SINISOO, M.

A register operating on diodeless Hölken switching elements. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 14 no.1:120-124 '65. (MIRA 18:11)

1. Institut kibernetiki AN Estonskoy SSR.

ACC NR: AT6002991 SOURCE CODE: UR/0000/65/000/000/0240/0243

AUTHOR: Sinisoo, M. A.

ORG: none

TITLE: Diodeless magnetic logic systems

SOURCE: Vsesoyuznoye soveshchaniye po magnitnym elementam avtomatiki i vychislitel'noy tekhniki. 9th, Yerevan, 1963. Magnitnyye tsifrovyye elementy (Magnetic digital elements): doklady soveshchaniya. Moscow, Izd-vo Nauka, 1965, 240-243

TOPIC TAGS: magnetic logic, logic circuit, logic device

ABSTRACT: A comparative analysis is presented of two types of diodeless magnetic-logic systems: (1) Circuits discharging the flux through a resistor and (2) Circuits without flux discharge. It is found that the minimum time of operation of the second type is shorter by a factor of 4.66 than that of the first type. Under certain equal conditions, the minimum size of the first type is smaller by a factor of 2.24 than that of the second type. The hysteresis-loop shape should be closer to rectangular for

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ACC NR: AT6002921

higher pyramiding factors; inferior-shape ferrites are still suitable for the first type. Both types require approximately equal amounts of drive power. Conclusion: The second type seems to be more promising for application with low pyramiding factors, nondestructive readout, and flux accumulation in the receiving element. The first type can be recommended for slower applications. "The project was directed by Corresponding Member, AN SSSR, I. S. Bruk." Orig. art. has: 3 figures and 4 formulas.

SUB CODE: 09 / SUBM DATE: 23Apr65

Card 2/2

L 7497/6-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/EP/EWP(l)/EWP(v)/ [illegible]

ACC NR: AP6017288 SOURCE CODE: UR/0201/65/000/004/0057/0061

IJP(c) JD/HW

AUTHOR: Sinishchuk, I. K.

ORG: none

TITLE: Change in the properties of thin metallic films following mechanical working and heat treatment

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 4, 1965, 57-61

TOPIC TAGS: metal film, zinc, cadmium, copper, MECHANICAL HEAT TREATMENT

ABSTRACT: The author demonstrates the possibility of raising the density of films of zinc, cadmium, and copper to that of the bulk material. The experiments were carried out on zinc and cadmium films sputtered on quartz substrates at pressures 10^{-4} mm Hg. The copper was sputtered on glass with the aid of the UVR-2 apparatus in a vacuum of 4×10^{-5} mm Hg. The film thicknesses ranged from 5 to 100 μ and had different initial densities. Upon application of pressure the density first increased rapidly and then leveled off. The resistivity of cadmium and zinc decreased rapidly at first and then leveled off, while the resistivity of copper decreased slowly. The experiments have shown that the increase in density of the films follows the same pattern as the increase of density of powders, and is described by an exponential function, for which the formula is given. Annealing in hydrogen leads to stabilization of the electric properties of the deformed films. The author thanks Professor N. F. Kunin for valua-

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ACC NR: AP6017288

ble advice and interest in the work. Orig. art. has: 4 figures, 3 formulas, and 1 table.

SUB CODE:// / SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 002/

Card 2/2 JS

BURAKOV, M.V. Primimali uchastiye: IL'IN, A.I.; PEREVERTAYLO, V.F. SINITS, M.A., red.; LYUBIMOVA, T.M., red.; SVESHNIKOV, A.A., tekhn.red.

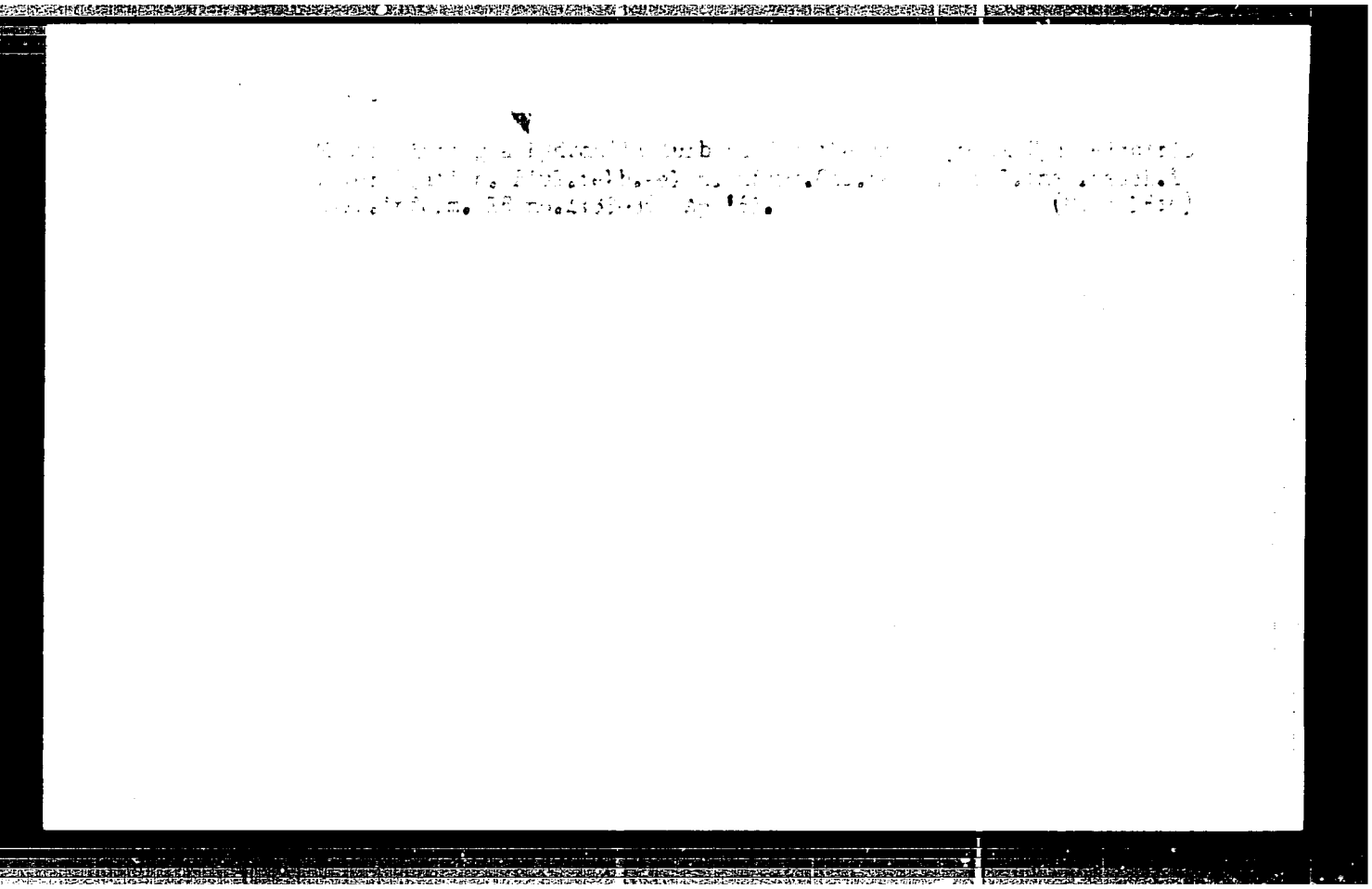
[Practice in operating the "Ural" digital computing machine] Opyt ekspluatatsii tsifrovoi vychislitel'noi mashiny "Ural." Pod red. M.A.Sinitsa. Moskva, Izd-vo "Sovetskoe radio," 1962. 183 p. (MIRA 15:5)
(Electronic digital computers)

SINITSA, A., general-mayor; KONOPLYANIK, V., polkovnik

Greater attention to correspondence students of academies and higher schools. Komm. Vooruzh. Sil 46 no.11:24-28 Je '65. (MIRA 18:6)

KAPLAN, S.Yu.; NEBRAT, L.Ye. [authors]; SINITSA, A.I., inzhener [reviewer].

Remarks on S.IU.Kaplan's article "Inspecting transformers without removing the core," and L.E.Nebrata's article "Inspecting transformers of great capacity without removing the core." Energetik 3 no.5:4-5 O '53. (MLRA 6:10)
(Electric transformers) (Kaplan, S.IU.) (Nebrat, L.E.)



SMITSA, F.I.

Exchange of experience in the increasing of reliability, durability and economic efficiency of energy-producing equipment. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 18 no.5:47-48 My '65. (MIRA 18:6)

SINITSA, G., starshiy leytenant.

A veteran remains in the ranks. Komm. Vooruzh. Sil 46 no.12:66-68 Je '65. (MIRA 18:10)

SINITSA, G. V.

Moldavian soviets' efforts to improve the material well-being and the cultural level of the workers of the Republic between 1920 and 1925. Uch. zap. Tir. gos. ped. inst. no.9:25-39 '60. (MIRA 16:1)

(Moldavia—Economic policy)

25(1) (2) PHASE I BOOK EXPLOITATION SOV/1300

Sinitsa, Igor' Ivanovich

Dvustoronniye periodicheskiye profili; konstruirovaniye (Two-Sided Shapes of Variable Cross Section; Designing) Moscow, Metallurgizdat, 1958. 44 p. 3,000 copies printed.

Eds.: Kalinin, V.P. and Mekhov, N.V.; Ed. of Publishing House: Ozeretskaya, A.L.; Tech. Ed.: Karasev, A.I.

PURPOSE: The booklet is intended for engineers and technicians in rolling mills producing periodically rolled stock, and may be of interest to workers in machine-building plants using rolling stock.

COVERAGE: The author explains the problem in designing various die-rolled periodic profiles with different cross-sections for cam shafts, axles, and other machine parts. Examples of calculations, estimation of tolerances, and other design problems are given. There are numerous illustrations and tables. There

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are seven Soviet references.

TABLE OF CONTENTS:

Two-Sided Shapes of Variable (Cont.) SOV/1300

AVAILABLE: LIBRARY OF CONGRESS

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GO/ar
3-23-59

CHEKMAREV, A.P., akademik; TAYTS, N.Yu., prof., doktor tekhn.nauk; GALATOV, N.S., inzh.; GETMANETS, V.V., inzh.; SINITSA, I.I., inzh.; MINAYEV, A.N., kand.tekhn.nauk; GUBINSKIY, V.I., inzh.; GONCHAROV, Yu.V., inzh.

Reduction of scale formation on continuous wire rod rolling mills. Stal' 22 no.4:327-330 Ap '62. (MIRA 15:5)

1. Dnepropetrovskiy metallurgicheskiy institut i Krivorozhskiy metallurgicheskiy zavod.
(Rolling (Metalwork)) (Wire--Corrosion)

KOLGANOV, G.S.; TARAPUROV, N.P.; SERVETNIK, V.M.; SINITSA, I.I.

Developing and adopting a procedure for the production of chemically capped steel. Stal' 22 no.11:994-996 N '62. (MIRA 15:11)
(Steel ingots)

GETMANETS, V.V., inzh.; KOSTYUCHENKO, M.I., inzh.; SAMSKIY, V.A., inzh.; SINITSA, I.I., inzh.

New method of selecting a rolling technology on continuous shape mills. Stal' 23 no.10:921-923 O '63. (MIRA 16:11)

1. Krivorozhskiy metallurgicheskiy zavod.

SINITSA, I.O. [Synytsia, I.O.]

Some problems in the mastery of the coherence of written language by pupils of the fifth to seventh grades. Nauk. zap. Nauk.-dosl. inst. psykhol. 11:102-105 '59. (MIRA 13:11)

1. Institut psikhologii, Kiyev.
(Children--Language) (Learning, Psychology of)

SINITSA, I.V.

[illegible] 19[illegible]

S[illegible]SA , I. V.

BARA[illegible]IKOV, A. A. i SINITSA, I. V. [illegible] VA[illegible] I VOSSTANOVLENIYE
[illegible]. M., 195[illegible] 64 S S ILL 22 SM. ([illegible] PROM-STI- [illegible]SR
[illegible], UPR. [illegible]. IN-T TEKHN INFORMATSII). 3,000 EKZ. [illegible] --(55-[illegible]52)P
[illegible]:6[illegible].63-77 plus 62[illegible]. 3-77

SO: [illegible] NO. [illegible], 19[illegible]

SAMARSKIY, Anatoliy Fedorovich; SINITSA, I.V., redaktor; IL'INSKAYA, G.M., tekhnicheskiy redaktor

[Charging batteries of electric locomotives] Pamiatka dlia zariadchika batarei akkumuliatornykh elektrovozov. Moskva, Ugletekhizdat, 1955. 40 p. (MLRA 8:8)
(Storage batteries) (Mine railroads)

KRAKHMALEV, A., inzhener; SINITSA, I., inzhener

Shunting crane with remote control. Mast.ugl.4 no.7:24-25 Jl'55.
(Mine railroads) (MLRA 8:10)

KRAKHMALEV, A., inzhener; SINITSA, I., inzhener.

Screw jack. Mast.ugl.5 no.7:24 Jl '56. (MLRA 9:9)
(Coal mining and mining--Equipment and supplies)

KRAKHMALEV, A., inzhener; SINITSA, I.

Improve the performance of underground transportation. Mast.ugl. 5 no.10:14-16 O '56. (MLRA 9:12)
(Coal handling) (Mine hauling)

KRAKHMALEV, A.A., inzhener.; SINITSA, I.V., inzheher;

Safety appliances used in slope mining. Bezop.truda v prom. 1 no.3:10-12 Mr '57. (MLRA 10:4)

(Coal mines and mining--Safety measures)
(Mine haulage)

SINITSA, I., inzhener.

Air engine haulage. ("Air engine haulage in Czechoslovak mines" by B. Leushkin. Reviewed by I. Sinitsa.) Mast.ugl.6 no.5:22 My '57. (MLRA 10:7)
(Czechoslovakia--Mine haulage) (Air engines) (Leushkin, B.)

[redacted], ..., inzhener; [redacted], I., inzhener.

Higher mechanization of mine surface units. Mast.ugl. 6 no.6:6-8 Je '57. (MLRA 10:8)
(Coal mining machinery)

SINITSA, I., inzh.

Book about underground transportation ("Improving work organization of underground transportation in Donets Basin mines" by Z. Leytes, V. Sysoeva. Reviewed by I. Sinitsa). Mast. ugl. 6 no.12:20 D '57. (MIRA 11:1)

(Mine haulage)
(Leytes, Z.)
(Sysoeva, V.)

DREGOLENKO, A., inzh.; SIMITSA, I., inzh.

Frameless cars. Mast. ugl. 7 no. 5:26 My '58. (MIRA 11:7)
(Mine railroads--Cars)

SINITSA, I.V., inzh.-mekhanik.

Mechanized cleaning of mine cars. Ugol' 33 no.2:37-38 F '58.
(Mine railroads--Cars) (Coal-handling machinery) (MIRA 11:2)

SINITSA, I.V.

Designs for waste dumping roadways should be made by specialized organizations. Ugol' Ukr. 4 no.4:46 Ap '60. (MIRA 13:8)

1. Glavnyy spetsialist Gosudarstvennogo nauchno-tekhnicheskogo komiteta Soveta ministrov USSR.
(Mining engineering) (Cableways)

SINITSA, I.V., inzh.-mekhanik

Mechanization of mines under reorganization. Ugol' Ukr. 4 no.12:43 D '60. (MIRA 13:12)

(Donets Basin--Coal mines and mining)

ZYUK'ZYA, Oleg Andreyevich; SINITSA, Ivan Vasil'yevich; PESIN, B.Ya., otv. red.; ABRAMOV, V.I., red. izd-va; GALANOVA, V.V., tekhn. red.

[Repairing underground transportation equipment] Remont oborudovaniia podzemnogo transporta. Moskva, Gosgortekhizdat, 1961. 144 p. (MIRA 15:7)

(Mine haulage—Equipment and supplies)

SINITSA, I.V., gornyy inzh.-mekhanik

Installation for charging traction storage batteries of electric mine locomotives. Ugol' Ukr. 5 no.2:35-36 F '61. (MIRA 14:3)
(Mine railroads)

SINITSA, I.V., gornyy inzh.-mekhanik

"Improving underground transportation in coal mines." Reviewed by I.V.Sinitsa. Ugol' Ukr. 5 no.5:44-45 My '61. (MIRA 15:5)
(Mine haulage)

SINITSA, I.V., gornyy inzh.-mekhanik

Conference on mine transportation. Ugol' Ukr. 5 no.9:46-47 S '61. (MIRA 14:9)

(Mine haulage)

MATVEYEV, M.T.; SINITSA, I.V.

Some shortcomings in the automation of Donets Basin coal mines. (MIRA 14:11)
Ugol' 36 no.11:40-42 N '61.
(Donets Basin--Coal mines and mining)
(Automatic control)

MATVEYEV, M.T., gornyy inzh.; SINITSA, I.V., gornyy inzh.

Shortcomings in the application of over-all mechanization and automation in Donets Basin mines. Ugol' Ukr. 6 no.2: 24-25 F '62. (MIRA 15:2)
(Donets Basin--Coal mines and mining)
(Automatic control)

SINITSA, I.V., gornyy inzhener-mekhanik

Increasing the reliability and durability of the means of automatic control in mines is the basis of efficient automation of industrial processes. Ugol' Ukr. 10 no. 1:30-31 Ja '66. (MIRA 18:12)

9(2) PHASE I BOOK EXPLOITATION SOV/1722

Nadezhnost' radioelektronnoy apparatury; sbornik statey (Reliability of Electronic Equipment; Collection of Articles) Moscow, Izd-vo "Sovetskoye radio," 1958. 144 p. Number of copies printed not given.

Compiler: I.V. Grushin; Ed.: V.G. Masharova; Tech. Ed.: A.A. Sveshnikov.

PURPOSE: The book may be useful to engineering personnel working with electronic equipment.

COVERAGE: The authors discuss the necessity of determining the reliability of component elements of various electronic systems and describe methods of calculating the probability of faults in trigger circuits, amplifiers, rectifiers, and other vacuum-tube devices. No personalities are mentioned. References appear at the end of all but one article.

TABLE OF CONTENTS:

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Reliability of Electronic (Cont.)

the reliability of operation of such standard elements as trigger circuits, pulse-forming circuits, pulse rectifiers, phase inverters, cathode followers, diodes, and amplifiers with pulse delay. There are 3 references, all Soviet.

Zimin, V.A. Life of Vacuum Tubes in Elements of the High-speed Electronic Computer (BESM) 27

The author discusses the results of studying the reliability of computer vacuum tubes at the USSR Academy of Sciences in 1952-1954. He also explains the stability of tube parameters, operating conditions, and tube life. There are 2 references, both Soviet.

Sinitsa, M.A. Problems of Using Stand-by Radio Electronic Equipment 40

The author describes methods of reserving and connecting stand-by equipment, and presents a mathematical analysis of probabilities of faults and discusses the effectiveness of using stand-by equipment. There are 5 references, 3 of which are Soviet [including 2 translations], and 2 English.

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Reliability of Electronic (Cont.)

Babenko, A.A. Reliability Parameters of Electronic Equipment
The author discusses the probability of the occurrence of faults in electronic equipment and explains the necessity of determining the reliability of various components. There are no references.

AVAILABLE: Library of Congress (TK780.N3)

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SOV/108-58-7-2/18

AUTHOR: Sinitsa, M.A.

TITLE: Methods of Reserving Radio Equipment (Metody reservirovaniya radioapparatury)

PERIODICAL: Elektrosvyaz', 1958 Nr 7, pp 6 - 10 (USSR)

ABSTRACT: By 'reservation' is meant the provision of spare components or units in order to increase the reliability of a complete system. Reservation methods may be classified according to the level of application: overall or individual; and the method of connection: permanent or by substitution. In permanent reservation, the extra components are connected in parallel with the existing ones and this may be absolutely necessary where even the slightest interruption of operation may be fatal. On the other hand, short-circuits in the reserve elements may decrease the reliability of the circuit. Substitute reservation has three advantages: in many particular cases, switching in the reserve does not require supplementary control of output parameters and input impedance; in some cases the reserve elements may be present only when there is no power; this saves both the equipment and the expenditure of energy; there is also the possibility of using one reserve element in a number of

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roles this being the case in some radio-relay circuits. The main disadvantages of reservation by substitution are the possibility of reduced reliability due to the presence of complicated switching arrangements and the increase in cost which is particularly aggravated by the tendency to provide reservation at a lower and lower level. It is considered that the operating conditions of the reserve elements may take three different forms. Firstly, the conditions may coincide exactly with those of the working elements; secondly, the conditions may be somewhat eased until the moment of switching-in and thereafter be identical; thirdly, the conditions may be so much easier that, in effect, the reserve element is only stressed from the moment when it is switched in. Figure 1 shows how the different forms of external conditions affect the probability distribution laws of reserve element breakdown. The method of calculation introduced, leading to expression (6), is conformable with the method of computing reliability of complex systems introduced by V.I. Siforov (Ref 1). It is concluded that if the conditions under which the

reserve elements operate are easier than the working conditions, then reservation by substitution is more effective than permanent reservation.
There are 1 figure and 4 Soviet references.

SUBMITTED: December 27, 1957

Card 3/3 1. Radio equipment--Maintenance 2. Radio equipment--Preservation
3. Radio equipment--Performance

SINITSA, M. A.

"Calculation of Average Failure-to-Failure Time of Equipment,"

paper presented at the 5ht Symposium on Reliability and Quality Control in Electronics, Philadelphia, 12-14 Jan 1959.

This paper considers the main time between failures for equipment of electronic nature. The paper is concerned with mathematical formulation of the problem and considers the consequence of certain approximations conventionally made in the mathematical formulism.

Some results are derived leading toward an understanding of the law of change for mean time between failures as a function of time during the life of the equipment.

"Reservation by Substitution Techniques," (paper presented at above conf.)

The author considers substitution techniques intended to produce reliable operation of systems of electronic equipment. He shows that in a number of cases, more reliable operation of systems can be achieved by providing "substituting reservation" as compared with permanent switching to a spare (hot reserve) unit. Effective usage of a single spare component for substitution with respect to several operating components is considered.

SOV/106-59-4-6/13

AUTHOR: Sinitsa, M.A.

TITLE: Gain in Reliability With Reservation [of Functional Capacity] by Replacement (Vyigrysh v nadezhnosti pri rezervirovanii zameshcheniyem)

PERIODICAL: Elektrosvyaz', 1959, Nr 4, pp 49 - 55 (USSR)

ABSTRACT: This article is a development of the author's previous work ("Radio-apparatus Reserve Methods", Elektrosvyaz', 1958, Nr 7). The object is to compare qualitatively the reliability of a system in which the reserve elements are switched into the circuit to replace faulty elements and the reliability of the same system in which the reserve elements are permanently connected in the circuit. The gain in reliability is taken as:

$$W = P/P_{3aM} \qquad (2)$$

where P is the probability of failure with a permanently connected reserve and $P_{3\,aM}$ is the probability of failure with reservation by replacement. Analytical relationships and values of the gain in reliability depend on external conditions, on the form of the functions

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Gain in Reliability With Reservation [of Functional Capacity] by Replacement

which describe the probability distribution of the time the elements operate without failure $f(t)$ and on the multiplicity of the reserve m. In the article, the gain is determined for particular external conditions and for various functions $f(t)$.

1) Gain in reliability with external conditions of the third form (for definition of first, second and third forms, reference to the author's previous work is necessary). The system consists of one operational element and m reserve elements. For $f(t) = \text{const.}$, the gain in reliability is shown to be:

$$W = (m + 1)! \qquad (5).$$

The gain depends only on the multiplicity of the reserve elements m and is independent of the total exploitation time T. Thus, W is independent of the reliabilities of the elements in the system. Also, W increases rapidly with the reserve multiplicity. For $f(t) = bt$, the gain

Gain in Reliability With Reservation [of Functional Capacity] by Replacement

in reliability is shown to be:

$$W = \frac{(2m + 2)!}{2^{m+1}} \qquad (8) .$$

Again, the gain depends only on the multiplicity of the reserve but this time the gain increases very much faster with increase of m .

For $f(t) = Ce^{-Ct}$, the gain is shown to be:

$$W = \frac{(1 - e^{-CT})^{m+1}}{1 - e^{-CT}\left[1 + CT + \frac{(CT)^2}{2!} + \ldots + \frac{(CT)^m}{m!}\right]} \qquad (15) .$$

From this formula, it is seen that the gain depends, in this case, not only on m but also on C and T , i.e. ultimately on the reliability of the elements q ,

Gain in Reliability With Reservation [of Functional Capacity] by Replacement

$(q(T) = e^{-Ct})$. The reliability is then expressed in terms of q (Eq 16) and presented graphically in Figure 1. From Figure 1 it is seen that with low values of q and a "single-fold" reserve, the gain is relatively small $(W \lesssim 2)$. However, with $m \gg 2$, the gain becomes substantial even for low values of q.

2) Gain in reliability with external conditions of the second form. Up to the time of switching into circuit the reserve elements are partly utilised.

For $f'(t) = \mu a$, $f''(t) = a$, the gain is shown to be:

$$W = \frac{(m+1)!}{A(\mu_1, \mu_2, \ldots, \mu_m, m)} \qquad (19)$$

W is a function not only of the multiplicity of the reserve but also depends on the external conditions. To clarify this dependence, the ratio:

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$$\frac{W_\mu}{W_o} = \frac{1}{A(\mu_1,\mu_2,\ldots,\mu_m,\ m)} \qquad (20)$$

where W_μ is determined by Eq (19) and W_o by Eq (5), is considered. From Eq (20) graphs are drawn (Figure 2) which show that with light external conditions ($\mu < 0.1$), reserve by replacement has substantial advantage over permanent reserve but the advantage decreases rapidly as μ increases. For $f'(t) = \gamma bt$ and $f''(t) = bt$, the gain is shown to be:

$$W = \frac{(2m+2)!}{2^{m+1}B(\gamma,m)} \qquad (23).$$

Here W depends on the multiplicity and on the external conditions. The influence of the external conditions is determined by:

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Gain in Reliability with Reservation [of Functional Capacity] by Replacement

$$\frac{W_\gamma}{W_o} = \frac{1}{B(\gamma_1\gamma_2, \ldots\gamma_m, m)} \qquad (24)$$

W_γ and W_o being obtained from Eqs (23) and(8), respectively. Curves obtained from Eq (24) are presented graphically in Figure 4. From comparison of Figures 2 and 4, it is seen that the external conditions affect the gain in reliability more in the second case than in the first. There are 4 figures, 1 table and 1 Soviet reference.

SUBMITTED: December 27, 1957

Card 6/6

SINITSA, M.A.

Calculation of average trouble-free operating time of electronic apparatus. Radiotekhnika 15 no.3:58-65 Mr '60. (MIRA 13:6)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo Obshchestva radiotekhniki i elektrosvyazi imeni A.S. Popova.
(Electronic apparatus and appliances)

SINITSA, M.A.

Reservation by the substitution method. Radiotekhnika 15 no.12: 67-76 D '60. (MIRA 14:9)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.
(Radio--Equipment and supplies)

DRAPKIN, B., vrach-psikhonevrolog; SINITSINA, N., logoped;
USPENSKAYA, L., logoped

School of a home logopedist. Nauka i zhizn' 29 (MIRA 15:12)
no.10:81-83 O '62.
(SPEECH THERAPY)

KOROBETS, P.: SINITSA, N. A

Viticulture

Size of vineyard units and character of forest belts in non-irrigated level vineyards.
Vin. SSSR 12 No. 9, 1952

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

SINITSA, N. A.

Viticulture

Shaping grapevines for vineyards where winter cover is necessary. Vin. SSSR 13, No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. UNCLASSIFIED.

SINITSA, N.G.

[Measurement of plasma density by means of an oscillatory circuit] Ob izmerenii plotnosti plazmy s pomoshch'iu kolebatel'nogo kontura. Khar'kov, Fiziko-tekhn. in-t AN USSR, 1960. 451-475 p. (MIRA 17:3)

ACC NR: AP7001301 SOURCE CODE: UR/0057/66/036/012/2111/2117

AUTHOR: Sinitsa, N. G.

ORG: none

TITLE: Interaction between a spatially separated beam and plasma

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 12, 1966, 2111-2117

TOPIC TAGS: plasma interaction, particle interaction, plasma beam interaction, plasma oscillation

ABSTRACT: An investigation was made of the interaction of cold and homogeneous beams of charged particles and plasma separated by a dielectric insulator of finite thickness. The problem is solved in the linear hydrodynamic approximation without taking into account the constant magnetic field and dissipative processes. When a beam of charged particles penetrates a plasma, high-frequency oscillations are generated of the order of the electron plasma frequency if the plasma density is high, or of the order of the electron cyclotron frequency if the plasma density is low. To weaken this interaction, the beam and plasma must be separated by an insulator of finite thickness. A coaxial system infinite in the longitudinal direction is investigated in which a beam with a radius r_1 passes inside a dielectric pipe with a thickness $r_2 - r_1$; the plasma is between the dielectric pipe and an ideally conducting casing with an inner radius $r_3 > r_2$. The interaction of the beam and plasma is described with the aid of

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ACC NR: AP7001301

Maxwell hydrodynamic equations. It is shown that the build-up increment of oscillations with a wavelength smaller than the thickness of the insulator, is exponentially small in comparison with the increments in the case when the beam passes directly through the plasma. Such a geometry can be used in cases when it is necessary to weaken the binding between the plasma and the beam at high frequencies without decreasing the build-up increments of the low-frequency oscillations. Orig. art. has: 28 formulas. [WA-71]

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 005/

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ACCESSION NR: AP4042928 S/0057/64/034/008/1417/1423

AUTHOR: Zy*kov, V. G.; Sinitsa, N. G.; Stepanenko, I. A.; Tolok, V. T.; Sinel'nikov, K. D.

TITLE: Investigation of interaction of plasma fluxes in a transverse magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 34, no. 8, 1964, 1417-1423

TOPIC TAGS: plasma thermalization, plasma interaction, plasma flux collision

ABSTRACT: This article is a continuation of experimental investigations of the possibility of complete slow-down and thermalization of fast opposed plasma fluxes in order to convert the kinetic energy of their directed motion into thermal energy. The investigation was carried out with apparatus consisting of a plasma source, a plasma guide, a magnetic screen, 8 magnetic coils, a vacuum chamber, a double electric probe, and a collector probe. The chamber, which was 20 cm in diameter, was placed in a longitudinal magnetic field produced by coils driven by a d-c current generator. The field could be

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ACCESSION NR: AP4042928

varied from 0 to 0.5 T. Eight plasma guns were distributed along the inner circumference of the central part of the chamber. The discharge period was 6 μsec. The plasma consisted of fast and slow components with velocities of 8×10^4 and 3×10^4 m/sec respectively at 4 kv potential in the gun and contained hydrogen, carbon, oxygen, and nitrogen ions. High-speed photography was used for recording. The experiments show that during head-on collisions of the opposed plasma flows in a transverse magnetic field, a strong slow-down to a complete stop of their motion in the initial direction occurs. Contrary to Coulomb interactions, this interaction does not occur in the volume of plasma streams but in their forward fronts and is of a turbulent character. It is important to note that such an interaction should take place even when there is no Coulomb interaction. Orig. art. has: 12 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 27Nov63 ATD PRESS: 3074 ENCL: 00

SUB CODE: NP, EM NO REF SOV: 004 OTHER: 004

Card 2/2

KRYLOVA, N.; KOMAROVA, V.; SINITSA, P.; FILIPPOV, T.;

Collection of blood for food at the Siauliai Meat Combine. Mias. ind.SSSR 28 no.1:21-22 '57. (MLRA 10:3)
(Blood) (Siauliai--Slaughtering and slaughterhouses)

ACC NR: AP7005925 SOURCE CODE: UR/0259/67/000/001/0018/0018

AUTHOR: Rzhanov, A. (Director of institute; Corresponding member AN SSSR); Sinitsa, S. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: Physicists grow monocrystals [Semiconductor and laser research at the Institute of Semiconductor Physics of the Siberian Department of the Academy of Sciences, USSR]

SOURCE: Nauka i tekhnika, no. 1, 1967, 18

TOPIC TAGS: semiconductor, laser, gas laser, laser research, semiconductor research, SINGLE CRYSTAL FILM, SINGLE CRYSTAL GROWING

ABSTRACT: In the semiconductor field, efforts are being concentrated on growing single crystal films with specified characteristics on various semiconductor, metal, and dielectric substrates. Investigations are being made of crystallization, elementary semiconductors (e.g., germanium and silicon), and dual semiconductor systems (gallium and indium arsenides, etc.). Special studies are being made of problems stemming from surface effects and processes on the crystal-substrate boundary. Structural defects occurring during the growth process or introduced later by thermomechanical action are being investigated. A new microtron, the first in the Soviet Union to be used for the solution of solid-state

UDC: none

Card 1/2

ACC NR: AP7005925

problems, has been installed. Studies of electron-photon interaction in a number of semiconductors are now under way. Such studies will be helpful in developing electro-acoustic transducers. In the laser field, the main problem under investigation is the mechanism of elementary processes in the active medium. A thorough understanding of the interactions of atoms, ions, and electrons in a plasma and the kinetics of the electromagnetic field within the medium is considered basic to the improvement of the efficiency, power, and monochromaticity of gas lasers. Another series of investigations concerns nonlinear optics, and is aimed at widening the frequency range of coherent emission, and modulation and demodulation of the emission in the optical range. Reference is made to the 1965 All-Union Conference on Nonlinear Optics, which demonstrated the achievements and the possibilities of powerful optical lasers. [VP]

SUB CODE: 20/ SUBM DATE: none/ ATD PRESS: 5116

Card 2/2

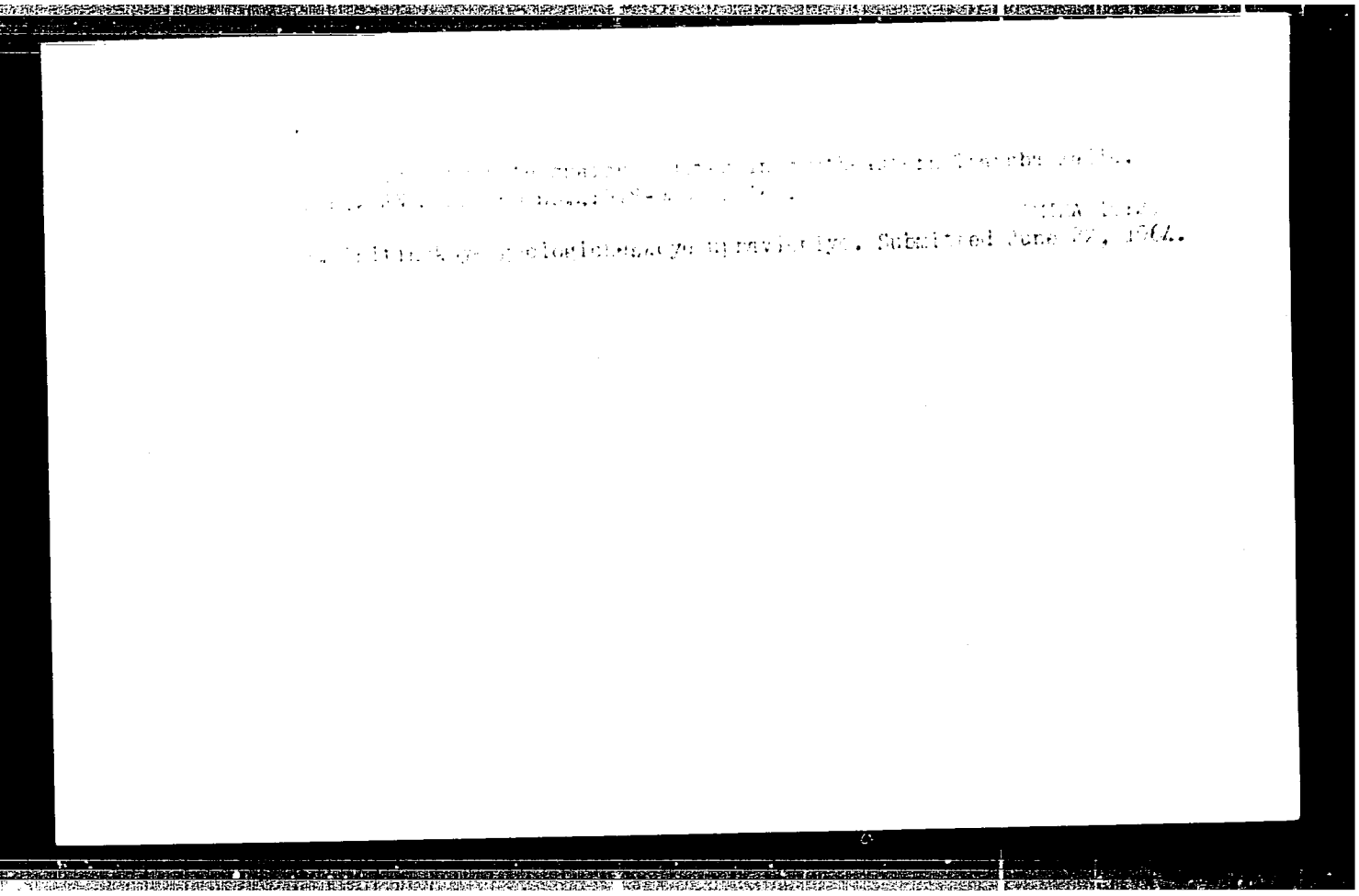
SINITSA, S.

Mineralogy of manganese ores in the Preluczym Range of the Czywczynskie Mountains. Min.sbor. no.11:170-186 '57.
(MIRA 13:2)

1. Gosuniversitet im. Ivana Franko, L'vov.
(Czywczynskie Mountains--Manganese ores)

SINITSA, S.M.

New data on the structure of the TSagan-Oluy granite massif (eastern Transbaikalia). Mat. po geol. i pol. iskop. Chit. obl. no.1:74-82 '63. (MIRA 17:6)



72912

S/112/60/000/003/002/002
E073/E535

4.4310 (1134, 1159, 1003)

AUTHOR: Sinitsa, S.P.

TITLE: Dependence of the Gain of an Alloy-type Triode on the Emitter Radius

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika, No.3, 1960, p.368, abstract 5.1059 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No.1, 25-30)

TEXT: A critical evaluation is given of the work on this subject (C. N. Laplin "El. fizich. svoystva germaniya i kremniya" (El. Phys. properties of germanium and silicon), Izd-vo "Sov. radio", 1956, p.38). It is shown that for alloy-type triodes the gain with respect to current α decreases monotonously with increasing radius of the emitter junction in the range of small magnitudes of emitter injections.

[Abstractor's Note: Complete translation.]

Card 1/1

82468
S/112/60/000/006/021/032

9,4340

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1960, No. 6, p. 370, # 5.2842

AUTHORS: Subashiyev, V. K., Sinitsa, S. P.

TITLE: Potential Distribution Along a Thread-Shaped Germanium Diode at Mean Injection Levels

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No. 1, pp. 31-40

TEXT: The potential distribution along thread-shaped diodes at a current density of 0.05-10 amp/cm^2 has been studied. The diodes were made of n-type Ge with ρ = 15-20 ohm cm and L_p = 0.1 cm. The measurements were made by a probe method under pulse conditions in a balanced circuit. A strong conductivity modulation has been revealed for current densities of 0.1 amp/cm^2. The electric field distribution along the diode has been found. Near the p-n-junction the field is small and almost independent of the current density. In the base the field increases with increasing current density and can reach high values. It is shown that at mean injection levels the condition of neutrality in the base is not fulfilled. The density distribution of non-balanced current carriers

Card 1/2

82468
S/112/60/000/006/021/032

Potential Distribution Along a Thread-Shaped Germanium Diode at Mean Injection Levels

along the specimen is computed and it is shown that their concentration in the base exceeds by far the balanced concentration at a distance of several diffusion lengths. This is explained by the presence of a strong field in the base, on account of which the drift time is short and can be shorter than the life time. A probable distribution of the positive space charge along the specimen is given.

V. N. M.

Card 2/2

29762
S/194/61/000/006/042/077
D201/D302

9.4340 (1143,1150)

AUTHORS: Novikov, Ye.F. and Sinitsa, S.P.

TITLE: A method of measuring the semiconductor diode impedances at a wide range of bias

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1961, 23, abstract 6 D143 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1960, no. 3, 17-22)

TEXT: The method proposed is based on determining active and reactive components of the complex admittance (CA) from the amplitude of the voltage across the CA and phase shift between the measured and the resistive voltage. The alternating source voltage U is applied to the CA through a standard resistance. Balance amplitude modulation of the voltage obtained at the CA is applied in order to improve the accuracy of measurements. The voltage at the CA together with the resistive voltage is applied to a phase detec-

Card 1/2

S/194/61/000/006/042/077
D201/D302

A method of measuring...

tor. Depending on the phase shift between the resistive voltage and U (0° or 90°) at the output of the phase detector, the amplitude of the modulated voltage (MV) will be proportional either to the active or to the reactive component of voltage at C_A. The modulated voltage is then amplified by a narrow band LF amplifier. Its output voltage is measured by means of a synchronous detector, in order to increase the selectivity of the arrangement and to make possible determination of the phase sign between the active voltage and that at the C_A. The arrangement permits measurement of the impedance of semiconductor devices when the amplitude of AC signal $< kT/q$, the polarity of the biasing voltage being arbitrary. The method described has several advantages over the usual bridge method. Results of measurements of C_A of alloy semiconductor diode (carried out at 112 and 2700 mc/s) are given. 1 reference. [Abstracter's note: Complete translation]

Card 2/2

L 12826-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3 Pz-4
AT/IJP(C)
ACCESSION NR: AT3003022 S/2927/62/000/000/0290/0295 63

AUTHOR: Sinitsa, S. P.

TITLE: Investigation of rectifying properties of a surface-barrier contact with germanium [Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 October, 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody* v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 290-295

TOPIC TAGS: germanium rectifier

ABSTRACT: The surface-barrier contact obtained by electrochemical deposition of metal on semiconductor has a practical importance for these reasons: (a) its current-voltage characteristic (for n-Ge) approaches that of a p-n junction; (b) a jet method of etching and metal deposition is simple and speedy; (c) small parameter spread in contacts; (d) no need in high-temperature processing; hence, the volume lifetime of the minority carriers remains the same as it was in the source material; (e) easy stripping of the contact layer. Rectifying Zn-Ge and Sn-Ge surface-barrier contacts were investigated experimentally and compared with the

Card 1/2

L 12826-63

ACCESSION NR: AT3003022

alloy p-n junctions formed with the same single crystals. Current-voltage characteristics were measured on samples having resistivities of 0.4, 2, and 20 ohm.cm. Saturation current as a function of temperature was determined. Also the barrier capacitance vs. voltage curve and the conductance and susceptance vs. current curves were plotted. The experiments revealed good agreement with the metal-semiconductor-contact theory that allows for free carriers in the space-charge region. It was found that the surface-barrier contact represents a considerable (inversion) barrier for electrons. Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 008

Card 2/2

S/141/62/005/002/017/025
E140/E435

24,7700
AUTHOR: Sinitsa, S.P.

TITLE: The method of volt-ampere characteristic shift applied to pn junctions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika.
v.5, no.2, 1962, 352-355

TEXT: It appears that in a metal-n-germanium contact, the hole component of current has a diffusion character, while the electron current is subject to diode theory. This is an apparent contradiction which is easily explained in terms of the differing saturation potentials of the two components. Since the saturation potential of the electron component depends on temperature, the corresponding curves could give information on the contact potential of the junction. To apply this theory the author has carried out the necessary measurements in the range 320 to 450°K. To avoid the difficulties associated with measurement of the saturation currents in this range of temperatures, the method used was analogous to that of using

Card 1/2

Richardson curves in determining thermionic cathode emission constants. The measurements indicate that above 300°K, the dependence on temperature of the saturation current is exponential. Tests on Sn-Ge and Zn-Ge junctions give results equivalent to alloy pn junctions in material with a single resistivity, i.e. for junctions of these metals, measurements have to be made at low temperatures. Independent measurement of the hole lifetime dependence on temperature is required for resolving the possibility of determining the energy levels of traps and the temperature stabilization of junction saturation current. It is shown that the volt-ampere characteristic of a sharp pn junction is described by

$$i_{p-n} = q \left(\frac{D_p p_n}{L_p} + \frac{D_n n_p}{L_n} \right) (e^{qV/kT} - 1) \qquad (1)$$

down to liquid nitrogen temperatures. There are 2 figures.

ASSOCIATION: Leningradskiy politekhnicheskiy institut
(Leningrad Polytechnical Institute)

SUBMITTED: June 17, 1961

Card 2/2

SINITSA, S.P.

Study of the inductive properties of a transistor diode. Radiotekh. i elektron. 7 no.8:1427-1433 Ag '62. (MIRA 15:8)
(Transistors) (Diodes)

SINITSA, S.P.

AID Nr. 988-8 12 June

INSTALLATION FOR MEASURING THE QUASI-CONTACT POTENTIAL OF A p-n JUNCTION (USSR)

Sinitsa, S. P., and V. A. Vasil'yeva. Pribory i tekhnika eksperimenta, no. 2, Mar-Apr 1963, 170-173. S/120/63/000/002/040/041

The quasi-contact potential of alloyed surface-barrier p-n junctions is measured by an [illegible] which requires that the diode frequency ω be supplied by a current [illegible] so selected in such a manner as to ensure a high degree of coincidence between total diode resistance and the resistance of the barrier layer. At this [illegible], the amplitude of the voltage developed in the diode should not exceed several mv. A voltage generator at frequency $\Omega << \omega$ with an amplitude of approximately 1 v is connected, in parallel to the current generator, to the diode through a decoupling choke, and the joint action of the two generators produces in the diode a voltage of frequency ω whose amplitude is modulated at frequency Ω which is proportional to p-n junction capacitance C^{-2}. The voltage is applied, after amplification, to a square-law element through a cathode follower.

Card 1/2

[illegible] [Card 1]

S/120/63/000/002/040/041

[illegible] whose amplitude is modulated at frequency Ω and which [illegible] at the square-law element output. After de- [illegible] voltage is applied to the input of the vertical ampli- [illegible] while the horizontal amplifier receives the same voltage [illegible] the quasi-graph shown a straight line in coordinates [illegible] are constants and V is the quasi-constant poten- [illegible] of the zero line in relation to the horizontal axis is known, the value of the quasi-constant potential can be determined after extrapolation of the straight line at its intersection with the zero line. [DW]

Card 2/2

[illegible]/0119

L 27680-66 EWT(m)/EWP(t)/ETI IJP(c) JD SOURCE CODE: UR/2563/65/000/255/0112/

ACC NR: AT6004859

AUTHOR: Sinitsa, S. P.

ORG: none

TITLE: Nature of the rectifying barrier in a metal-Ge contact

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 255, 1965. Radioelektronika (Radio electronics), 112-119

TOPIC TAGS: semiconductor, semiconductor rectifier, germanium semiconductor, electric potential, electric conductance, crystal surface

ABSTRACT: As no published hypothesis re the mechanism of formation of the rectifying barrier in a metal-semiconductor contact had been satisfactory, an experimental investigation of this problem was organized. Both p- and n-types of Ge (1.9 and 2.7 ohm.cm) were tested in contact with vacuum-sprayed Au, Cu, Sn, In, Al. These measurements were made: (1) The free-surface potential was measured by the field-effect method at 2—5 kc a-c and at 30—150 cps bipolar pulses, at atmospheric pressure and in a 2×10^{-7}-torr vacuum; (2) The contact potential was measured by the Andersen method in which the test surface before and after metal

Card 1/2

L 27680-66

ACC NR: AT6004859

spraying served as an anode in a diode whose I-V characteristics were compared; a vacuum of 10^{-6} torr was employed; (3) The rectifying potential barrier was determined from the variation of crystal-surface conductance upon metal-spraying the surface; the conductance was measured at 2—5 kc. No contact potential between n- and p-Ge was detected. The measured contact potential metal-Ge was from 0.5 ev for Au to 1.5 ev for Al. It is found that the existence of the rectifying potential barrier cannot be explained by the contact potential and surface states; the barrier arises in the course of spraying first coats of metal and is due to a charge division that accompanies metal-atom adsorption by germanium. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 20, 09 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 011

Card 2/2 cc

L 27508-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JXT(CZ)

ACC NR: AT6004860 SOURCE CODE: UR/2563/65/000/255/0120/0124

AUTHOR: Sinitsa, S. P.

ORG: none

TITLE: Electric properties of a metal-germanium surface-barrier contact

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 255, 1965, Radioelektronika (Radio electronics), 120-124

TOPIC TAGS: semiconductor, electric capacitance, rectification, electric conductance, crystal surface, germanium semiconductor, electric property

ABSTRACT: The capacitance of an Au-Ge surface-barrier contact was measured as a function of the reverse-bias voltage. The results of these measurements and the data published elsewhere served as a basis for these conclusions: (1) The surface states cannot be responsible for the metal-Ge rectification effect; (2) As the measured work function for metal (Au, Sn, In, Al, Cu) is lower than that for a semiconductor, the Schottky hypothesis about the mechanism of rectification (Ztschr. f. Phys., 1939, v. 113, p. 367) cannot be correct; (3) As the crystal-surface conductance appreciably varies upon metal spraying, the rectifying barrier must be

Card 1/2

L 27668-66

ACC NR: AT6004860 O

created in the course of metal spraying as a result of charge exchanges between metal and semiconductor; (4) The major part of the saturation current, at 300K, is represented by electrons, the rectifying barrier growing with temperature. Orig. art. has: 5 figures and 5 formulas.

SUB CODE: 20, 09 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 005

Card 2/2 CC

OMEL'CHENKO, S.I.; PRIZ, M.N.; SINITSA, V.I.; SHAMRAYEV, G.M.; USTINOVA, A.M.; PANCHENKO, N.A.; ZHADAN, N.S.

Production of polyglycol maleate resins modified with cyclopentadiene and their properties. Plast.massy no.12:14-16 '63. (MIRA 17:2)

SIN'TSIN, G.S., kand.sel'skokhoz.nauk

Raising a new medicinal plant. Vest. AN Kazakh. SSR 20 no.9:82-86 S '64. (MIRA 17:10)

ZINICIN, G.S.

Raising the nightshade Solanum aviculare in the south of Alma-Ata Province. Trudy Inst.bot.AN Kazakh.SSR 17:153-158 '63.
(MIRA 17:3)

L 22547-66 EWT(m) RM

ACC NR: AP6005083 SOURCE CODE: UR/0404/65/000/005/0039/0045

AUTHOR: Sinitsin, G. S.; Vasil'yev, Yu. I.

23
B

ORG: none

TITLE: Experimental cultivation of lobate nightshade in Southeastern Kazakhstan

SOURCE: AN KazSSR. Izvestiya. Seriya biologicheskikh nauk, no. 5, 1965, 39-45

TOPIC TAGS: cortisone, hormone, plant growth

ABSTRACT: The feasibility of growing lobate nightshade (*Solanum laciniatum Ait.*) in Kazakhstan was investigated, beginning in 1960. The medicinal plant--a valuable source of solasodine alkaloid, and hence, cortisone and other steroid hormone preparations--has been introduced in the Soviet Union in recent times. Leaf and stalk samples were processed, dried and analyzed for solasodine content between July and October 1963 at various stages of growth. Maximum solasodine content was found in the leaves of the plant in September. Solasodine content in various parts of the plant in samples taken at various periods of the growing season is presented in tabular form. The nightshade was grown on an Alma-Ata Kolkhoz and the solasodine was extracted at the Chimkent Chemico-pharmaceutical Plant. It was found that the dried samples contained the necessary 8% solasodine content required for industrial processing. Techniques of planting, cultivating, and drying lobate nightshade and also cost and

Card 1/2 UDC: 633.88

L 22547-66

ACC NR: AP6005083 O

profit factors in its cultivation and processing are discussed. Orig. art. has: 1 table, 1 photograph.

SUB CODE: 06,02/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 000

Card 2/2 BK

L 49793-65 EEO-2/EWT(d)/FSS-2/EEC(k)-2/EWG(v)/EED-2/EWA(c) Pn-4/Po-4/Pe-5/
Pq-4/Pg-4/Pk-4/Pl-4 IJP(c) BC
ACCESSION NR: AP5010191 UR/0373/65/000/001/0154/0157

59
B

AUTHOR: Sinitsin, I. N. (Moscow)

TITLE: On the stability of a heavy gyroscope in a special universal suspension

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 1, 1965, 154-157

TOPIC TAGS: gyroscope, gyroscope motion, gyroscope stability, Lagrange equation, equation of motion, stability oriterion, Cardan suspension

ABSTRACT: The stability of the regular precession of a heavy gyroscope in a special Cardan suspension was studied analytically, using the Lyapunov-Chetayev functions. The schematic of the gyroscope is given in Fig. 1 on the Enclosure. Several coordinate systems are defined, and the equations of motion for the instrument are given in the angular coordinates ψ, θ, φ. The kinetic energies of the gyroscope external and internal rings as well as the kinetic energy of the rotor are defined, and the equations of motion are expressed by the second order Lagrangian. The stability analysis is made for the following regular precession motion: $\psi = \Omega_0$, $\theta = \theta_0$, $\theta' = 0$, $\omega_z^0 = \omega$ where Ω, θ_0, ω, are related through the expression $\Omega^2(I_2 \sin 2\theta_0 + I_3 \cos 2\theta_0 - I_1 \sin \theta_0) - 2C\omega\Omega \cos \theta_0 + 2mgl_0 \lambda \cos \theta_0 = 0$. The Lyapunov-Chetayev function

Card 1/3

L 49793-65

ACCESSION NR: AP5010191 0

$V = 4[E - 2\Omega\Sigma - CR(\omega - \Omega \sin\theta_0) + {}^1/_2 C^2R^2/I_2] =$
$= L_{11}\xi'^2 + L_{22}\eta^2 + L_{33}\eta'^2 + L_{44}\zeta'^2 + 2L_{13}\xi'\eta' + 2L_{24}\eta\zeta'$ is introduced, and necessary and sufficient conditions are derived for the stability of the precessing motion. Two special cases are considered: 1) when the median planes of the Cardan ring are mutually perpendicular, and 2) when the median planes coincide and are vertical. Orig. art. has: 31 equations and 1 figure.

ASSOCIATION: none

SUBMITTED: 18Dec63 ENCL: 01 SUB CODE: MM

NO REF SOV: 007 OTHER: 001

Card 2/3

L 49793-65
ACCESSION NR: AP5010191

ENCLOSURE:

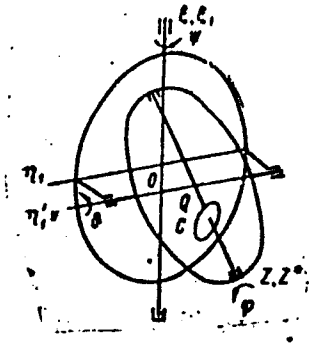


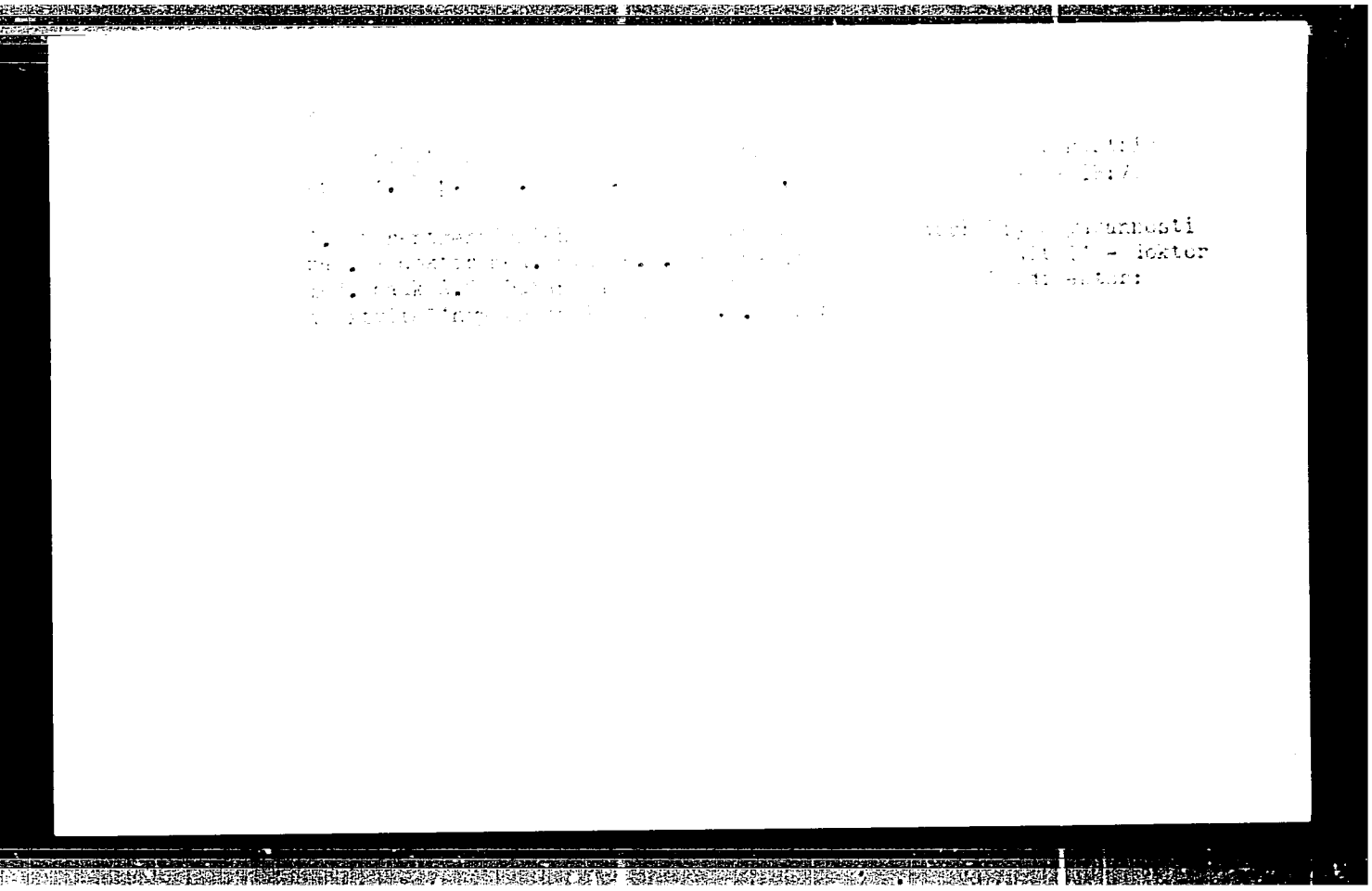
Fig. 1.

Card 3/3

NIKITIN, B.I.; VELIKANOV, A.L.; YELAKHOVSKIY, S.B.; SINITSIN, N.I.

Algorithm for calculating the annual operation of a cascade of hydroelectric power stations using a digital computer. Obshch. energ. no.6:30-38 '63. (MIRA 16:10)

(Hydroelectric power stations)



YELAGIN, Yu.A.; [illegible]; SMIRNOV, P.P.; [illegible]

8th All-Union Congress of Roentgenologists and Radiologists.
Med. rad. 10 no.2:80-84 '65. (MIRA 18:6)

ACC NR: AT6001311 (A) SOURCE CODE: UR/0064/66/000/005/0018/0020

AUTHOR: Dzhagatspanyan, R. V.; Lyuskin, Yu. G.; Filippov, M. T.; Sinitsin, V. I.; Nikimenko, L. M.; Glotova, L. I.; Zotkin, V. I.

ORG: none

TITLE: Radiation chlorination of kerosene

SOURCE: Khimicheskaya promyshlennost', no. 5, 1966, 18-20

TOPIC TAGS: kerosene, gamma radiation, chlorination, photochemistry

ABSTRACT: Groznyy kerosene, from which the aromatic and unsaturated compounds were eliminated by extraction with liquid SO_2 was used during chlorination initiated by γ-radiation of Co^{60} made in the apparatus described by the authors previously (Khim. prom. no. 4, 247, 1965). After purification the kerosene had a molecular weight of 177. Chlorine was passed at the rate of 0.469 g/min in the reactor set into a thermostat with a controlled given temperature. The radiation source was introduced after 15 minutes. The chlorination products were purified from Cl_2 and HCl by passing a flow of nitrogen. The densities and refractive indexes were measured and the degree of chlorination was determined from the graphs, plotted experimentally, showing the dependence of density d_{20}^{20} and the refractory indexes n_D^{20} of the chlorinated products on their chlorine content. Kinetic curves (content of chlorine vs time in min) were

Card 1/2 UDC: 665.634-4 : 66.094.403.085.3

plotted at various temperatures of chlorination (T = 20, 40, and 60C) and at various doses of radiation (P = 26.1, 7.3, 1.8, and 0.81 rad/sec). The dependence of the radiation-chemical efficiency coefficient G (number of atoms bound with carbon per 100 equivalent)on the radiation dose P was plotted from kinetic curves. The expression

$$G = 1{,}22 \cdot 10^{9} e^{-\left(\frac{1000}{T} + 5{,}76 \cdot 10^{-2}[\%Cl]\right)} P^{-0.47}$$

well describes the results obtained. (Disagreement of experimental and calculated values averaged ± 10.8%.) This equation can be used for dosigning a reactor for a temperature range of 0-100C, a radiation dose of 1-50 rad/sec, and a chlorine content of 5-60%. The apparent energy of activation was determined as 3200 cal/mole. The results of radiation chlorination were compared with those of photochemical chlorination and chlorination initiated by azo-bis-isobutyronitryl. It was shown that the same degree of chlorination was achieved more rapidly during radiation chlorination. At T = 20C and P = 26 rad/sec, the product containing Cl > 60% was obtained in 90 minutes during radiation chlorination. It took 23 and 21 hours to obtain the same product by photochemical chlorination and chlorination initiated by azo-bis-isobutyronitryl, respectively. Radiation chlorination also has other advantages: it depends little on temperature and is controlled by the radiation dose (easily controllable rate of chlorination), the rate of the radiation process does not depend on the color of the reacting mixture, and there is a much smaller danger of resinification because of an absence of local overheating. Orig. art. has: 3 fig., 4 formulas, and 1 table.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001

YARTSEV, V.A., dotsent; KUZNETSOV, I.P., dotsent; D'YAKOV, V.V., dotsent; KOVALEV, V.I., dotsent; SINITSIN, Ye.A., inzh.

Textbook on mine ventilation. Izv. vys. ucheb. zav.; gor. zhur. 6 no.4:194-197 '63. (MIRA 16:7)

(Mine ventilation)

SINITSINA, A.A., mladshiy nauchnyy sotrudnik

The currantworm Pteronidea ribesi. Zashch. rast. ot vred. i bol. 9 no.12:33 '64. (MIRA 18:4)

1. Institut sadovodstva nechernozemnoy polosy.