00

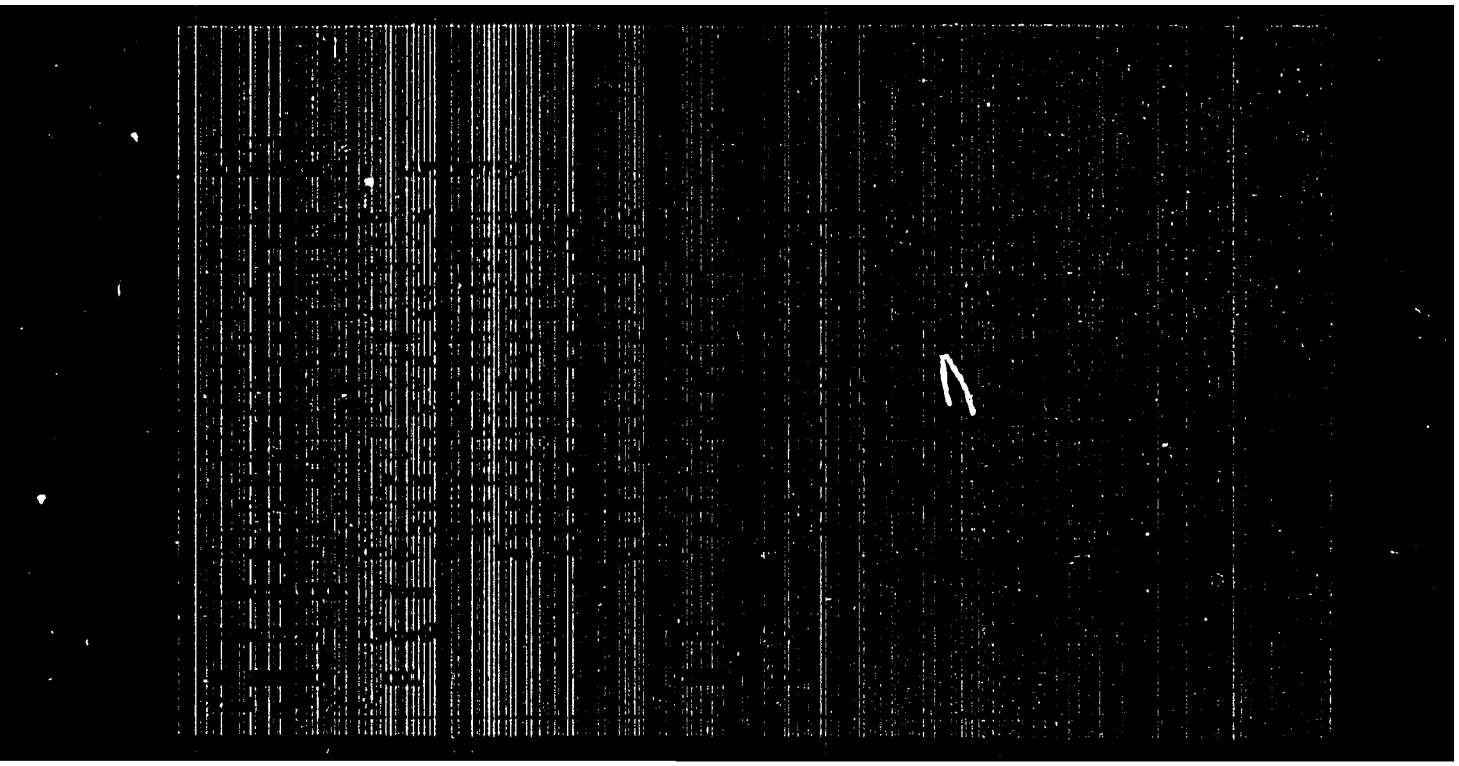
SUB CODE: 00 NO REF SOV: 001 OTHER: 002

Card 2/2

ALFEROV, V. I.; HUSHWIN, A.S.

Experimental study of the effect of an electrostatic field on thermocouple readings. Inzh. fiz. zhur. 7 no.6:133-136 '64. (MIRA 17:12)





APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000101020016-0"

BULGAKOV, I.F.; ALFEROV, V.N., red.

[Collecting medicinal plants] Sbor lekarstvennykh rastenii. Kuibyshev, M-va zdravookhraneniia, 1959. 44 p.
(MIRA 16:7)

1. Starshiy agronom tresta lekarstvennykh rasteniy Ministerstva zdravookhraneniya SSSR (for Bulgakov). 2. Direktor Kuybyshevskoy mezhoblastnoy kontory "Lekrastresta" (for Alferov).

(BOTANY, MEDICAL)

ALIMKOV, V.P.

Late results of Botkin's disease (epidemic hepatitis) in children. Vop.okh.mat.i det. 5 no.3:35-39 My-Je '60.
(MIRA 13:7)

1. Iz kafedry detskikh bolezney (zav. - prof. V.P. Znamenskiy) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (dir. - prof. A.Ya. Ivanov).
(HEPATITIS, INFECTIOUS)

ALFIMOV, V.P., kand. med. nauk

Blood serum glycoproteins in rheumatic children. Pediatriia 42 no.9:87-88 S'63. (MIRA 17:5)

1. Iz kafedry pediatrii (zaveduyushchiy - prof. M.S. Ostrinkina) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

ALPEROV, V.P.

Thymol-veronal test in infectious hepatitis in children. Lab. delo 6 no.5:21 S-O '60. (MIRA 13:9)

1. Kafedra detskikh bolezney (zav. - prof. V.F. Znamenskiy) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (dir.- prof. A.Ya. Ivanov).
(THYMOL) (HEPATITIS, INFECTIOUS)

ALPEROV, V. P.

Cand Med Sci - (diss) "Use of novocaine in Botkin's disease in children. (Clinical, laboratory, and catamnestic observations)." Leningrad, 1961. 22 pp; (Leningrad Pediatrics Medical Inst); 250 copies; price not given;(KL, 5-61 sup, 200)

ALFEROV, V.P., kand. med. nauk; KORCHAGIN, A.I.

Clinicoepidemiological observations in infectious lymphocytosis. Sov. med. 27 no.3:79-81 Mr '64. (MIRA 17:11)

1. Kafedra pediatrii (zav. - prof. M.S. Ostrinkina) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i 2-ya Gorodskaya bol'nitsa (glavnyy vrach B.Z. Brodskiy), goroda Slantsy, Leningradskoy oblasti.

25(1) PHASE I BOOK EXPLOITATION SOV/2098

Moscow. Vysshaya tekhnicheskoye uchilishche imeni N.E. Baumana

Nekotoryye novyye voprosy shtampovki tochnykh detaley; [sbornik statey] (Some New Problems in Stamping Precision Parts; Collection of Articles) Moscow, Oborongiz, 1959. 110 p. (Series: Its: [Trudy] 85) Errata slip inserted. 4,700 copies printed.

Ed.: E.A. Satelya, Honored Worker in Science and Technology, Doctor of Technical Sciences, Professor; Ed. of Publishing House: P.B. Morozova; Tech. Ed.: N.A. Pukhlikova; Managing Ed.: A.S. Zaymovskaya, Engineer.

PURPOSE: This collection of articles is intended for industrial workers in precision stamping and for teachers and students in this or related fields.

COVERAGE: The collection covers problems of stamping thin-walled and low-rigidity sheet products, obtaining rigid "recrystallized" joints, forming square and cyclindrical blanks in closed dies,

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and accuracy and finish in cold extruding. Problems of ultrasonic machining of carbide-alloy materials are also discussed. The articles represent some of the studies carried out in recent years at the Department of Technology of the MVTU (Moscow Higher Technical School) imeni Bauman on methods of stamping precision machine parts. No personalities are mentioned. Some of the articles are followed by references.

TABLE OF CONTENTS:

Some New Problems in Stamping Precision Parts (Cont.) SOV/2098

wear are discussed. Machines of Soviet make are described.

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Card 5/5

ALFEROV, V. V.

Category: USSR/General Division. Congresses. Meetings. Conferences. A-4

Abs Jour: Referat Zh.-Biol., No 6, 25 March 1957, 21343

Author : Alferov, V.V.
Inst : not given
Title : In the Microbiology Institute (Joint Conference with the Confectionery Industry Institute).

Orig Pub: Vestn. AN SSSR, 1956, No 5, 82-83

Abstract: The conference was held on January 16, 1956 and was devoted to the problem of increasing the industrial output of citric acid. The reports were discussed of the confectionery industry institute staff employees L.V. Novoselova on the selection of aspergillus strain, E.I. Zhuravleva on the simplest method of increasing production of citric acid domestically, G.I. Zhuravski on a method of producing citric acid by submerged culture. It was deemed necessary to expand research on choice and selection of highly active fungal strains, to study fungal metabolism, also to study methods of combating infection of fermenting solutions.

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ALFEROV, V.V.

Second coordinating conference on the problem "Controlling microorganism metabolism in order to intensify microbiological processes in industry and agriculture." Mikrobiologiia 25 no.3:389-391 My-Je '56. (MICROBIOLOGY) (MLRA 9:10)

ALFEROV, V.V.

At the Institute of Microbiology; scientific conference. Vest.AN SSSR 26 no.8:90-91 Ag '56. (Trace elements) (MLRA 9:9)

ALFEROV, V.V.

All-Union Conference on the Use of Antibiotics in Animal Husbandry. Izv.AN SSSR. Ser.biol. no.3:384-388 My-Je '57. (MLRA 10:6)
(ANTIBIOTICS--CONGRESSES) (STOCK AND STOCKBREEDING)

ALFEROV, V.V.

Conference in the Institute of Microbiology of the Academy of Sciences of the U.S.S.R. Mikrobiologiia 26 no.2:255 Mr-Ap '57.
(MICROBIOLOGY) (MIRA 10:10)

ALFEROV, V. V.

PA - 2481

AUTHOR by V.V. Alferov

TITLE New Methods of Producing Vitamin B_{12}
(Nowyye myetody prorvodstva vitamina B_{12}, Russian)

PERIODICAL Vestnik Akademii Nauk SSSR 1957, Vol. 27, No. 1, pp. 113-114, (USSR)

Received: 2 May 1957 Reviewed: 4 June 1957

ABSTRACT Vitamin B_{12} is used more and more frequently both in medicine and in stock-farming as stimulant for the growth of the animals. Therefore it is of importance to find the most economic methods of producing this vitamin. On 23 October 1956 a scientific conference took place in the Institute of Microbiology of the Academy of Sciences of the USSR, with representatives of different Institutes of the Academy of Sciences of the USSR, of the Academy of Medicine, of the All-Union Academy of Agriculture as well as of other scientific and official institutions among its participants. Several lectures were given, of which the following commanded the greatest interest: lecture by M.G. Golysheva (candidate for the doctor's degree of biological sciences) on "Synthesis of Vitamin B_{12} through the Microbiological Method by means of 'propionic bacterium shermani'", and lecture by Dr. N.D. Ierusalimskiy, I.V. Konnova, and N.M. Nerohova on "Methods of Increasing the Biosynthesis of Vitamin B_{12} through

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New Methods of Producing Vitamin B_{12} PA - 2481
(Nowyye myetody proizvodstva vitamina B_{12}, Russian)

Micro-Organisms". It could be seen from the lectures that although vitamin B_{12} could be produced by the influence of different micro-organisms its production by means of propionic-acid bacteria still is more preferable. According to M.G. Golyshevm, it has been possible by means of the group mentioned above to obtain 150-200 g of the vitamin per 1 g of the bacteria mass. If the conclusions from the different lectures are drawn, then one arrives at the conviction that in order to increase biosynthesis of vitamin B_{12} it appears to be necessary to damp the synthesis of the folic acid, or - still more economical - to choose such antimetabolites which directly result in vitamin B_{12}. The conference arrived at the conclusion that actinomyces olivaceus seems to be the most favorable for the synthesis of vitamin B_{12}, and furthermore ammonium salts of succinic acid, malic acid, glutinamic acid, asparagic acid, and furmaric acid. They serve as nitrogen sources for the listed organisms, and the organic parts of the salts are consumed by them.

ASSOCIATION:
PRESENTED BY:
SUBMITTED:
AVAILABLE Library of Congress

CARD 2/2

AUTHOR: Alferov, V. V. 30-58-4-24/44

TITLE: The Use of Antibiotics in Food Industry (Primeneniye antibiotikov v pishchevoy promyshlennosti). Conference at the Institute for Microbiology (Soveshchaniye v Institute mikrobiologii)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 4, pp. 107-109 (USSR)

ABSTRACT: In the Institute for Microbiology of the AS USSR a conference took place on January 15 in which representatives of some other institutes of the AS USSR, of the VASKhNIL, the scientific research institutes as well as of a number of industrial enterprises took part. The conference was devoted to the problem of using antibiotics for the preservation of food. A. A. Imshenetskiy, Director of the Institute foe Microbiology, underlined in his opening speech the tasks facing microbiology. Further reports were given by:
1) G. B. Dubrov, representative of the Scientific Research Institute for the Mechanization of Fish Industry, on the

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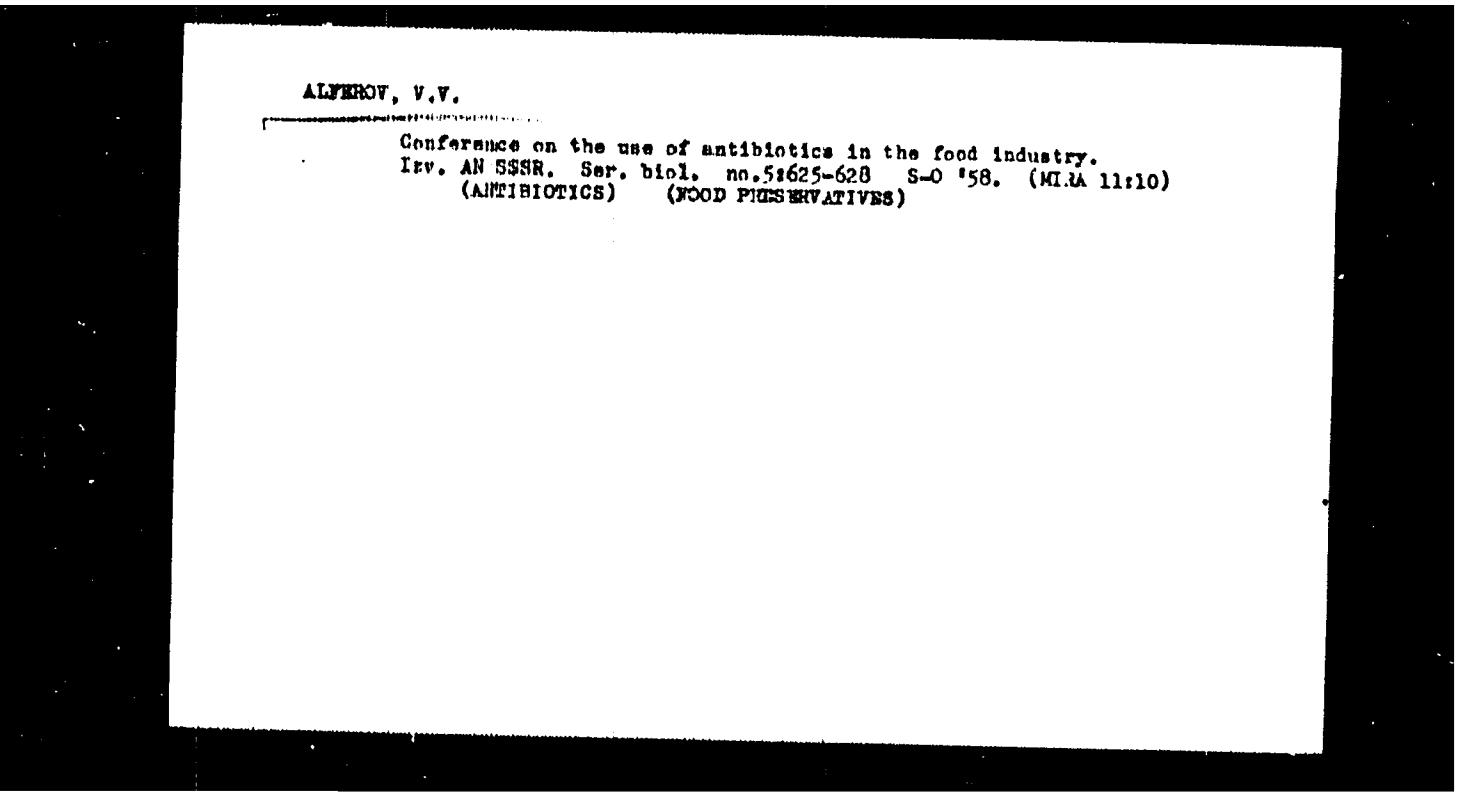
results obtained by the institute in the use of antibiotics for storing fresh fish.

2) V. K. Diklop (All-Union Scientific Research Institute for Meat Industry) on the use of antibiotics for preserving meat.

3) T. B. Ovcharova (All-Union Scientific Research Institute for Canning and Vegetable Drying Industry) on the possibilities of using some antibiotics of vegetable as well as of bacterial origin).

4) A. Ya. Onikiyenko (Leningrad, Scientific Research Institute for Mechanizing Fish Industry) on the use of spectroscopic methods for quick determination of the residual quantities of antibiotics in food.



ALFEROV, V.V.

Conference on the use of antibiotics in the food industry.
Izv. AN SSSR. Ser. biol. no.5:625-628 S-O '58. (MIRA 11:10)
(ANTIBIOTICS) (FOOD PRESERVATIVES)

ALFEROV, V.V.

Conference on the physiology and biochemistry of micro-organisms used in the industries. Izv.AN SSSR Ser.biol. 23 no.1:121-125 Ja-F '58. (MIRA 11:1)
(MICRO-ORGANISMS--INDUSTRIAL APPLICATION--CONGRESSES)

ALFEROV, V.V.

Effect of some chemicals on the morphology of fixed bacterial cells [with summary in English]. Mikrobiologiia 27 no.2:182-188 Mr-Ap '58 (MIRA 11:5)

1. Institut mikrobiologii AN SSSR, Moskva.
(ESCHERICHIA COLI, eff. of drugs on various chem. agents, on morphol. of fixed cells (Rus))

17(2)

AUTHOR: Alferov, V. V. SOV/30-59-2-48/60

TITLE: Continuous Fermentation and Breeding of Microorganisms (Nepreryvnoye brozheniye i vyrashchivaniye mikroorganizmov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 106-108 (USSR)

ABSTRACT: The Institut mikrobiologii Akademii nauk SSSR (Microbiological Institute of the Academy of Sciences, USSR) convened a conference from October 13 to 15, 1958 which dealt with the investigation of some working results in this field as well as with the discussion of a further intensification of the productions basing on the activity of microorganisms. The conference was attended by more than 200 representatives of academic and scientific branch research institutes, enterprises, sovnarkhozes, universities, as well as foreign scientists. The following lectures were heard:
N. D. Iyerusalimskiy spoke of the theoretical foundation of the method of continuous microbe breeding and its prospects of application in the microbiological industry.
Ye. A. Plevako, Vsesoyuznyy nauchno-issledovatel'skiy institut khlebopekarnoy promyshlennosti (All-Union Scientific Research

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Institute of Bread-Production Industry) dealt with the problem of the breeding of yeast in solutions containing molasses.
P. N. Fisher, K. P. Andreyev, V. A. Utenkova, M. Ya. Kalyuzhnyy and A. P. Kryuchkova, Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirtovoy promyshlennosti (All-Union Scientific Research Institute for the Industry of Hydrolysis and Sulfite Spirits) evaluated the theoretical and practical work in the field of continuous fermentation of wood hydrolysates and sulfite liquor as well as their utilization for obtaining fodder yeast.
V. I. Morozova, Krasnoyarskiy gidroliznyy zavod (Krasnoyarsk Hydrolysis Plant) said that the introduction and completion of the continuous process of yeast breeding made it possible to increase the output of yeast factories by ten times.
V. L. Yarovenko, A. L. Malchenko, Vsesoyuznyy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti (All-Union Scientific Research Institute of the Spirit, Liqueur and Brandy Industry), V. M. Nakhmanovich, Dokshuninskaya nauchno-issledovatel'skaya laboratoriya (Dokshuninskaya Scientific Research Laboratory) reported on the experiment of applying the method of continuous fermentation

of the starchy raw material and syrup in the alcohol and acetone-butanol industry.
S. A. Konovalov, All-Union Scientific Research Institute of the Alcohol, Liqueur and Brandy Industry reported on the problem of antiseptics in fighting infection due to ferments.
L. Yu. Medvinskaya, Institut mikrobiologii Akademii nauk USSR (Microbiological Institute of the AS UkrSSR) reported on the investigation of the morphological and physiological properties of yeast.
A. D. Kovalenko, Andrushevskiy spirtovoy zavod (Andrushevka Distillery), N. Ya. Savchenko, Malo-Viskovskiy spirtovoy zavod (Malo-Viskovskiy Alcohol-Distillery), S. P. Makarova, Smolenskiy Sovnarkhoz (Smolensk Sovnarkhoz) reported on some working results obtained by distilleries in the syrup fermentation by using the method of continuous flow.
M. S. Loytsyanskaya, Leningradskiy universitet (Leningrad University) characterized the correlation of reproduction processes and biochemical activity of acetic acid bacteria in the high-speed production of vinegar.
E. M. Meronova, Microbiological Institute of the AS USSR spoke of the possibility of obtaining vitamin B_{12} by

continuous breeding of propionic acid bacteria (propionovokislyye bakterii). S. L. Brinberg, O. Z. Grabovskaya, Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (All-Union Scientific Research Institute of Antibiotics) reported on the application of this method in the production of penicillin.
V. V. Vyatkina, All-Union Scientific Research Institute of the Spirit, Liqueur, and Brandy Industry showed that the method of semi-continuous breeding of the fungus Aspergillus niger accelerates fermentation. B. V. Perfil'yev, Leningrad University reported on the results of investigations of the natural microflora by the method of capillary microscopy which he had developed.
V. A. Kordyum, Kiyev University demonstrated his new batcher for continuous breeding of microorganisms in laboratory practice.
J. Vintik and J. Ričica (Czechoslovakia) expressed their opinions on the methods of continuous breeding of microorganisms.
On this Conference it was pointed to the necessity of organizing the industrial production of cultures for continuous fermentation.

ALFEROV, V.V.

Effect of certain chemical compounds on the morphology of fixed bacterial cells. Report No.2: Role of substances causing cell contraction. Mikrobiologiia 28 no.4:507-513 Jl-Ag '59. (MIRA 12:12)

1. Institut mikrobiologii AN SSSR.
(BACTERIA pharmacol.)

ALFEROV, V.V., (Moskva)

Congress of microbiologists. Priroda no.6:26 Je '60.
(MIRA 13:6)
(MICROBIOLOGY--CONGRESSES)

ALFEROV, V.V.

Experimental production of useful variants of micro-organisms.
Vest.AN SSSR 30 no.5:106-107 My '60. (MIRA 13:5)
(Microbiology--Congresses)

(1)

ALTSHUV, V. V. and [redacted]

"Nuclear Apparatus in Mixobacteria."

report presented at the 8th Intl. Congress of Microbiology, Montreal Canada, 19-25 Aug 1962.

Alferov, V. V.

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Abstracts of Papers from VIII Intl. Congress for Microbiology, 19-25 Aug 62, Montreal.

"Nuclear Apparatus in Myxobakteria"

V V Alferov, A A Imshenetskiy, Moscow USSR

From: Volume of Abstracts published by Congress. USCL.

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

[illegible] for introducing seismic information into a digital computer. Geofiz. razved. no.16:54-74 '64. ([illegible] 18:2)

ALFEROV, V.fe.

Some problems concerning the organization of centralized repair of electrical equipment in industry. Prom. energ. 16 no.12:27-29 D '61. (MIRA 14:12)

(Electric apparatus and appliances--Repairing)

DIKMAROV, S.V., inzh.; ALFEROV, V.Ye., inzh.; VIKHROV, V.P., inzh.

Retention of optimum operating conditions of power transformers of industrial enterprises. Prom. energ. 19 no. 4: 5-7 Ap '64. (MIRA 17:5)

ALFEROV, V.Ye.

Improve the organization of electric equipment repair.
Mashinostroitel' no. 5:10-11 My '64. (MIRA 17:7)

ALFEROV, V.Ya.; DIKMAROV, S.V.

Improve the lighting of working areas. Mashinostroitel' no.8:41 Ag '64. (MIRA 17:10)

ALFEROV, Zh. I.
USSR/Physics - Photodiodes

FD-2398

Card 1/1 Pub. 153-2/21

Author : Alferov, Zh. I.; Konovalenko, B. M.; Ryvkin, S. M.; Tuchkevich, V. M.; and Ufimov, A. I.

Title : Flat germanium photodiodes

Periodical : Zhur. tekh. fiz. 25, 11-17, Jan 1955

Abstract : The authors describe the principal properties of germanium photodiodes of unique design and free from the usual deficiencies. In this design the illuminated area is not limited by the length of the diffusion displacement and can reach very large sizes corresponding to the total area of the n-p transition. They conclude: the germanium photodiode is a photocell valve to which considerable voltages can be applied in the closed direction; the sensitivity of the photodiode is about 300 times that of photocells with external photoeffect; the proper time of germanium photodiodes studied is about $1/10^5$ second, and can be decreased by decrease of the thickness of the n-germanium layer; the characteristics are very stable and free of "fatigue". Deficiencies are considerable temperature dependence of the dark current. The authors thank D. N. Nasledov, N. V. Shchetinina, and L. P. Bogomazov. Three references, including one USSR (S. M. Ryvkin, same issue, p. 21).

Institution: --

Submitted : October 13, 1954

ALFEROV, Zh.I.; SILINA, N.V.

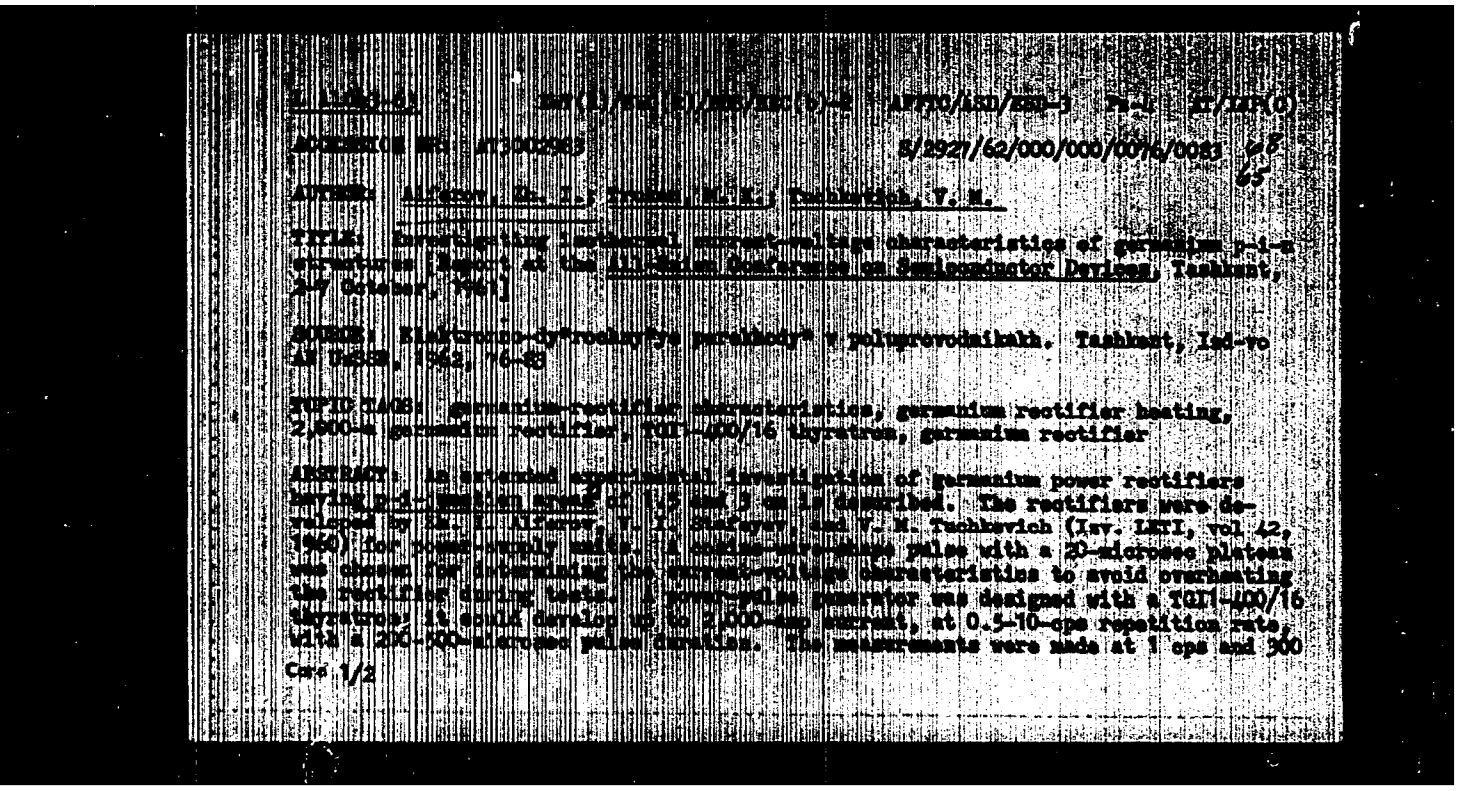
Effect of the surface state on the breakdown voltage of silicon alloy diodes. Fiz.tver.tela 1 no.12:1878-1879 D '59.
(MIRA 13:5)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Diodes)

ALFEROV, Zh.I.; YARV, E.A.

"Breakdown" of silicon alloy diodes in the transmission direction.
Fiz.tver.tela 1 no.12:1879-1882 D '59. (MIRA 13:5)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Diodes)



Card 1/2

L 11043-63 [illegible]

ACCESSION NR: AT3002980

3

[illegible] characteristics of 8 germanium [illegible] curves for p-i-metal and [illegible] temperature of a p-n junction [illegible]. It is based on measuring the [illegible] current-voltage characteristic. Oscillo- [illegible] curves are given in [illegible] to G. V. Gordeyev for a useful [illegible] for discussing the results of [illegible] 10 figures and 5 formulas.

ASSOCIATION: Akad. [illegible] (Academy of Sciences SSSR); Akad. nauk UzSSR (Academy of Sciences [illegible]); [illegible] im. V. I. Lenina (Tashkent State University)

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

SUB CODE: 00 NO REF SOV: 002 OTHER: 001

Card 2/2

44273

S/105/62/000/012/002/003
E194/E155

AUTHORS: Alferov, Zh.I., Tuchkevich, V.M., and Trukan, M.K.

TITLE: The p-n junction temperature in germanium power rectifiers during the forward half-cycle

PERIODICAL: Elektrichestvo, no.12, 1962, 64-66

TEXT: The temperature of the p-n junction in semiconductor rectifiers may determine their failure on overload. The temperature function of the forward voltage drop is a better criterion than that of the reverse saturation current because the latter cools the p-n junction. A family of V-A characteristics is determined at different temperatures by applying current impulses to the rectifier. If the pulse characteristics are correctly chosen there is no heating of the p-i-n structure by the passage of current and no phase displacement between current and voltage due to rectifier diffusion capacitance. The thyratron pulse-generator circuit that was used delivered a sinusoidal voltage wave with an overall duration of 300 microseconds and with flattened peak lasting about 20 microseconds. Peak currents of up to 1000 A were delivered with a pulse-recurrence frequency of

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1 c/s, and the results were independent of this frequency. From the results so obtained the forward voltage drop was plotted as function of temperature. Tests were made on laboratory rectifiers with junction areas of 3 and 1.5 cm^2 and also on commercial models type ГВВ-500 (GVV-500) with 3 cm^2 area. The measurements were made in a half-wave rectifier circuit at 50 c/s. The temperature of the p-i-n structure on passing through the zero value was determined from the temperature function of the reverse saturation current. The temperature of the p-i-n structure varies almost synchronously with the current. During the forward half-cycle, heating is very considerable and for a current of 800 A it reaches 40-45 °C for rectifiers with a junction area of 3 cm^2 and 50-55 °C for those with 1.5 cm^2.
There are 6 figures.
ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physicotechnical Institute AS USSR)
SUBMITTED: March 10, 1962

Card 2/2

L 02224-67 EWT(l)/EWI(m)/T/EWP(t)/ETI JD/AT
ACC NR: AR6013677 SOURCE CODE: UR/0058/65/000/010/E081/E081

AUTHOR: Alferov, Zh. I.; Galavanov, V. V.; Zimogorova, N. S.; Kazarinov, R. F.

TITLE: Recombination radiation from a p-n-n^+ structure in indium antimonide

SOURCE: Ref. zh. Fizika, Abs. 10E662

REF. SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 503-507

TOPIC TAGS: indium compound, antimonide, recombination emission, junction diode, spectral distribution, semiconductor carrier

ABSTRACT: An investigation was made of the spectral distribution of recombination radiation from p-n-n^+ structure in InSb. The p-n-n^+ structures were obtained by fusing In and Sn in n-InSb of high purity. A study was made of the dependence of the intensity and of the spectral distribution of the recombination radiation on the concentration of the injected carriers. [Translation of abstract]

SUB CODE: 20

Card 1/1

ACCESSION NR: AP4013539 S/0181/64/006/002/0644/0645

AUTHORS: Alferov, Zh. I.; Galavanov, V. V.; Zimogorova, N. S.; Kazarinov, R. F.

TITLE: Recombination radiation of p-n-n$^+$ structure in indium antimonide

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 644-645

TOPIC TAGS: recombination, radiation, recombination radiation, p n n$^+$ structure, indium antimonide, spontaneous recombination radiation, spectral distribution, forbidden zone, current carrier, current carrier concentration, current density, radiation intensity

ABSTRACT: The authors have made several experiments on spontaneous recombination radiation, at temperatures near the temperature of liquid nitrogen, from the p-n-n$^+$ structure of indium antimonide. The samples were n-type single crystals with $n = 3 \cdot 10^{14}$ cm^{-3}, $\mu_n = 230\,000$ cm^2/v·sec and $n = 2 \cdot 10^{15}$ cm^{-3}, $\mu_n = 200\,000$ cm^2/v·sec (at the temperature of liquid nitrogen). The width of the middle n-layer was 150-200 microns. The current carrier concentration in the highly doped zones was $5 \cdot 10^{17}$ cm^{-3} in the p zone and above 10^{17} cm^{-3} in the n-zone. The spectral distribution for recombination radiation proved to be almost symmetrical with a maximum at

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ACCESSION NR: AP4013539

an energy of about 0.215 ev. The width of the forbidden zone, determined from the edge of the recombination radiation spectrum, was 0.200 ev, which agrees well with theory for that temperature (13°K). The spectrum of recombination radiation for materials with lower carrier concentration was always somewhat below the spectrum of the first sample. This is undoubtedly due to the beginning of degeneracy in the latter. Preliminary studies indicate a linear relation between current density and intensity of radiation. "The authors sincerely thank Professors V. M. Tuchkevich and D. N. Nasledov for their constant interest in the work, and they thank Ye. A. Gamilko for his aid in preparing the samples." Orig. art. has: 2 figures.

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

SUBMITTED: 07Oct63 DATE ACQ: 03Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 002

Card 2/2

ACCESSION NR: AP4039563 S/0105/64/000/005/0046/0050

AUTHORS: Alferov, Zh. I.; Uvarov, A. I.

TITLE: Thermal breakdown of high-power germanium rectifiers

SOURCE: Elektrichestvo, no. 5, 1964, 46-50

TOPIC TAGS: diode, diode junction, electron hole junction, germanium rectifier, negative resistance circuit, p-i-n junction, thermal breakdown

ABSTRACT: The article is devoted to alloyed p-i-n rectifiers, in which the bulk of the heat under forward conduction is due to recombination of electron-hole pairs in the base and in the highly doped n- and p- parts of the structure, the low thermal inertia of which causes the temperature to vary in synchronism with the supply frequency, thereby limiting the current rating. Another limitation on the current is imposed by the uneven distribution of the current

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ACCESSION NR: AP4039563

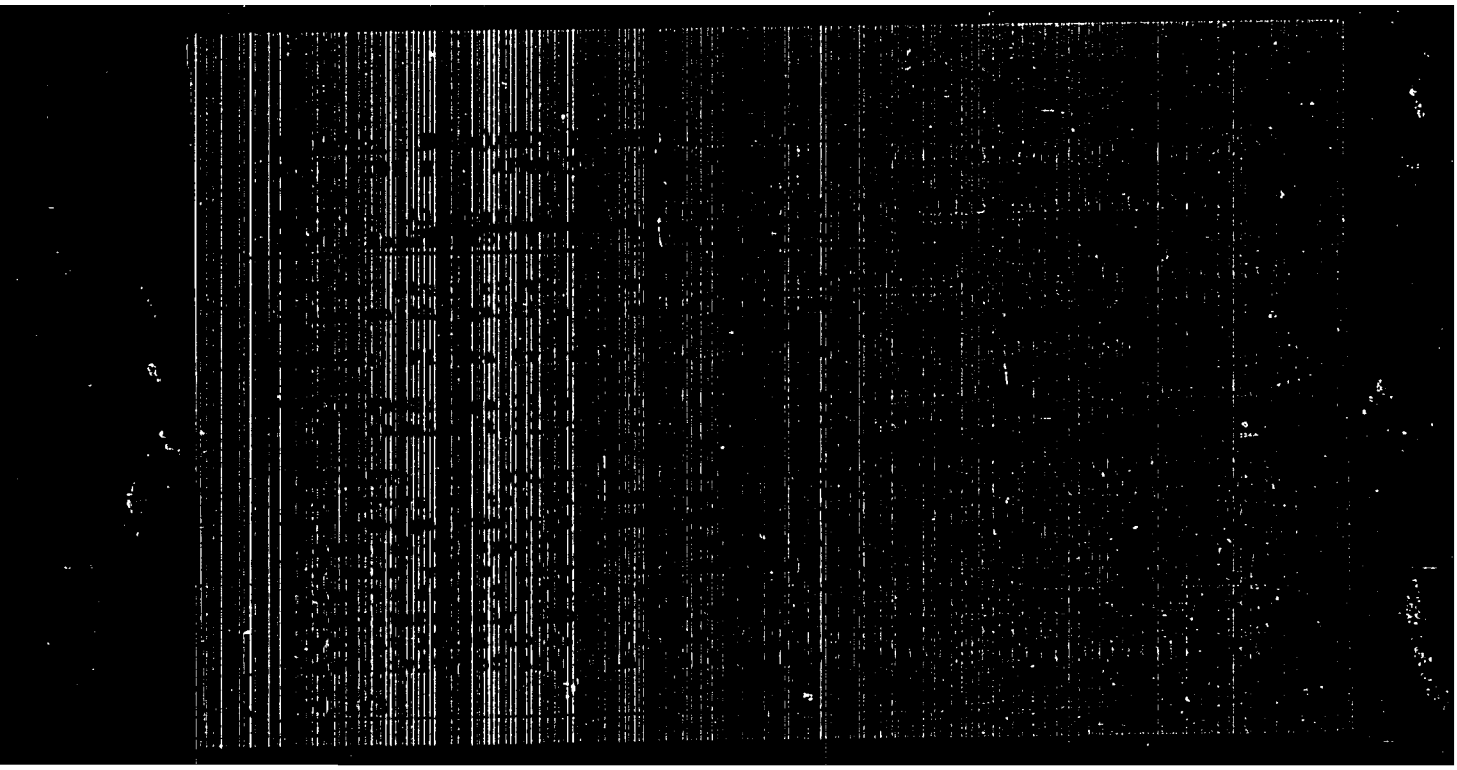
over the area of the p-i-n structure, which may cause local breakdown even if the average temperature is below the critical value. These phenomena were analyzed theoretically and checked experimentally. The results show that the inhomogeneity in current distribution may reach 100% in some sections, and that the limiting current density at 50 cps is 1200--1300 A/cm^2. Local heating of the junction was investigated by using current pulses. Even a short-duration overload is capable of damaging the rectifier. Orig. art. has: 7 figures and 11 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. Ioffe (Physicotechnical Institute)

SUBMITTED: 10Oct63 / DATE ACQ: 01Jun64 ENCL: 00

SUB CODE: EC NR REF SOV: 004 OTHER: 002

Card 2/2



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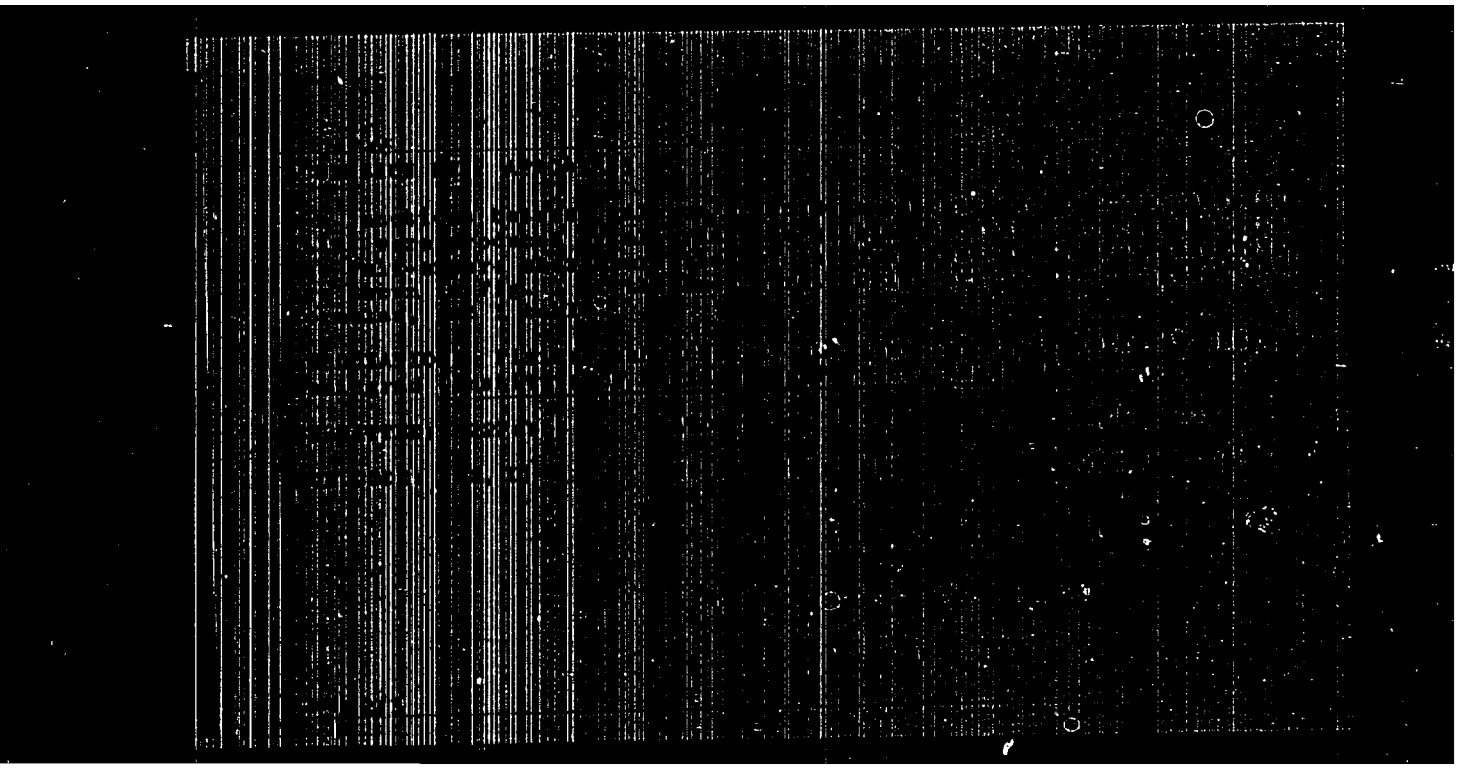

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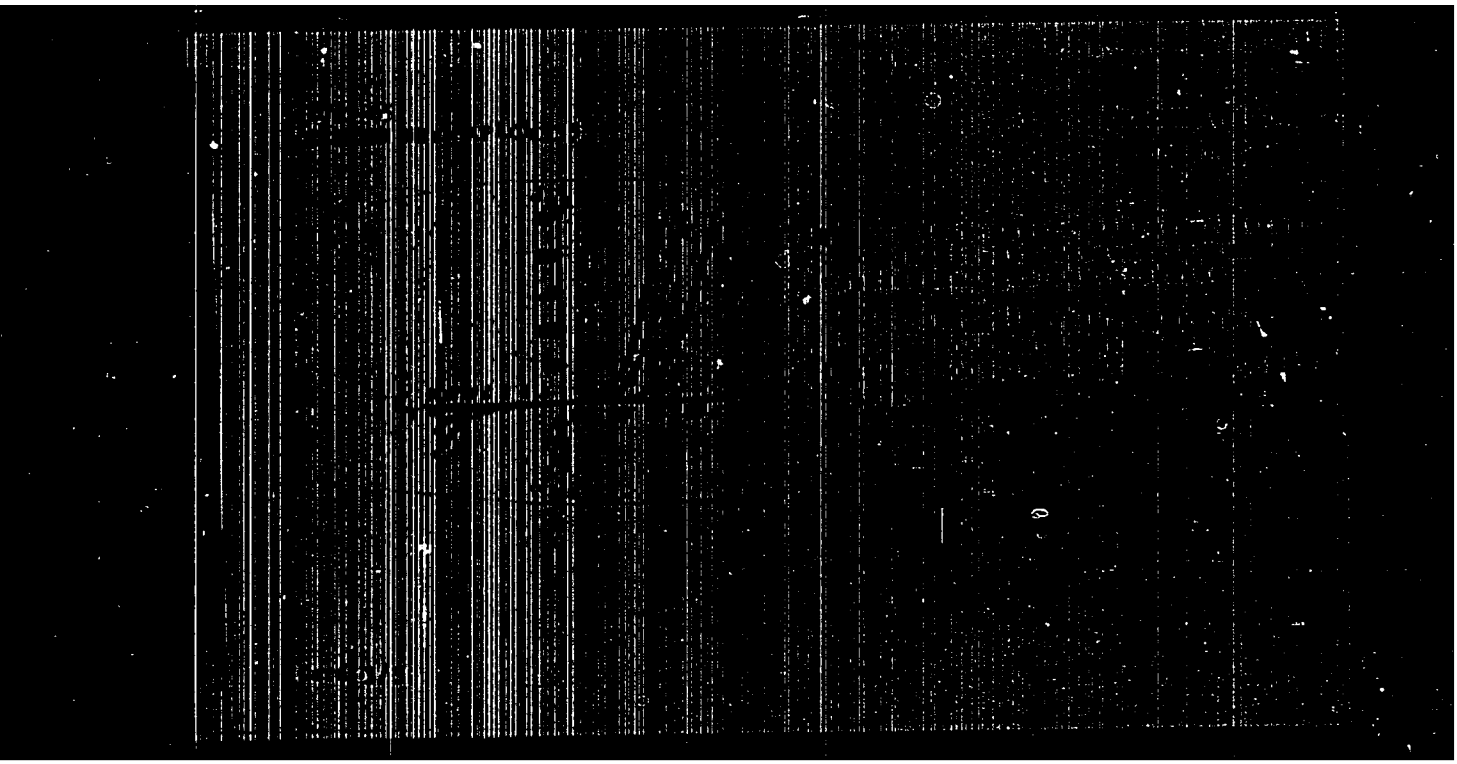

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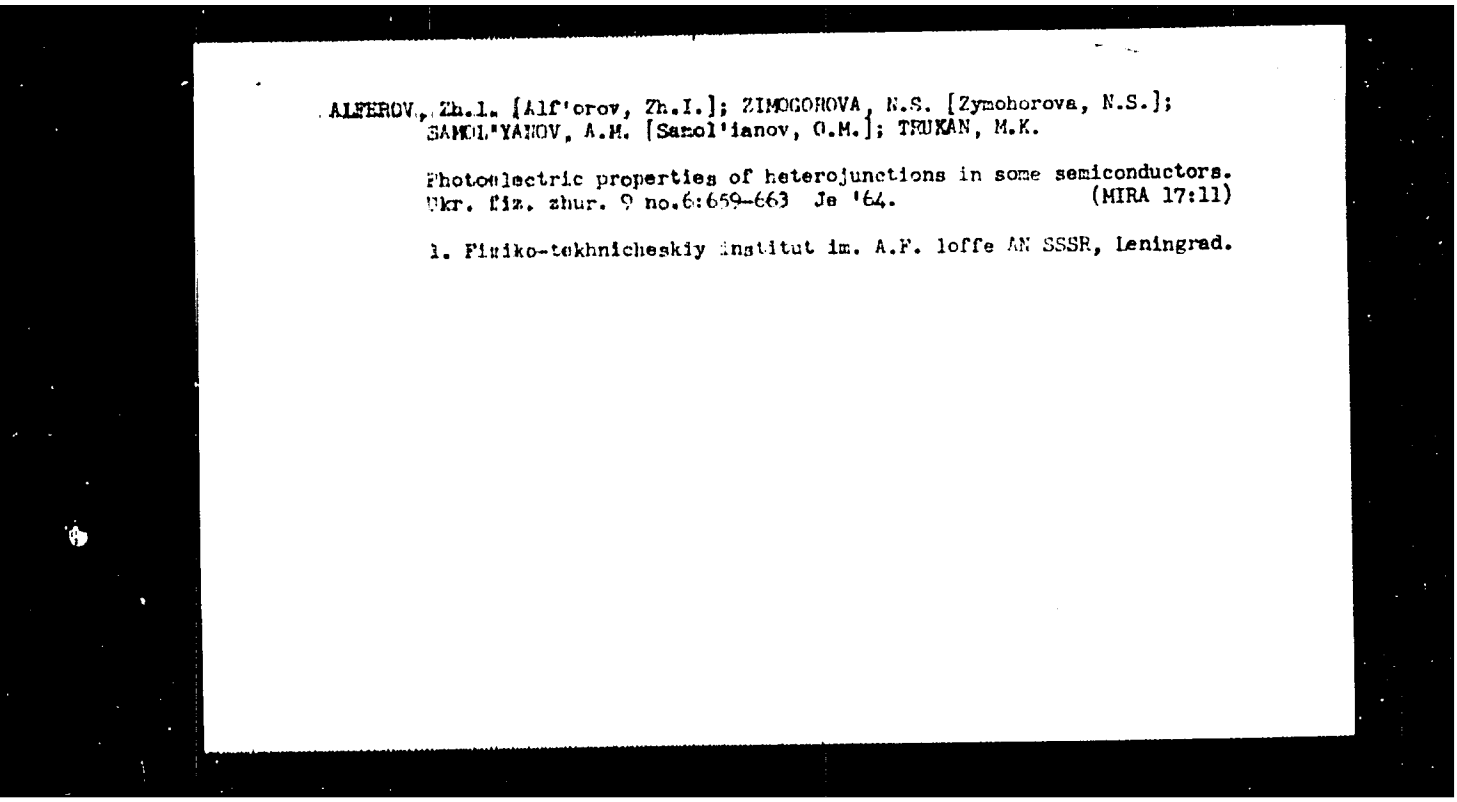
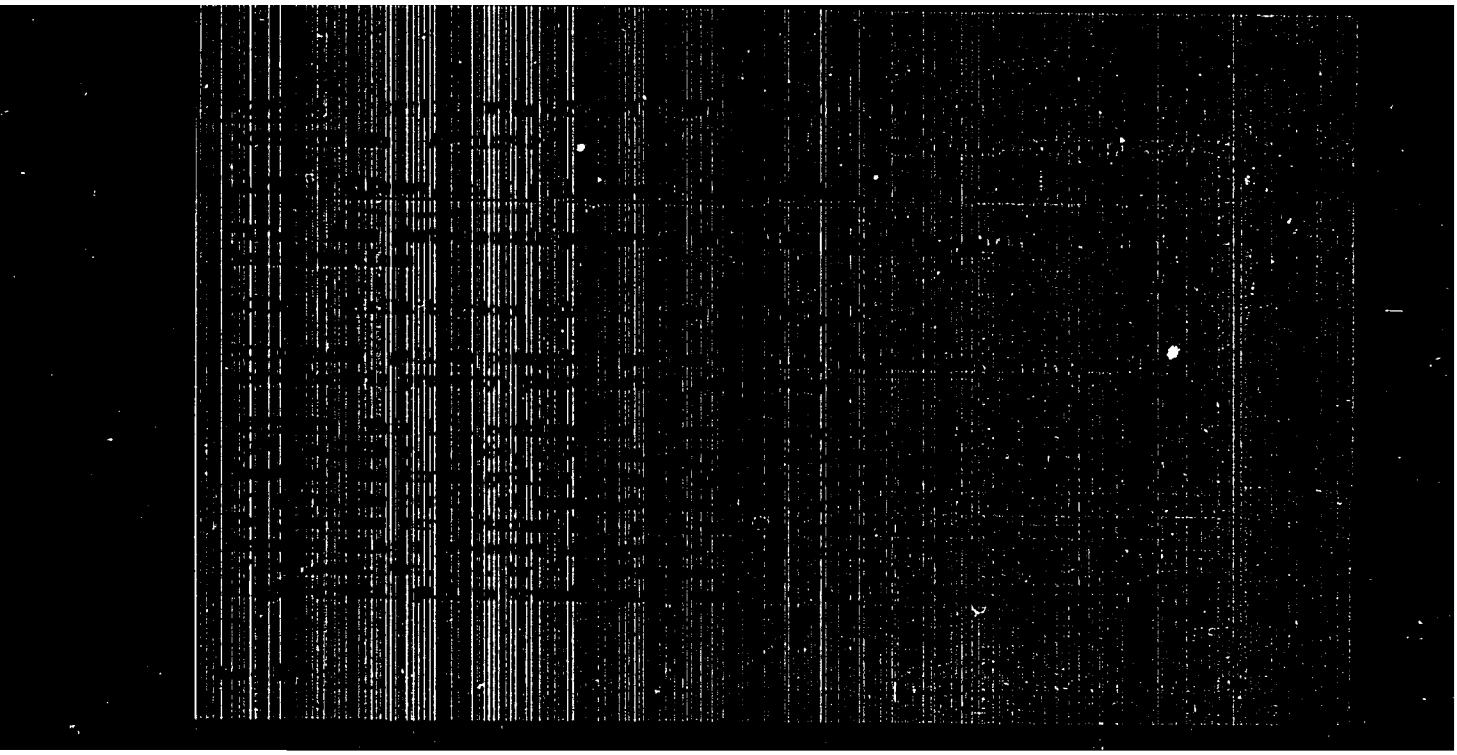


ALFEROV, Zh.I. [Alf'orov, Zh.I.]; ZIMOGOROVA, N.S. [Zymohorova, N.S.]; SAMOL'YANOV, A.M. [Samol'ianov, O.M.]; TRUKAN, M.K.

Photoelectric properties of heterojunctions in some semiconductors. Ukr. fiz. zhur. 9 no.6:659-663 Je '64. (MIRA 17:11)

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



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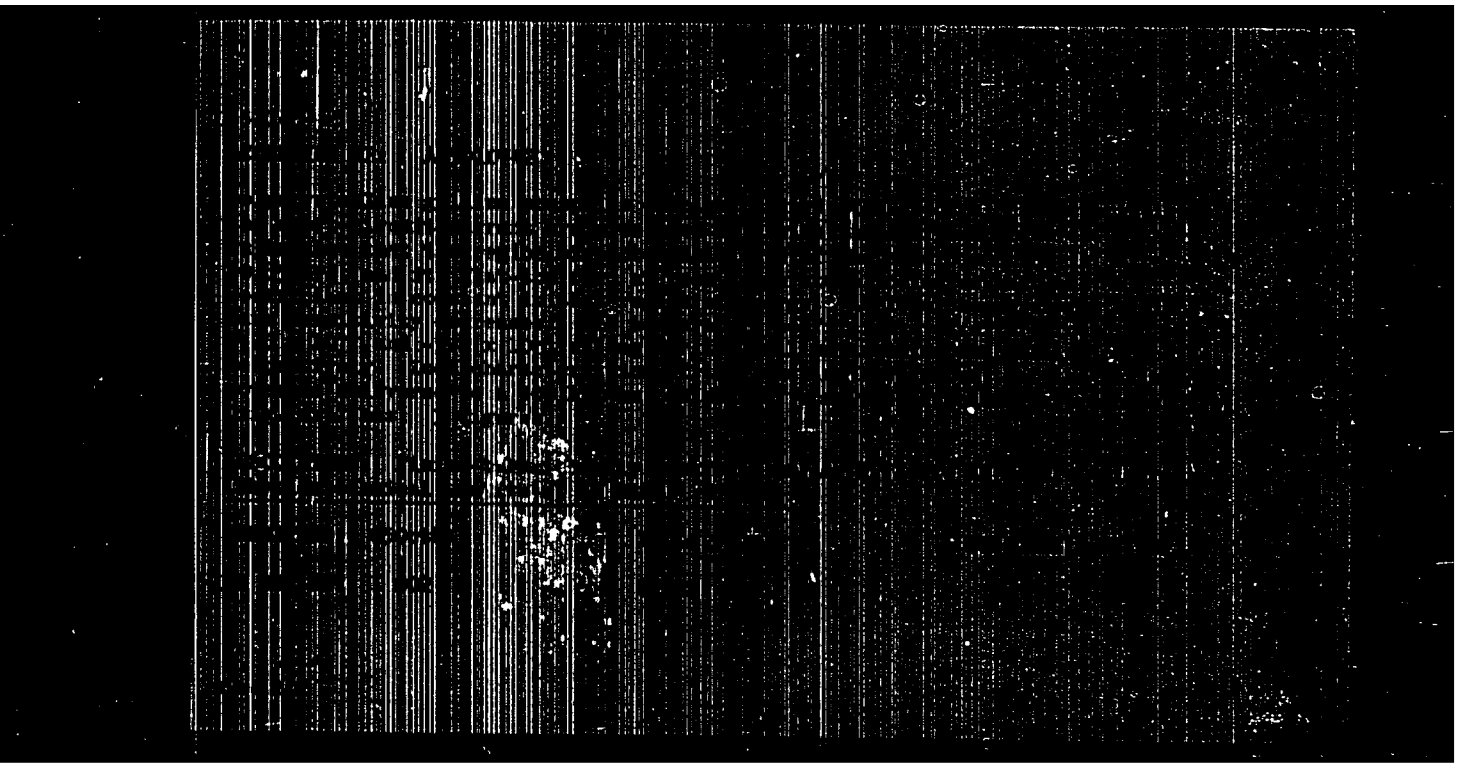

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000101020016-0"

KUZNETSOV, Anatoliy Ivanovich; YUDIN, Vladimir Vasil'yevich; ALFEROV, Zh.I., kand. tekhn. nauk, retsenzent; MITROFANOV, V.V., inzh., retsenzent; PASYNKOV, V.V., prof., doktor tekhn. nauk, nauchn. red.; CHFAS, M.A., red.; KVOCHKINA, G.P., red.

[Technology of the manufacture of semiconductor devices] Tekhnologiia proizvodstva poluprovodnikovykh priborov. Leningrad, Sudostroenie, 1965. 247 p. (MIRA 18:8)

L 1457-66 EWT(1)/EWT(m)/EWP(t)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD

ACCESSION NR: AP5019851 UR/0181/65/007/008/2370/2374

AUTHOR: Alferov, Zh. I.; Korol'kov, V. I.; Trukan, M. K.; Chashchin, S. P.

TITLE: Production and electric properties of p-type epitaxial gallium-phosphide films

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2370-2374

TOPIC TAGS: epitaxial film, thin film, gallium compound, p n junction

ABSTRACT: In view of the importance of epitaxial gallium phosphide films in the production of devices with ordinary and heterogeneous p-n junctions, the authors describe a procedure for obtaining such films and report the results of an investigation of some electric properties of p-type cadmium-doped epitaxial films. The single-crystal epitaxial layers (50-80 μ thick and 3 x 3 or 3 x 6 mm in area) were grown on single-crystal substrates of n-type gallium arsenide (300 μ thick), using gas-transport reactions in sealed quartz ampoules evacuated to 10^{-5} mm Hg. The doping cadmium concentration ranged from 10^{17} to 10^{19} cm^{-3}. The electric measurements were made in the temperature range 77--300K with a dc potentiometer method described by L. J. Van der Pauw (Phil. Res. Rep. v. 13, 1, 1958), at voltages such that the shunting effect of the substrate did not come into play. Plots are presented of the temperature dependences of the conductivity, the carrier density, and

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L 1437-66

ACCESSION NR: AP5019851

19

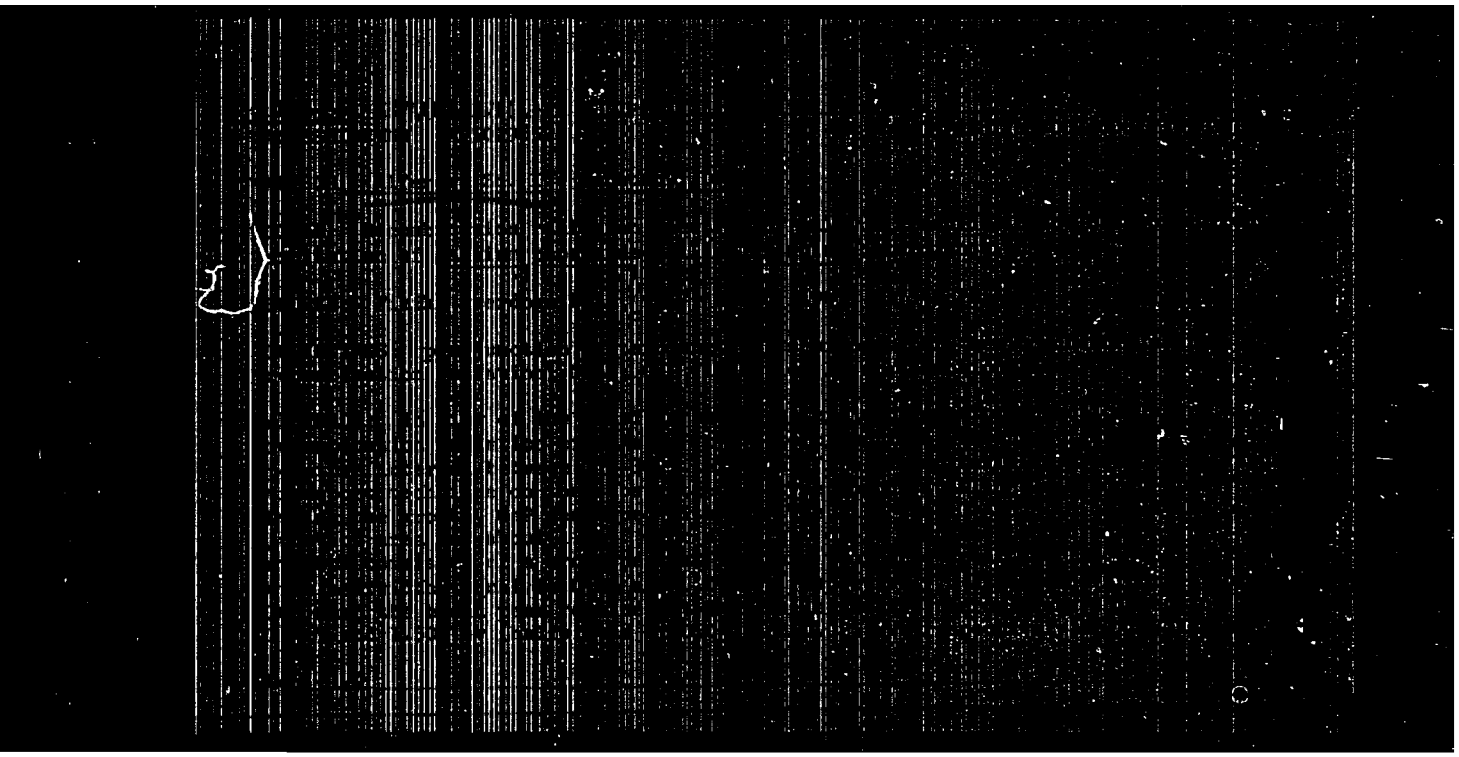
the hole mobility, as well as of the Hall mobility vs. the carrier density. The results are interpreted as being due to the joint action of two scattering mechanisms, the impurity ions and the lattice vibrations, and are found to agree with the theory. The carrier mobility is found to be governed by the concentration of the doping impurities. The authors thank A. S. Borshchevskiy and G. A. Kalyuzhnaya for supplying the high-purity CdSb platelets used to grow the films, O. V. Yemel'yanenko and D. N. Nasledov for valuable remarks, and V. M. Tuchkevich for continuous interest in the work." Orig. art. has: 5 figures and 1 formula. [02]

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

SUBMITTED: 26Jan65 ENCL: 00 SUB CODE: SS, EM

NO REF SOV: 003 OTHER: 006 ATD PRESS: 4100

Card 2/2



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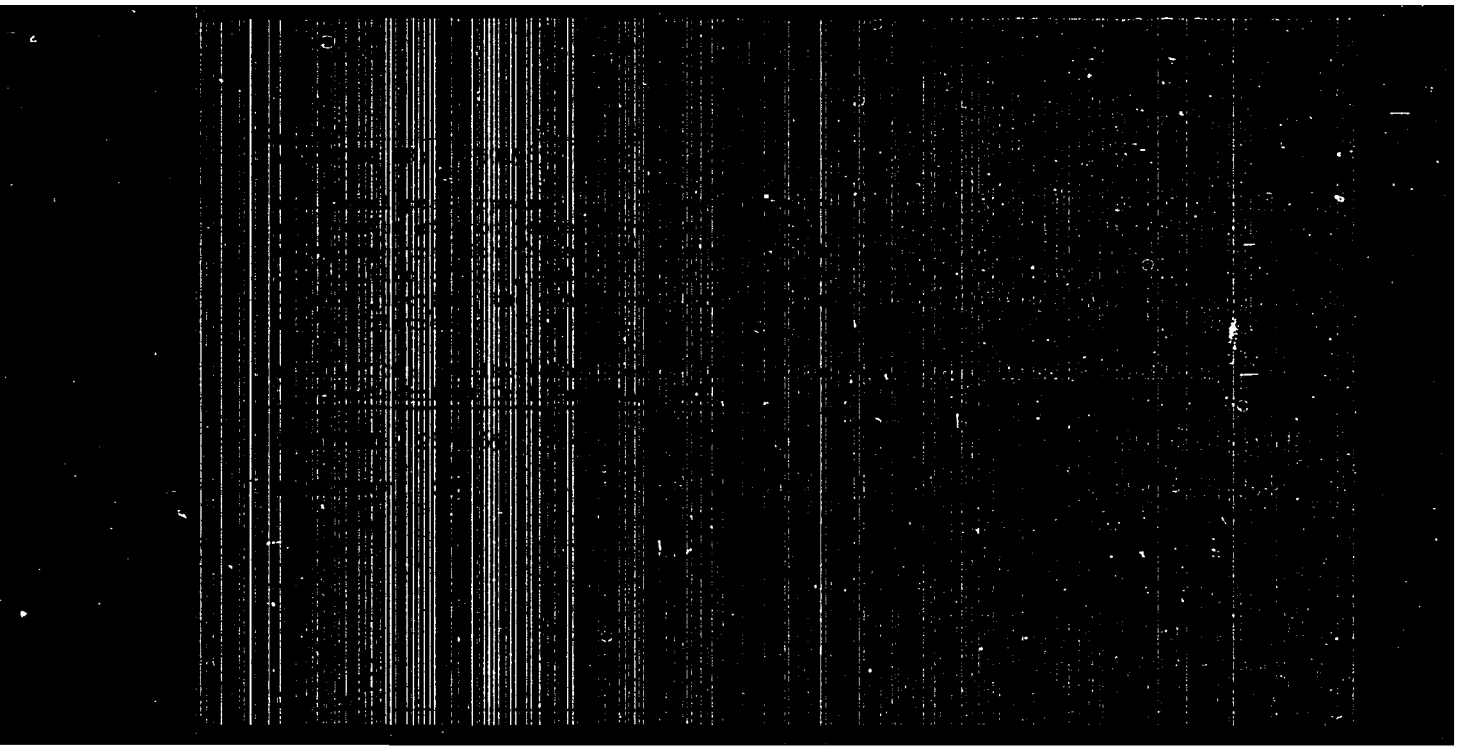

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L 01050-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6030961 SOURCE CODE: UR/0181/66/008/009/2623/2627

AUTHOR: Belle, M. L.; Alferov, Zh. I.; Grigor'yeva, V. S.; Kradinova, L. V.; Prochukhan, V. D.

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

TITLE: Optical reflection of gallium phosphide and gallium arsenide and their solid solutions

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2623-2627

TOPIC TAGS: gallium arsenide, gallium, optical reflection, gallium phosphide, doublet structure, ultraviolet region structure, spin orbital, splitting

ABSTRACT: An analysis is made of the optical reflection of GaP, GaAs, and their solid solutions in the 2.0—5.0 ev region at 100 and 290K. A doublet structure was detected in the ultraviolet region of the spectrum, which shifts linearly with changes in composition. Satisfactory agreement in the distance between double components and corresponding values, determined from infrared absorption, make it possible to ascribe this doublet to the spin-orbital splitting of the Γ_4 valency band at the Γ

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L 01050-67
ACC NR: AP6030951

point, the corresponding transition in this case being $\Gamma_{15} \rightarrow \Gamma_{15}(E_0)$ -- the transition from the upper valency band to the second conductivity band. For GaAs we then have $E_0' = 4.46$ ev, $\Delta_0 = 0.32$ ev, and for GaP, $E_0' = 4.68$ ev, $\Delta_0 = 0.125$ ev (T = 290K). The shift in the doublet $\Lambda_3 \rightarrow \Lambda_1$ occurs linearly with a break. The doublet structure, which becomes less distinct as the content of GaP increases, is observed as far as the composition $GaP_{0.7}As_{0.3}$. Apparently, corresponding transitions occur at various points of the Λ branch for GaP and GaAs (direction [111] in the Brillouin zone). The author thanks Ye. F. Gross for his interest in this work. Orig. art. has: 1 table, and 3 figures. [Authors' abstract] [SP]

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 001/ OTH REF: 009/

Card 2/2

ACC NR: AP6036964 (A,N) SOURCE CODE: UR/0181/66/008/011/3236/3240

AUTHOR: Alferov, Zh. I.; Garbuzov, D. Z.; Morozov, Ye. P.

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

TITLE: Effect of heat treatment on the photoluminescence of gallium arsenide

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3236-3240

TOPIC TAGS: gallium arsenide, photoluminescence, recombination radiation

ABSTRACT: The effect of heat treatment of n-type and cadmium-doped p-type gallium arsenide on its photoluminescence spectra was studied. The samples were heated for 3 hr at 270, 370, 450, 520, 580, 710 and 880°C, and the spectra were recorded at 77 and 300°K. It was found that the position and intensity of the longwave bands of recombination radiation are determined by the conditions of heat treatment of the crystal. When the latter is heated in quartz ampoules above 700°C, the fraction of radiative recombination decreases sharply, and the entire radiation falls within the narrow band of 1.35 eV. Radiation in this band is due to the recombination of excess carriers across one of the acceptor levels of copper. Heat treatment at lower temperatures (450-600°C) causes a strong luminescence in the 1.28-1.30 eV range and a displacement of the 0.96 eV band in the initial material to an energy of 1.01 eV. These changes are attributed to the introduction of lattice defects during heating in

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the presence of copper. In conclusion, authors are grateful to V. M. Tuchkevich and D. N. Nasledov for their constant interest and attention to this work, A. N. Yermakova for assistance in the experiments, and D. N. Tret'yakov for a number of useful suggestions. Orig. art. has: 4 figures.

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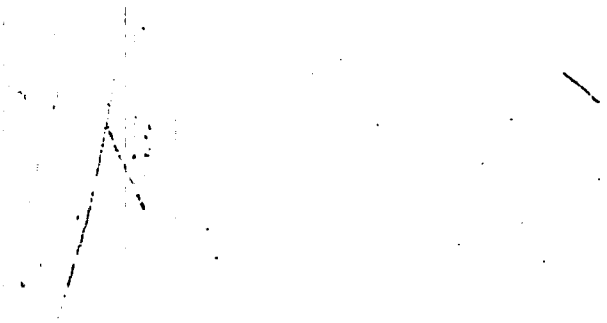

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