"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SIMON, K.; GORINOVA, M.; KOLESOV, V.; SANDOMIRSKIY, V.; GASANOV, K.

Commodity experts reply. Sov.torg. 35 no.7:50-54 Jl '62. (MIRA 15:11)

1. Zaveduyushchiy sektsiyey torgovoy bazy Rostekstil'torga, Abakan (for Simon). 2. Tovaroved torgovoy bazy Rostekstil'torga, Abakan (for Gorinova). 3. Zaveduyushchiy torgovym otdelom Yereveyevskogo sel'skogo potrebitel'skogo obshchestva, Vologodskaya obl. (for Kolesov). 4. Zamestitel' direktora magazina No.16 "Diyeticheskoye produkty", Khar'kov (for Sandomirskiy). 5. Glavnyy tovaroved optovoy bazy Azerbobuv'torga, Baku (for Gasanov).

(Commerce)

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AF701597 TREASURE ISLAND BOOK REVIEW AID 810 - S

SANDOMIRSKIY, V. B. (Institute of Physical Chemistry, Academy of Sciences, USSR). DISKUSSIYA (Discussion). In Problemy kinetiki i kataliza (Problems of Kinetics and Catalysis), vol. 8. Izdatel'stvo Akademii Nauk SSSR, 1955. Section II: General problems of the theory of catalysis. p. 145-146.

Remarks are made on F. F. Vol'kenshteyn's paper (p. 79-96). The electronic theory of catalysis refers not only to ideal surfaces, considered in F. F. Vol'kenshteyn's paper, but also to surfaces with microdefects. Microdefects on the surface form so-called "disorder" which may be a "biographic disorder" based on the pre-history of the sample, or a "thermal disorder", which increases with temperature. The surface defects may be considered as adsorption centers. Simultaneously with adsorption and desorption, reactions of the formation and absorption of the adsorption centers take place. These reactions represent "thermal disorder". The mechanism of adsorption by microdefects is in general the same as by free valences and forms the same bonds - "strong" and "weak" homeopolar bond, ionic bond - as presented in Vol'kenshteyn's paper. 7 refs., 4 Russian (1949-1953).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

AF701597 TREASURE ISLAND BOOK REVIEW AID 823 - S

SANDOMIRSKIY, V. B. and F. F. VOL'KENSHTEYN (Institute of Physical Chemistry, Academy of Sciences, USSR).
O SVYAZI MEZHDU KATALITICHESKIMI SVOYSTVAMI POVERKHNOSTI POLUPROVODNIKA I YEGO OB"YEMNYMI ELEKTRONNYMI SVOYSTVAMI (Connection between the catalytic properties of the surface and the space electron properties of semiconductors). IN Problemy kinetiki i kataliza (Problems of Kinetics and Catalysis), vol. 8. Izdatel'stvo Akademii Nauk SSSR, 1955. Section III: Connection between the electric conductivity and catalytic activity of semiconductors. p. 189-197.

The establishment of electronic equilibrium between the surface and space of the semiconductor shows that the concentration of free valences on the surface depends on the characteristics of the space. In the case of small crystals, the characteristics of the surface do not depend on space, and, conversely, in larger crystals, the characteristics of volume do not depend on the surface. Adsorption on the surface of the crystal changes the concentration of the electron gas inside small crystals, thus affecting the electric conductivity. If atoms-acceptors are adsorbed by the surface of a semoconductor, the electric conductivity wll decrease; the adsorption of atoms-acceptors on a hole-rich semiconductor will increase the conductivity. Five references, 4 Russian (1937-1955). One table, 3 diagrams.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

USSR/Scientific Organization - Conferences

Card 1/1 Pub. 118 - 5/14

Authors : Sandomirskiy, V. B., and Smilga, V. P.

Title : Conference on electron phenomena in adsorption and catalysis

Periodical : Usp. fiz. nauk 55/1, 111-120, Jan 1955

Abstract : A detailed report is presented on the conferences held between April 16 and 19, 1954 at the Institute of Physical Chemistry of the Academy of Sciences, USSR. The major topics discussed during these meetings were: electron phenomena in catalysis and adsorption, general problems of the theory of catalysis, effect of illumination on the adsorbability of solid bodies, connection between electrical conductivity and catalytic activity, nature of active surfaces, etc. The names of scientists present at these meetings are listed.

Institution : .....

Submitted : .....

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SANDOMIRSKIY, V. B.

Sandomirskiy, V. B. -- "The Effect of Chemical Adsorption on the Electrical Conductivity and Operating Output of a Semiconductor." Acad Sci USSR. Inst of Physical Chemistry. Moscow, 1956 (Dissertation for the Degree of Candidate in Physicomathematical Sciences).

So: Knizhnaya Letopis', No. 10, 1956, pp 116-127

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SANDOMIRSKIY, V.B.

3
Hede

Adsorption and electrical properties of semiconductors. V.B. Sandomirskii. Kaim. Nauka i Prom. 2 [illegible] (1957). —A discussion of the mutual effect of the reaction medium (adsorption, concn., diffusion, etc.) and the elec. properties of semiconductors on their catalytic activity. L.B.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

AUTHOR: Sandomirskiy, V.B.

TITLE: Effect of Adsorption on Elec Conductivity and Contact Potential of Semiconductors (Vliyaniye adsorbsii na elektroprovodnost' i rabotu vykhoda poluprovodnika)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Vol. XXI, #2, pp 211-219 1957, USSR, Seriya fizicheskaya

ABSTRACT: The author subjects the "theory of boundary layer" to a critical analysis from the viewpoint of F.F. Vol'kenshteyn's theory of adsorption and catalysis. On the basis of his theoretical analysis the author comes to the following conclusions:

1. Elec conductivity and contact potential of a semiconductor change during adsorption as a result of charging its surface. These changes strongly depend upon the state of a surface level generated by the adsorbed particle, concentration of an admixture in the semiconductor and temperature. If the change in elec conductivity during adsorption is great, the activation energy of conductivity also changes considerably.

Following surface filling reaction abilities of the adsorbed atoms (molecules) strongly change. The

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

20-118-5-37/59

AUTHORS: Vol'kenshteyn, F. F., Sandomirskiy, V. B.

TITLE: The Influence of an External Electric Field on the Adsorbing Power of a Semiconductor (O vliyanii vneshnego elektricheskogo polya na adsorbtsionnuyu sposobnost' poluprovodnika)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 5, pp. 980-982 (USSR)

ABSTRACT: Here the authors designated the increase and the decrease of the adsorbing power in an electric field as electroadsorption and electrode adsorption, respectively. The present work aims at the estimation of the experimental possibility of the observation of this effect; this depends on the change of pressure in the reactor at the application of an electric field and on the field strength. The authors here investigate an adsorbent of the shape of a semiconductor plate of a thickness 2L in the direction of the x-axis and with sufficiently great measures in the direction of the y and z-axis. The adsorption of molecules to which the local surface levels E correspond takes place on the plane $x = \pm L$. For reasons of ex-

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20-118-5-37/59

The Influence of an External Electric Field on the Adsorbing Power of a Semiconductor

actness the authors investigated the adsorption of acceptor molecules on a semiconductor of the n-type. The crystal is assumed to be in an outer homogeneous electric field of the field strength F directed vertically to the surface of the crystal. The following is assumed in order to simplify the computation: a) the thickness of the crystal is much greater than the length of screening l. b) the distribution of electrons is Boltzmann-like on all energy levels in the volume of the crystal; c) surface zones are lacking; d) there exist only two kinds of bindings of the adsorbed molecules on the surface, namely, "weak" and "solid" acceptor binding. The schemes of the energy levels in the case of the lacking and of the presence of an electric field are illustrated on a diagram. The crystal is located in a reactor with the constant volume v, which is filled by a gas with the pressure p_o. After the application of the field F gas pressure assumes the value p. The problem consists in determining the dependence of the quotient p/p_o on F. The expression obtained for this quotient from the equation of state of the ideal gas is given here. In the case of a lacking field most of the

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The Influence of an External Electric Field on the Adsorbing Power of a Semiconductor

20-118-5-37/59

adsorbed molecules are in the state of the "weak" binding on the surface. The expression for p_0/p corresponding for this case is given here. Then $p_0/p \geqslant 1$, i.e. in the case of the model selected here only electroadsorption is possible. The authors especially investigated the case $p_0/p \gg 1$ which corresponds to a strong effect. The dependence of the quotient p_0/o on F is given explicitly. A numerical evaluation is given at the end of this paper. There are 1 figure and 5 references, 5 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute for Physical Chemistry AS USSR)

PRESENTED: July 25, 1957, by N. N. Semenov, Member, Academy of Sciences, USSR

SUBMITTED: July 18, 1957

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMIRSKIY, V.B.; SMILGA, V.P.

Possible effect in adhesion pheomena of an electric double layer arising during the contact of solids. Fiz. tver. tela 1 no.2:307-314 F '59. (MIRA 12:5)

1. Institut fizicheskoy khimii, Moskva.
(Adhesion)

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5(3) SOV/62-59-9-33/40

AUTHORS: Kogan, Sh. M., Sandomirskiy, V. B.

TITLE: Chemisorption on Defects of Semiconductor Surfaces

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1681-1683 (USSR)

ABSTRACT: In the present paper a statistical calculation of the adsorption of atoms on defects of semiconductor surfaces is carried out. Defect centres are centres of adsorption for gases, and can localize a hole or an electron of the adsorbent. The special case of adsorption of acceptor gases on acceptor defects is investigated. For this, there are 4 possibilities: (1) There is neither an electron nor a gas molecule at the centre of defect, (2) the centre of defect is charged, the adsorbed molecule is missing, (3) both electron and molecule are adsorbed at the centre of defect, (4) a neutral molecule is adsorbed at the centre of defect, the electron is missing. The calculations of the concentrations of neutral (N_A^o) and charged defects (N_A^-), and neutral and charged adsorbed molecules (N^o and N^-) were carried out by means of Gibbs' partition function for a system of a variable number of

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particles. Furthermore, the dependence is investigated of the probability of adsorption (N) on F_S, the Fermi potential of the surface at a given chemical potential μ for a defined temperature T and an assumed concentration of defects N_A. From this it is seen, that if $(f^- - f^0)$ (f^- = free energy/centre of defect with charged molecule, f^0 = free energy/centre of defect with neutral molecule), an expression determining the electron level of a charged adsorbed molecule, is smaller than f_A^- (free energy/charged defect) the gas remains an ordinary acceptor gas, if f_A^- is larger, however, the gas behaves like a donor. Thus an acceptor gas at an acceptor defect may react like a donor gas. A specified acceptor or donor level cannot be produced by the molecules adhering to the surface.

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Chemisorption on Defects of Semiconductor Surfaces SOV/62-59-9-33/40

This case is interpreted by means of the anomalous change in the work function in adsorption of oxygen to germanium. The probability of adsorption of an acceptor gas increases with increasing concentration of acceptor impurities in the catalyst. There are 7 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova fizicheskiy fakul'tet (Moscow State University imeni M. V. Lomonosov, Department of Physics). Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: March 3, 1959

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

5(4) SOV/76-33-5-26/33

AUTHORS: Kogan, Sh. M., Sandomirskiy, V. B. (Moscow)

TITLE: The Adsorption Heat in the Electronic Theory of Chemisorption (Teplota adsorbtsii v elektronnoy teorii khemosorbtsii)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5, pp 1129 - 1133 (USSR)

ABSTRACT: The dependence of the adsorption heat on the surface potential (or occupation of the surface) of a semiconductor adsorbent is investigated. The value q mathematically derived is the mean value of the differential adsorption heats of the various adsorption centers and charge states of the adsorbed molecules. Moreover, the energy of the electron level of the adsorbed molecule is deduced and it is pointed out that the adsorption heat of a charged particle equals the sum of the adsorption heat of the neutral adsorbed particles and the energy of the electron level as calculated from the Fermi level. The investigation of an energetically inhomogeneous surface with slight occupation of the centers shows that the differential adsorption heat decreases with in-

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The Adsorption Heat in the Electronic Theory of Chemisorption SOV/76-33-5-26/33

creasing occupation. There are 2 figures and 7 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov), Akademiya nauk SSSR Institut fizicheskoy khimii Moskva (Academy of Sciences of the USSR Institute of Physical Chemistry, Moscow)

SUBMITTED: November 11, 1957

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

5(4) SOV/76-33-7-40/40

AUTHORS: Bonch-Bruyevich, V. L., Sandomirskiy, V. B.

TITLE: Fedor Fedorovich Vol'kenshteyn. On the Occasion of His 50th Birthday

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, p 1676 (USSR)

ABSTRACT: On December 1o, 1958 F. F. Vol'kenshteyn, Doctor of Physical and Mathematical Sciences, celebrated his 50th birthday. In 1931 he completed his studies at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute), and afterwards he specialized in theoretical investigations of electron processes in condensated media. In this field he obtained, among other things, various important results concerning the theory of dielectrics and semiconductors. These results were published in the books "Proboy zhidkikh dielektrikov" ("Sparkover in Liquid Dielectrics") and "Elektroprovodnost' poluprovodnikov" ("Electrical Conductivity of Semiconductors"). In 1944 he was invited by S. Z. Roginskiy to write articles on chemisorption and catalytic processes. Also in this field he was very successful. The results he obtained by investigating the spectra of

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Fedor Fedorovich Vol'kenshteyn. On the Occasion of His 50th Birthday SOV/76-33-7-40/40

energy levels of the crystal surface with atoms adsorbed hereupon, as well as his publications of the conditions of electron equilibrium between the individual kinds of adsorbed substances and between the surface and the body permitted an investigation of the reactivity of adsorbed substances as well as of the influence exercised by external factors upon adsorption and catalytic processes. These works give an idea of the processes of chemisorption on the surface of semiconductors and may form the basis of a further development of the quantum theory of heterogeneous catalysis. There is 1 figure.

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5 (4)

AUTHORS: Sandomirskiy, V. B., Kogan, Sh. M. SOV/76-33-8-6/39

TITLE: On the Calculation of the Adsorption Isotherms in the Electronic Theory of Chemosorption

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 8, pp 1709-1714 (USSR)

ABSTRACT: In a previous paper (Ref 1) several expressions for the concentration of neutral and charged adsorbed particles were obtained on the basis of statistical considerations. In the present case a pattern for calculating the adsorption isotherms (AI) within the framework of the electronic theory is suggested. A number of concrete cases serve as an illustration. The adsorption (A) of an acceptor gas at the surface of the plane-parallel lamina of a semiconductor (S) is observed, and the following factors are assumed: 1) The thickness of (S) is much greater than the Debye line of the shield. 2) The (A) at the (S) surface is heterogeneous, i.e. there are different kinds of (A) centers, the electrons, however, being bound in no other way than by the (A). 3) The completion of the various (A) centers is slight ("narrow" heterogeneity). Considerations start with the case in which the adsorbed molecules do not dissociate. Then some specific cases are discussed which correspond to different Fermi levels. For the

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case of a heterogeneous surface without non-adsorbed electron levels, a general expression of (AI) in the coordinates p and N/p (p = pressure in the gaseous phase, N = number of (A) centers) for nondegenerated (S) with a random distribution of energetic levels in (S) was obtained. From this general form of (AI) the corresponding expressions for the above-mentioned individual cases are obtained, the (AI) being of the Henry, Freundlich type and logarithmic (AI). It was found that there is no specific connection between the (S) type and the form of (AI). It is shown that in the calculation of (AI) in the electronic theory of chemosorption the remote effect of the Coulomb interaction between the adsorbed particles is automatically taken into account. There are 7 figures and 4 references, 3 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii, Moskva (Academy of Sciences of the USSR, Institute of Physical Chemistry, Moscow). Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

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5(4)

AUTHORS: Kogan, Sh. M., Sandomirskiy, V. B. SOV/20-127-2-39/70

TITLE: On the Electron Theory of Chemosorption on the Real Surface of a Semiconductor

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 377-379 (USSR)

ABSTRACT: On the basis of experimental data available, measurements of work function in adsorption (Refs 1-3) and measurement of the field effect (Ref 4), the following rules may be derived: (1) the measured occupations of the surface by adsorbed molecules, in which marked changes of the work function occur ($\sim$kT at T = 300°K), usually lie above $\sim 10^{13}$ cm^{-2} ; (2) the dependence of the work function change on occupation is usually linear, sometimes logarithmic (Ref 3); (3) the maximum change of the work function mostly amounts to $\sim$0.3 ev (12kT at T = 300°K). When assuming the whole change of the work function to be dependant on the surface charge in adsorption and a consequent curvature of the surface energy zones, it may be easily proven that the surface charge σ (expressed in electron charge units),

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at which the change in the work function attains the measured value, amounts to about $10^9 - 10^{10}$ cm^{-2}. When computing the charge at which the curvature of energy zones attains 0.3 ev, one obtains for $\sigma \approx 10^{12}$ cm^{-2}. To clarify this contradiction, two assumptions are investigated: (1) the "idealized" surface, defined as a surface, in which all the electron states are caused by gas adsorption. This assumption presupposes that the levels of the adsorbed particles be permanently above the Fermi level. This is not very probable and is in contradiction with certain electronic concepts concerning catalysis. Therefore, there only remains the second assumption of the "real" surface, defined as a surface exhibiting a great number of states which are not caused by gas adsorption. The following is derived from the charge density (Equation 1) and equation (2) for the electric neutrality of the crystal: $du/dN^- = (S + dR/du)$ (3) (du = change of the work function, N^- = concentration of the charged adsorbed molecules, $S = d\sigma/du$, R = space charge per surface unit). To evaluate a possible value of S the following is assumed as the simplest model of a surface energy spectrum: the states independent of adsorption N_S are uniformly distributed

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On the Electron Theory of Chemosorption on the Real Surface of a Semiconductor

SOV/20-127-2-39/70

over the width E_G of the forbidden zone, the Fermi level lies at a distance from the boundaries of the forbidden zone, which is great in comparison to kT. Under the assumption $S = N_S kT/E_G \gg dR/du$ the following is derived by integration of equation (3): $S \Delta u = N^{\sigma}$, viz a linear dependence of the change of the work function on occupation, in conformity with experimental data. The value of S may be evaluated therefrom. By utilizing the experimental data per reference 3 one obtains $S \approx 10^{11} - 10^{13}$ cm^{-2} and $N_S \approx 10^{13} - 10^{15}$ cm^{-2}. The authors thank S. Z. Roginskiy, Corresponding Member AS USSR, and F. F. Vol'kenshteyn, Doctor of Physical and Mathematical Sciences, and all those attending the seminar of the catalysis laboratory of the Institute of Physical Chemistry of the AS USSR for discussion of the results obtained. There are 7 references, 5 of which are Soviet.

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

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

On the Electron Theory of Chemosorption on the Real Surface of a Semiconductor

SOV/20-127-2-39/70

Institut fizicheskoy khimii Akademii nauk SSSR
(Institute of Physical Chemistry of the Academy of Sciences, USSR)

PRESENTED: March 16, 1959, by V. I. Spitsyn, Academician

SUBMITTED: March 10, 1959

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PHASE I BOOK EXPLOITATION SOV/5921

Akademiya nauk SSSR. Institut fizicheskoy khimii

Problemy kinetiki i kataliza. [t] 10: Fizika i fiziko-khimiya kataliza (Problems of Kinetics and Catalysis. [vol.] 10: Physics and Physico-Chemistry of Catalysis) Moscow, Izd-vo AN SSSR, 1960. 461 p. Errata slip inserted. 2,600 copies printed.

Eds.: S.Z. Roginskiy, Corresponding Member of the Academy of Sciences USSR, and O.V. Krylov, Candidate of Chemistry; Ed. of Publishing House: A.L. Bankviteer; Tech. Ed.: G.A. Astaf'yeva.

PURPOSE: This collection of articles is addressed to physicists and chemists and to the community of scientists in general interested in recent research on the physics and physical chemistry of catalysis.

COVERAGE: The articles in this collection were read at the conference on the Physics and Physical Chemistry of Catalysis organized by the Otdel khimicheskikh nauk AN SSSR (Section of Chemical Sciences, Academy of Sciences USSR) and by the Academic Council on the problem of "the scientific bases for the selection of catalysts." The Conference was held at the Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry of the AS USSR) in Moscow, March 20-23, 1958. Of the great volume of material presented at the conference, only papers not published elsewhere were included in this collection.

Koutecký, J. [Czechoslovak Academy of Science, Institute of Physical Chemistry, Prague]. On the Theory of Chemisorption and of Surface States 34

Bielański, Adam, J. Deren, and J. Haber [Mining and Metallurgical Academy, Cracow]. Investigation of Electric Conductivity of Semiconductor Catalysts 37

Kogan, Sh. M., and V.B. Sandomirskiy [Department of Physics of Moscow State University, Institute of Physical Chemistry AS USSR]. Isotherms and Adsorption Heats in the Electron Theory of Chemical Adsorption 58

Vol'kenshteyn, F.F., and V.B. Sandomirskiy [Institute of Physical Chemistry AS USSR]. Effect of an External Electric Field on the Adsorptive Capacity of a Semiconductor 61

Kogan, Sh. M., and V.B. Sandomirskiy [Institute of Physical Chemistry AS USSR, Department of Physics of Moscow State University]. Measurement of Contact Potential of a Semiconductor as a Method of Detecting the Various Charge States of Particles Adsorbed on it 62

Popovskiy, V.V., and G.K. Boreskov [Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva (Moscow Chemical Technology Institute imeni D.I. Mendeleyev)]. Catalytic Activity of the Metal Oxides of the 4th Period in Relation to the Oxidation Reaction of Hydrogen 67

Keyyer, N.P. [Institute of Physical Chemistry AS USSR]. Nature of the Heterogeneity of the Active Surface of Semiconductor Contacts 73

Chizhikova, G.I., and N.P. Keyyer [Institute of Physical Chemistry AS USSR]. Regularities in the Mechanism of Chemical Adsorption and Catalysis over Solid Solutions of Zinc Oxide 77

Kutseva, L.N., and N.P. Keyyer [Institute of Physical Chemistry AS USSR]. Investigation of Chemical Adsorption of Gases on Nickel Oxide and Its Solid Solutions 82

Korsunovskiy, G.A. Mechanism of Electron Exchange in the Photooxidation of Water Over Semiconductors 87

Ignatyev, N.Kh. [Institute of Physical Chemistry AS USSR]. Study of the Surface Charge of Oxide Semiconductor Catalysts During Adsorption 88

Ivanovskiy, F.O., G.Ye. Brauds, T.A. Semenova, and N.G. Lyudkovskaya [Gosudarstvennyy institut azotnoy promyshlennosti (State Institute of the Nitrogen Industry)]. Investigation of Zinc, Chromium, and Copper Oxide Base Catalyst for the Conversion of Carbon Monoxide 90

Rubinshteyn, A.M., V.A. Akimov, and A.A. Slinkin [Institute of Organic Chemistry of the AS USSR]. Roentgenographic and Magnetochemical Investigation of Simultaneously Precipated NiO - Al_2O_3 Catalysts 95

Goryunova, N.A. [Physicotechnical Institute of the AS USSR]. Type of Bond and Properties of Semiconductors of the Crystallochemical Group, Diamond - Zinc Blende - Wurtzite 96

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

KOGAN, Sh.M.; SANDOMIRSKIY, V.B.

Isotherms and heats of adsorption in the electronic theory of chemisorption. Probl. kin. i kat. 10:58 '60. (MIRA 14:5)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta i Institut fizicheskoy khimii AN SSSR.
(Chemisorption) (Heat of adsorption)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

KOGAN, Sh.M.; SANDOMIRSKIY, V.B.

Measurements of the contact potential of a semiconductor as a method of detecting the various charged states of particles adsorbed on it. Probl. kin. i kat. 10:62-66 '60. (MIRA 14:5)

1. Institut fizicheskoy khimii AN SSSR i Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.
(Semiconductors) (Adsorption)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

38026R
S/181/60/002/010/035/051
B104/B205

24.7000

AUTHORS: Kogan, Sh. M. and Sandomirskiy, V. B.

TITLE: Theory of external emission of hot electrons by semiconductors

PERIODICAL: Fizika tverdogo tela, v. 2, no. 10, 1960, 2570 - 2578

TEXT: Some problems of emission of hot electrons have been studied with regard to the interaction of carriers with acoustic and optical phonons and to the influence of impact ionization on the effect concerned. The authors used a homogeneous semiconductor placed in a strong steady electric field. It is assumed that the behavior of electrons in semiconductors placed in strong electric fields is determined chiefly by collisions with acoustic and non-acoustic phonons, by interelectronic interaction, and by impact ionization. The study described here was restricted to a temperature range where the impurities are completely ionized and scattering takes place at the lattice only. First, the emission current of hot electrons is estimated for the case where the energy χ of electron affinity (the distance between the bottom of the conduction band and the vacuum level) is higher than the energy, ε_i, of impact ionization. In

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this case, the symmetric part $f_0(\varepsilon)$ of the distribution function of hot electrons, which has a non-Boltzmann form, appears in the expression for the emission current at energies $\varepsilon > \varepsilon_i$. This distribution function is derived in the form $f_0(x) = f_0(1)\exp\left\{-\frac{A}{3}(x-1)^3\right\}$ (8), where $A = (3m\varepsilon_i\Omega^2/2e^2E^2)^{\frac{1}{2}}$. For $\varepsilon > \varepsilon_i$, this distribution function quickly drops to zero. Therefore, it may be assumed that the emission of hot electrons will be very small for $\chi > \varepsilon_i$. Using Eq. (8), the emission current of hot electrons can be described by

$$j_{\text{вн.}} = \frac{4\pi e m \chi^2}{(2\pi\hbar)^3} f_0(1) \int_1^\infty ds\,(s-1)\exp\left\{-\frac{A}{3}\left(\frac{\chi}{\varepsilon_i}s-1\right)^3\right\}. \qquad (9)$$

where

$$\frac{A}{3}\left(\frac{\chi}{\varepsilon_i}-1\right)^3 \gg 1 \qquad (10)$$

$$j_{\text{вн.}} = \frac{4\pi e m \varepsilon_i^2}{(2\pi\hbar)^3} \frac{\exp\left\{-\frac{A}{3}\left(\frac{\chi}{\varepsilon_i}-1\right)^3\right\}}{A^2\left(\frac{\chi}{\varepsilon_i}-1\right)^4} f_0(1). \qquad (11)$$

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Finally, the emission current is given by

$$j_{\text{em.}} = en_i\sqrt{\frac{\varepsilon_i}{m}}\,\frac{3^{3/2}}{2^{3/2}\Gamma\left(\frac{1}{3}\right)}\,\frac{\exp\left\{-\frac{A}{3}\left(\frac{\chi}{\varepsilon_i}-1\right)^3\right\}}{A^{3/2}\left(\frac{\chi}{\varepsilon_i}-1\right)^4}. \qquad (15) \qquad (15)$$

where n_i is the total number of electrons having energies $\varepsilon > \varepsilon_i$. Assuming that $n_i = 10^{22}$ cm^{-3} and $\sqrt{\varepsilon_i/m} \sim c$, the emission current as calculated from Eq. (15) will be $< 10^{-30}$ a/cm^2. This seems to prove the assumption that there occurs no noticeable emission of hot electrons in homopolar semiconductors with $\chi > \varepsilon_i$. Next, the emission current is calculated for the case where electron-electron collisions are absent ($\chi < \varepsilon_i$). The relations

$$f_0(t) = n\,\frac{(2\pi\hbar)^3 e^{-\frac{t}{2}} z^{\varkappa+\frac{1}{4}}}{2(2\pi mkT)^{3/2} W_{\varkappa+\frac{1}{4},\,\varkappa+\frac{5}{2}}(z)}\,e^{-t}\left(1+\frac{t}{z}\right)^{2\varkappa+1}, \qquad (20) \qquad (20)$$

(20a)

Here

$$z = \frac{1}{2\lambda_1}\left[1+\lambda_1\lambda_2\frac{\hbar\omega_0}{2kT}(2N_0+1)\right], \quad \varkappa = \frac{1}{2}\left(z-\frac{\lambda_2}{2}-1\right), \qquad (20a)$$

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obtained for the distribution function lead to the expression

$$j_{\text{вн.}} = en\left(\frac{kT}{2\pi m}\right)^{1/2} z^{1/4} e^{\frac{z}{2}} \left(1 + \frac{\chi}{kTz}\right)^{x+1} \frac{W_{x,\, x+\frac{3}{2}}\left(z + \frac{\chi}{kT}\right)}{W_{x+\frac{1}{4},\, x+\frac{5}{4}}(z)}. \quad (22) \qquad (22)$$

for the emission current. In these formulas, the functions W are Whittaker functions. For germanium, the emission current is approximately given by

$$j_{\text{вн.}} = en\left(\frac{kT}{2\pi m}\right)^{1/2} \frac{\exp - \left(\frac{\lambda_1 \lambda_2 \chi}{kT}\right)}{(\lambda_1 \lambda_2)^{1/2}}. \quad (25), \text{ where } \left.\begin{aligned} \lambda_1 &= \left(\frac{3kT}{eEl_{\text{вн.}}}\right)^2 \left(\frac{c}{v_0}\right)^2 \frac{l_{\text{вн.}}}{l}, \\ \lambda_2 &= \frac{3}{2} \frac{\delta_0^2}{\delta_{\text{в.}}^2} \left(\frac{q}{mv_0}\right)^2, \end{aligned}\right\} (17)$$

is valid. This representation indicates that the emission current of hot electrons increases with dropping lattice temperature. If electron-electron collisions are a significant factor in energy redistribution, the form of the symmetric part of the steady distribution function will approach the Boltzmann distribution at the electron temperature T_e, which

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differs from the lattice temperature T. In this case, the emission current is given by:

$$j_{\text{эм.}} = en\left(\frac{kT_e}{2\pi m}\right)^{1/2} e^{-\frac{I}{kT_e}}. \quad (34)$$

Finally, an expression is presented for the energy distribution of the emitted electrons:

$$P(t, \omega)\,d\omega\,dt = \frac{4mkT}{(2\pi h)^3} f_0(t)\,t\,dt\cos\vartheta\,d\omega, \quad (36)$$

The form of the distribution function of hot electrons can be obtained by determining P(t) experimentally. Here, ϑ is the angle between the surface normal and the electron momentum. V. L. Bonch-Bruyevich, M. I. Yelinson, and T. M. Lifshits are thanked for valuable discussions. There are 1 figure and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The references to English-language publications read as follows: R. Stratton, Proc. Roy. Soc., A242, 355, 1957; E. Conwell. Sylvania Technol., 12, 30, 1959.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

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B104/B205

Theory of external emission...

SUBMITTED: January 11, 1960

Card 6/6

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

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9,4300 (3005, 1137, 1469)
26.2532

21584
S/109/60/005/010/007/031
E240/E435

AUTHOR: Sandomirskiy, V.B.

TITLE: The External Emission of Hot Electrons From Semiconductors. Part I

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1627-1630

TEXT: The emission of hot electrons from a uniform homeopolar semiconductor is calculated, for carriers only on acoustic phonons. Expressions are obtained for the emission current density and for the velocity distribution of emitted electrons. The optimum relations between the parameters of the semiconductors are discussed and emission current densities are calculated for germanium and silicon under typical conditions. The author refers to articles by L.Landau and A.Kompaneyets (Ref.1: Zh.E.T.F. 1935, Vol.5, 296) and B.I.Davydov (Ref.2: Zh.E.T.F. 1937, Vol.5, 1069) as the first theoretical indications of emission due to internal electric fields, and to a paper by S.M.Levitin (Ref.3: Zh.T.F. 1953, Vol.23, 1700) in which the influence of this effect on thermoelectric emission from semiconductor cathodes is studied. Having defined a simple geometry, the author quotes the symmetrical part of the

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E240/E435

The External Emission ...

acoustic phonon distribution function obtained by Davydov for the region of strong electric fields

$$f_0(p) = Ce^{-\frac{p^2}{2mkT}}\left(\frac{p^2}{2akTm}+1\right)^{\alpha}, \quad (3)$$

where

$$\alpha = \frac{3\pi}{16}\left(\frac{\mu_0 E}{s}\right)^2 \quad (4)$$

where s = speed of sound; μ_0 = weak field mobility

$$\mu_0 = \frac{2}{3}\sqrt{\frac{2}{\pi}}\frac{ql}{\sqrt{mkT}};$$

The normalizing coefficient C is given without derivation as

$$C = \frac{\pi^{3/2}\hbar^3}{2^{1/4}}\frac{n}{(mkT)^{3/2}\alpha^{1/4}}, \quad (5)$$

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E240/E435

The External Emission

The asymmetrical part of the distribution function is quoted from Davydov as being negligible. Derivation of the current emitted by integrating the distribution function is indicated briefly and the result quoted:

$$j = \frac{qk^{1/2}}{2^{7/2}\pi^{1/2}m^{1/2}} \cdot \frac{kT}{\chi} T^{1/2}\alpha^{1/2} n e^{-\lambda^2/2\alpha} \qquad (12)$$

where χ = work function for electrons; $\lambda = \chi/kT$. For the case of $\alpha \gg \lambda \gg 1$
It is indicated that the effect can only be considerable for the case $\alpha \gg \lambda$ and that the effect grows with decreasing temperature. A very brief discussion of the velocity distribution of the emitted electrons follows in which the impulse corresponding to the maximum of the distribution in the stream is quoted as

$$(p_x)_{max} = (mkT)^{1/2}\left[(\lambda^2 + 2(\lambda + \alpha))^{1/2} - \lambda\right]^{1/2} \qquad (16)$$

without full derivation. The author also deduces that emitted electrons may have velocities greatly in excess of their drift

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velocity in the semiconductor. Before presenting calculated results, reservations are made with regard to the unestimated losses of energy in optical phonons and in collisions of fast electrons. Calculations are performed on values of electric field lower than those that will cause saturation connected with the optical phonons. Calculated results are:

1) Germanium. $T = 300°K$, $\chi = 4.1$ eV, $\mu_o = 3.9 \times 10^3$ cm^2/sec, $s = 5 \times 10^5$ cm/sec, $E = 3.5 \times 10^3$ V/cm

$$j = 5.7 \times 10^{-26}\ n\ A/cm^2 \qquad (18)$$

2) Silicon. $T = 300°K$, $\chi = 2.5$ eV, $\mu_o = 1.7 \times 10^3$ cm^2/sec $E = 2 \times 10^4$ V/cm, s = approx 5×10^5 cm/sec.

$$j = 3.8 \times 10^{-13}\ n\ A/cm^2 \qquad (19)$$

n is to be taken in carriers per cm^3.

The author hopes to calculate the effects of optical phonons electron-electron collisions and impact ionization in subsequent work. Acknowledgments are expressed to M.I.Yelinson,

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E240/E435

The External Emission ...

V.L.Bonch-Bruyevich and Sh.M.Kogan for their assistance and advice. There are 1 figure and 3 Soviet references.

ASSOCIATION: Institut radiotekhniki i elektronika AN SSSR (Institute of Radioengineering and Electronics AS USSR)

SUBMITTED: November 18, 1959

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

BAKANOV, S.P.; RUKHADZE, A.A.; SANDOMIRSKIY, V.B.

Theory of the expansion of a gas bubble in a viscous liquid.
Inzh.fiz.zhur. 4 no.7:109-112 Jl '61. (MIRA 14:8)

1. Institut fizicheskoy khimii AN SSSR, Moskva.
(Bubbles)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

42169
S/195/62/003/005/003/007
E039/E135

5.4800

AUTHORS: Vol'kenshteyn, F.F., Kuznetsov, V.S., and Sandomirskiy, V.B.

TITLE: The chemisorption and catalytic properties of semiconducting films on metals

PERIODICAL: Kinetika i kataliz, v.3, no.5, 1962, 712-723

TEXT: The case of a metal covered with a plane parallel film of uniform semiconductor (e.g. its oxide) containing donor and acceptor centres uniformly distributed throughout its volume is treated theoretically. Energy diagrams are given for coatings with a thickness L greater than the screening length ℓ and for the case when $L \leqslant \ell$ with a net positive or negative surface charge. Owing to mathematical difficulties only the sign of the following derivatives is determined for the various conditions:

$$\left.\begin{array}{l}(d\varphi/dL)_{p,\,T,\,\chi}\\(d\varepsilon/d\chi)_{p,\,T,\,L}\end{array}\right\}; \qquad (7)$$

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... considered as an ... of less than 10^{-6} cm.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

The chemisorption and catalytic ... S/195/62/003/005/003/007
E039/E135

ASSOCIATION: Institut fizicheskoy khimii AN SSSR
(Institute of Physical Chemistry, AS USSR)
Institut kataliza SO AN SSSR
(Institute of Catalysis, SO AS USSR)
Institut radiotekhniki i elektroniki AN SSSR
(Institute of Radioengineering and Electronics, AS USSR)

SUBMITTED: February 16, 1962

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

42170

24.7400

S/195/62/003/005/004/007
E039/E135

AUTHORS: Kuznetsov, V.S., and Sandomirskiy, V.B.

TITLE: The effect on the adsorption capacity of a volume charged semiconductor caused by the redistribution of impurities in the surface region

PERIODICAL: Kinetika i kataliz, v.3, no.5, 1962, 724-727

TEXT: The adsorption capacity of the surface of a semiconductor under given conditions depends on the level of the electrochemical potential. Redistribution of the impurity centres will affect this level and hence change the adsorption capacity of the semiconductor. The problem is examined theoretically in the framework of the electron theory of catalysis in semiconductors and involves the solution of a system of diffusion equations and Poisson's equation for the given system. If the fraction of charged adsorbing molecules is large there will be appreciable redistribution of impurity centres in the region near the surface, under the action of the electric field set up by the surface charge. Numerical estimates show that this effect can lead to an

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The effect on the adsorption capacity.. S/195/62/003/005/004/007
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increase in the adsorption capacity by several tens of times. It is also shown that for the model considered, the general results do not depend on the type of semiconductor (n- or p-) or on the nature of the gas adsorbed (donor or acceptor). Experimental verification of these results is of interest but it should be noted that redistribution of impurity may lead to effects not considered in this paper.
There are 2 figures.

ASSOCIATION: Institut kataliza SO AN SSSR
Institute of Catalysis, SO AS USSR)

Institut radiotekhniki i elektroniki AN SSSR
(Institute of Radioengineering and Electronics, AS USSR)

SUBMITTED: June 6, 1962

Card 2/2

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

S/109/62/007/004/010/018
D290/D302

24,7700

AUTHORS: Zhdan, A.G., Yelison, M.I., and Sandomirskiy, V.B.

TITLE: Spectra of autoelectrons emitted from semiconductors

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 4, 1962, 670 - 686

TEXT: The energy spectra of autoelectrons emitted from the semiconductor SiO_2 + C were measured in detail for various autocurrent densities and emitter temperatures; the results are compared with the current-voltage characteristics of the emission, and with theoretical predictions that assume spherical energy surfaces and approximate electron temperatures. The present work was carried out in order to test a theory of autoelectron emission that relates the autocurrent density to the average internal electric field in the semiconductor, and hence to explain the experimental results at high autocurrent densities (previous theories are inadequate at autocurrent densities of above about 500 - 1000 amp./cm^2); also, the results give information about the energy distribution of the elec-

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trons in a semiconductor. The results show the non-equilibrium nature of the emission at high current densities. The electrons in the semiconductor are superheated by the strong internal field, which increases as the emission current density increases. In some cases electrons with energies of about 10 eV are found; the corresponding electron temperatures are about 10,000 - 15,000°K compared with equilibrium emitter temperatures ranging from about 300 - 1600 °K. The electron temperature decreases as the lattice temperature increases. The autoelectrons have a Maxwellian energy distribution at higher energies; therefore the energy distribution of the electrons in the semiconductor is probably also Maxwellian at these energies. There are 18 figures, 2 tables and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: R.D. Young, E.W. Muller, Phys. Rev., 113, 1, 115, 1959; R.D. Young, Phys. Rev., 113, 1, 110, 1959; R. Stratton, Proc. Phys. Soc. B, 1955, 68, 430, 746.

SUBMITTED: November 24, 1961

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

40395
S/109/62/007/009/004/018
D409/D301

26.1640

AUTHORS: Gor'kov, V.A., Yelinson, M.I., and Sandomirskiy, V.B.

TITLE: On the role of the space charge in drawing field-emission currents of high density

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 9, 1962, 1495 - 1500

TEXT: The possible causes are considered of the observed deviation of the current-voltage characteristics of field-emission of metals at high current densities. In this connection the authors analyze the role of the space charge and of the shape of the potential barrier at the boundary emitter-vacuum. It is shown that if a sufficiently strong positive space-charge is formed in the emitter-anode space (e.g. by ionized residual-gas molecules), this leads to a certain type of deviation of the current-voltage characteristics. First, the space charge is calculated by an approximate method. The calculations are checked by experiment. The pressure in the experimental diode varied between 10^{-8} and 10^{-4} mm Hg. The preparation of the tungsten emitters, as well as the experimental procedu-

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re were described in the references. It is concluded that the initial region of deviation of the current-voltage characteristics is mainly due to the influence of the space charge. The barrier effects are apparently weak and appear in the region of higher electric field strength. The experimentally observed shift of the entire current-voltage characteristic towards larger values of the field, is apparently due to the polarization of residual-gas molecules. There are 3 figures. The most important English-language reference reads as follows: N.C. Barford, J. Electronics and Control, 1957, 3, 11, 163.

SUBMITTED: January 30, 1962

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

YELINSON, M.I.; SANDOMIRSKIY, V.B.; GOR'KOV, V.A.; ZHDAN, A.G.

Reply to G.N. Shuppe's and A.S. Kompaneits letter to the editor concerning V.A. Gorkov's article "The first symposium on field emission." Radiotekh. i elektron. 7 no.9:1686-1688 S '62. (MIRA 15:9)

(Field emission) (Shuppe, G.N.) (Kompaneits, A.S.) (Gor'kov, V.A.)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

42732
S/109/62/007/011/011/012
D295/D308

24.7700

AUTHOR: Sandomirskiy, V.B

TITLE: The theory of quantum effects in the electric conductivity of semiconductor films

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 11, 1962, 1971 - 1972

TEXT: The thickness of semiconductor films at which quantum effects in the behavior of charge carriers begin to show is evaluated to be of the order of 10^{-5} cm (against 10^{-8} in metal films). For sufficiently pure semiconductor films at low temperatures, for which a simplified electron spectrum disregarding volume scattering can be assumed, the following quantum effects are predicted: 1) the absorption, by the free electron gas, of electromagnetic radiation directed transversely to the film ($\lambda \simeq 100\mu$ for the transition $n = 1, k_y, k_z \rightarrow n = 2, k_y, k_z$ with $\Delta\varepsilon \simeq 10^{-3}$ eV); 2) a discontinuous change of the current

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

The theory of quantum ... S/109/62/007/011/011/012
D295/D308

density with varying carrier concentration and film thickness.

SUBMITTED: July 17, 1962

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

44244

24.7700

S/056/62/043/006/058/067
B141/B102

AUTHOR: Sandomirskiy, V. B.

TITLE: Dependence of the forbidden band width in semiconductors on their thickness and temperature.

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2309

TEXT: Quantum effects appear at certain thicknesses of films of rigid bodies, which are comparable with effective wavelengths (λ) of current carriers. In semiconductors, where $\lambda \sim h/\sqrt{2mkT}$ and $m \approx 10^{-2}\ m_o$, there is $\lambda \approx 10^{-5}$ cm at $T \approx 100^oK$. Owing to scattering of the current carriers at the film boundaries, the quantum effects appearing can be strongly smeared. For semiconductors there follows from the principle of uncertainty that the continuous spectrum must become compressed to the range $\Delta \approx h^2/2ma^2$ independently of the energy spectrum. The effect of this must be a corresponding widening of the forbidden band with reduction of the film

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L 18993-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/AB

ACCESSION NR: AT3002453 S/2935/62/000/000/0192/0206

62
59

AUTHOR: Vol'kenshteyn F. F.; Kuznetsov, V. S.; Sandomirskiy, V. B.

TITLE: Chemosorptional and catalytic properties of semiconductor film on metal [Conference on Surface Properties of Semiconductors, Institute of Electrochemistry, AN SSSR, Moscow, 5-6 June, 1961]

SOURCE: Poverkhnostnyye svoystva poluprovodnikov. Moscow, Izd-vo AN SSSR, 1962, 192-206

TOPIC TAGS: chemosorption, semiconductor, catalysis, semiconductor-coated metal

ABSTRACT: Since many metals are always coated with a binary-compound film, chemosorption and catalytic processes actually transpire on the surface of a semiconductor. A theoretical investigation is offered of these processes. A rather thick semiconductor film that does not contain surface states and a positive contact potential difference are assumed; four energy schemes are

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L 18993-63

ACCESSION NR: AT3002453

3

considered. Qualitative properties of the film adsorbability and its catalytic activity are described by a set of differential equations. The effect of the film thickness on the work function is explored. It is found that: (1) With a specified nature and thickness of the film, its adsorbability with respect to a donor (acceptor) gas will be higher (lower) with a higher work function of the underlying metal, irrespective of the sign of the surface charge on the film; and (2) A similar relation exists between the catalytic film activity and the donor (acceptor) reaction. Orig. art. has: 3 figures and 36 formulas.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR); Institut radioelektroniki AN SSSR (Institute of Radio and Electronics, AN SSSR); Institut kataliza AN SSSR (Institute of Catalysis, AN SSSR)

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

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

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 17110-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3/IJP(C) Pz-4 GG/AT

ACCESSION NR: AP3003885 S/0181/63/005/007/1894/1899

10
67

AUTHORS: Sandomirskiy, V. B.; Kogan, Sh. M.

TITLE: Acoustical-electrical effects in piezoelectric semiconductors

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 1894-1899

TOPIC TAGS: piezoelectric, semiconductor, acoustical-electrical effect, ultrasonic wave, direct current, current carrier, electrical field

ABSTRACT: An ultrasonic wave in a piezoelectric semiconductor changes resistance in direct current. The following mechanisms of changing resistance have been examined: 1- redistribution of carriers in an electrical field due to direct piezoelectric effect, 2- supplementary acoustical-electrical effect due to dependence of relative current-carrier velocity and of ultrasonic vibrations on a steady external field, and 3- warming of carriers through absorption of the force of ultrasonic waves and through corresponding change in mobility. In all these the effect was found to be proportional to the square of the wave amplitude, and it was observed to take place regardless of whether the wave is standing or traveling. In addition, it is shown that in the absence of an exterior electrical field even a standing ultrasonic wave creates an acoustical-electrical emf. "The authors are very grateful to

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L 17110-63
ACCESSION NR: AP3003885

3

V. L. Bonch-Bruyevich and V. L. Gurevich for valuable discussions on several questions." Orig. art. has: 15 formulas.

ASSOCIATION: Institut radiotekhniki i electroniki AN SSSR, Moscow (Institute of Radio Engineering and Electronics, Academy of Sciences, SSSR)

SUBMITTED: 13Feb63 DATE ACQ: 15Aug63 ENCL: 00

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

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

ACCESSION NR: AP4011784 S/0181/64/006/001/0326/0327

AUTHOR: Sandomirskiy, V. B.

TITLE: A possible type of volt ampere characteristic in the system semiconductor, dielectric, semiconductor (metal)

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 326-327

TOPIC TAGS: volt ampere characteristic, semiconductor, dielectric, tunnelling effect, field strength, dropping characteristic

ABSTRACT: The author has examined the volt-ampere characteristics of two semiconductors (with the same type of conductivity) separated by a thin dielectric layer through which electron tunnelling is possible. He has assumed that both semiconductors have sufficiently low resistance so that any potential applied between them may be considered to be incident on the dielectric film. The possibility of dropping characteristics is related to the presence of two zones in the dielectric, differing in the mechanism of current transmission. The resistance in one zone decreases with increase in field strength, while the resistance of the other zone may increase (because of increasing thickness of the zone). The author

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ACCESSION NR: AP4011784

finds that the current across the contact will be

$$j \sim \exp\left[-\frac{\varphi_1}{qE}\left(\frac{1}{\lambda}-\frac{1}{l}\right)\right]$$

where φ_1 is the barrier at that contact, q is the absolute charge on an electron, E the field strength in the dielectric, λ the characteristic wave length of the electron, and l the free path. The same result may be obtained by using a substance with low-mobility carriers in place of the dielectric. The same result may also be obtained for a semiconductor-dielectric contact if a metal replaces the opposite semiconductor. If metal replaces both semiconductors, however, the incident characteristics will not appear (not through the indicated mechanism), since a marked tunnelling effect will take place from the conductor opposite the investigated junction when the energy is less than that at the base of the conduction band. Orig. art. has: 1 figure and 5 formulas.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow (Institute of Radio Engineering and Electronics AN SSSR)

SUBMITTED: 29Aug63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

ACCESSION NR: AP4038624 S/0109/64/009/004/0724/0727

AUTHOR: Kogan, Sh. M.; Sandomirskiy, V. B.

TITLE: Effect of a quantizing magnetic field on the field emission

SOURCE: Radiotekhnika i elektronika, v. 9, no. 4, 1964, 724-727

TOPIC TAGS: electron emission, field emission, magnetically quantized field emission

ABSTRACT: The superimposition of a quantizing magnetic field controls the energy spectrum of electrons in a solid-state body and, therefore, may control the field-emission current. The field-emission-current density is found to be equal: $j_z = \frac{4\pi^4 q\hbar^4}{m^3\chi}\left(\frac{2\chi}{m}\right)^{1/2}\frac{n^3}{\omega^2}e^{-F_0/F}$, and the total-energy distribution of emitted electrons is given by:

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ACCESSION NR: AP4038624

$$P(\varepsilon)\,d\varepsilon = d\varepsilon \frac{m\omega}{(2\pi\hbar)^2} n(\varepsilon) \sum_{N=0}^{N_0} D\left[\varepsilon - \left(N + \frac{1}{2}\right)\hbar\omega\right],$$

$$N_0 = \left[\frac{\varepsilon}{\hbar\omega} - \frac{1}{2}\right],$$

where q is the electron charge, m is the effective mass, χ is the electron affinity, D is the barrier, [x] is the integer part of x. A similar problem was solved by R. R. Haering, et al. (J. Phys. Chem. Solids, 1961, 19, 1/2, 8) for the tunnel diode. Orig. art. has: 14 formulas.

ASSOCIATION: none

SUBMITTED: 28Jan63 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: GP,EC NO REF SOV: 001 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 11837-65 EWT(1)/EWT(m)/EPA(sp)-2/T/EWP(k)/EWA(m)-2 Pf-4/Pi-4/Peb BSD/
ASD(a)-5/AS(mp)-2/ASD(p)-3/RAEM(a)/ESD(dp)/ESD(gs) S/0181/64/006/011/3457/3463
ACCESSION NR: AP4048428

AUTHORS: Kogan, Sh. M.; Sandomirskiy, V. B.

TITLE: Interaction of supersonic wave with a beam of charged particles

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3457-3463

TOPIC TAGS: ultrasonic wave propagation, charged particle beam, traveling wave interaction, ultrasound amplification

ABSTRACT: The authors investigate analytically the possible amplification of ultrasound in a piezoelectric crystal by means of a beam of charged particles moving in a slot inside the crystal. The mechanism of this amplification is similar to that in a traveling wave tube, and is of particular interest in the amplification of waves with large phase velocities. The coupling between the plasma wave in the beam and the elastic wave in the dielectric is provided

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ACCESSION NR: AP4048428

3

by the piezoelectric effect and has a maximum when the frequencies of the two waves coincide and their wave vectors have the same direction as the beam. Analytic expressions are derived for the amplification in two limiting cases, when the amplified wave varies slowly and rapidly in the direction normal to the slot. The resonant character of the effect and its similarity to the process in a traveling wave tube distinguish this type of amplification from that produced by carrier drift. "The authors thank A. S. Tager and M. B. Tseytlin for a very useful discussion." Orig. art. has: 34 formulas.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 25Jun64 ENCL: 00

SUB CODE: GP NR REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

KOGAN, Sh.M.; SANDOMIRSKIY, V.B.

Effect of a quantizing magnetic field on secondary electron emission. Radiotekh. i elektron. 9 no.4:724-727 Ap '64. (MIRA 17:7)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

KOGAN, Sh.M.; SANDOMIRSKIY, V.B.

Interaction between an ultrasonic wave and a beam of charged particles. Fiz. tver. tela 6 no.11:3457-3463 N '64. (MIRA 18:1)

1. Institut radiotekhniki i elektroniki AN SSSR, Moskva.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 52787-65 EWT(1)/EWT(m)/EWP(i)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb IJP(c)
JD/AT

ACCESSION NR: AP5010739 UR/0181/65/007/004/1228/1230

42
41
B

AUTHOR: Pinsker, T. N.; Samoilovskiy, V. B.

TITLE: Electric conductivity of films in strong electric fields

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1228-1230

TOPIC TAGS: size effect, thin film, electric conductivity, electron density, electron heating field

ABSTRACT: To determine the size effect in a semiconductor film in moderately strong fields (for "warm" electrons), the authors calculate the distribution function for a film of thickness much smaller than the mean free path of the electrons, of infinite length, and of finite width. The dispersion law is assumed quadratic and isotropic, and the reflection on the surfaces of the film is assumed to be diffuse. The results show that the electrons are heated up to a lower temperature in a film than in a bulky specimen in the same field. An estimate is presented for the applicability of the electron-temperature approximation and it is shown that the minimum electron density for which this approximation holds is $\simeq 10^{13} + 4 \times \times 10^{10} \gamma\ cm^{-3}$, where γ is a phenomenological parameter characterizing the rates of

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 52787-65

ACCESSION NR: AP5010739

energy release on the surface. Orig. art. has: 23 formulas.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 09Jul64 ENCL: 00 SUB CODE: SS, EM

NR REF SOV: 001 OTHER: 003

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 63346-65 EWA(h)/EWT(1)/T ~~Pe-6/Peb~~ IJP(c) ~~AT~~ UR/0181/65/007/007/2211/2213

ACCESSION NR: AP5017322

19
17
B

AUTHOR: Sandomirskiy, V. B.; Pyasta, Ya. A.

TITLE: Field effect in semiconductors in the jump conductivity region

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2211-2213

TOPIC TAGS: field effect, semiconductor, conductivity

21

ABSTRACT: Jump conductivity in semiconductors is determined by the impurity concentration and the concentration ratio of filled and vacant impurity centers. Since this ratio changes under the action of an external field, there should be a field effect in the jump conductivity region. The relative change in conductivity as a function of the applied field strength is calculated for the simple case of a flat plate of n-type semiconductor material between metal electrodes. The curve has a maximum corresponding to the optimal ratio of filled to vacant impurity centers. An illustrative calculation for Ge shows a maximum effect of about one percent. Experimental investigation is recommended. Orig. art. has: 1 figure, 6 formulas.

Card 1/2

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 63346-65

ACCESSION NR: AP5017322

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics AN SSSR); Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii AN SSSR, Moscow (All-Union Institute of Scientific and Technical Information AN SSSR)

SUBMITTED: 21Dec64 ENCL: 00 SUB CODE: SS

NO REF SOV: 000 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

YELINSON, M.I.; ZHDAN, A.G.; KRAPIVIN, V.F.; LINKOVSKIY, Zh.B.; LUTSKIY, V.N.; SANDOMIRSKIY, V.B.

Theory of a "noncontact" version of the emission of hot electrons from semiconductors. Radiotekh. i elektron. 10 no.7:1288-1294 Jl '65. (MIRA 18:7)

1. Institut radiotekhniki i elektroniki AN SSSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 2891-66

ACCESSION NR: AP5015416 UR/0020/65/162/004/0789/0790

AUTHOR: Yelinson, M. I.; Sandomirskiy, V. B. 23 B

TITLE: Contribution to the theory of volt-ampere characteristic of a field-effect film triode

SOURCE: AN SSSR. Doklady, v. 162, no. 4, 1965, 789-790

TOPIC TAGS: volt ampere characteristic, thin film circuit, semiconducting film

ABSTRACT: It is shown that if account is taken of the fact that film triodes contain a large number of traps which lie sufficiently far from the edge of the band, then the equation for the static volt-ampere characteristic, derived on the basis of the one-dimensional model, can be extended beyond the cutoff point, into the saturation region, so that the volt-ampere characteristic can approximate more closely the experimental data. The results obtained for the saturation region are in better agreement with experiment than those obtained by the Shockley theory. Orig. art. has: 5 formulas. This report was prepared by V. A. Kotel'nikov

ASSOCIATION: Institut radiotekhniki i elektroniki akademii nauk SSSR (Institute of Radio Engineering and Electronics, Academy of Sciences, SSSR)

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 2891-66

ACCESSION NR: AP5015416

SUBMITTED: 12Dec64 ENCL: 00 SUB CODE: EC

NO REF SOV: 000 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 1601-66

ACCESSION NR: AP5014565 UR/0181/65/007/006/1687/1689

AUTHORS: Musabekov, T. Yu.; Sandomirskiy, V. B.

6
B

TITLE: Impedance of a dielectric diode with traps

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1687-1689

TOPIC TAGS: dielectric diode, electron trap, impedance calculation

ABSTRACT: The authors calculate the impedance of a diode consisting of a plane-parallel layer of dielectric placed between an injecting cathode and a barrier anode. Monoenergetic traps are uniformly distributed through the dielectric, and the voltage applied is a superposition of DC and AC. Modified Maxwell's equations with suitable boundary conditions are used, written out in the virtual-cathode approximation, neglecting diffusion current. The impedance is obtained from these equations in parametric form, where the parameter is the ratio of the trap density to the electron density in the conduction band at zero AC voltage. The conditions under which the impedance is

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L 1601-66

ACCESSION NR: AP5014565

resistive, capacitive, and independent of the presence of the traps are discussed briefly. Orig. art. has: 8 formulas

ASSOCIATION: Institut radiotekhniki electroniki AN SSSR Moscow (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 12Dec64 ENCL: 00 SUB CODE: SS

NR REF SOV: 000 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 6481-66 EWT(1)/T/EWA(h) IJP(c) GG/AT

ACC NR: AP5028023 SOURCE CODE: UR/0386/65/002/008/0396/0398

AUTHOR: Sandomirskiy, V. B. 44,55

ORG: Institute of Radio Engineering and Electronics, Academy of Sciences, SSSR (Institut radiotekhniki i elektroniki Akademii nauk SSSR) 21,44,55

TITLE: Transition of semiconductors to a superconducting state under the influence of the field effect 21,44,55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu (Prilozheniye), v. 2, no. 8, 1965, 396-398

TOPIC TAGS: superconductivity, superconducting alloy, semiconductor, field, charge carrier

ABSTRACT: Inasmuch as the transition temperature T_c at which a semiconductor becomes a superconductor depends on the carrier density, the author proposes to induce the superconducting transition on the surface by changing the carrier density by means of the field effect. The magnitude of the change is estimated for a semiconductor having the parameters of $SrTiO_3$. It is calculated that the field effect can produce an electron distribution such that the density ranges from 10^{17} cm^{-3} inside the semiconductor to 10^{21} on the surface, and the density at a depth equal to the screening length ($\sim 2 \times 10^{-7}$ cm) is $\sim 10^{18}$ cm^{-3}. These estimates show that with the aid of the field effect it is apparently possible to transform into the superconducting state a surface layer of a sample which would be in the normal state at the given temperature.

Card 1/2

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ACC NR: AP5028023

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In addition to the field effect, a considerable increase in the density in regions of small dimensions can also be obtained by using chemisorption, contact fields, and injection. This pertains, of course, both to electron and hole conductivity. Of special interest is the possibility in principle of producing and controlling with the aid of the field effect electron or hole superconductivity in the same sample. It is noted in conclusion that measurements of the field effect in superconducting semiconductors make it possible to investigate experimentally screening in the superconducting state. Author is grateful to Sh. M. Kogan and R. A. Suris for a discussion of the ideas presented here. Orig. art. has: 1 formula. [02]

44,55

SUB CODE: SS, EM/ SUBM DATE: 06Sep65/ ORIG REF: 001/ OTH REF: 005/

ATD PRESS: 4140

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Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

MOTT, N.F.; TUZ, U. [Twose, W.D.]; SANDOMIRSKIY, V.V. [translator]; GOR'KOV, V.A. [translator]; ZHDAN, A.G. [translator]

"The theory of impurity conduction". Usp. fiz. nauk 79 no.4: 691-740 Ap '63. (MIRA 16:3)

(Electric conductivity)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMIRSKIY, Ya.G.

Ways of improving elevators and elevator service. Ger.khoz.Mosk. 29 no.10:22-25 O '55. (MLRA 9:2)
(Elevators)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMISASHVILI, K. I., Pharmacist

Drugs - Standards

Biological evaluation of medicinal substances. Apt. delo no. 4, 1952

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

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMISASHVILI, K. I.

"Dynamics of the Accumulation of Alkaloids in Wild Henbane (Hyoscyamus niger L.) and a Histological Study of the Latter." Cand Pharm Sci, Tbilisi State Medical Inst, Tbilisi, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMISASHVILI, K.I., provizor.

Problem of storing medicines. Apt.delo 3 no.1:11-13 Ja-F '54.
(MLRA 7:1)
(Drugs)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMISASHVILI, K.I., provisor.

Safe time of preservation of drugs. Apt.delo 3 no.3:9-10 My-Je '54. (MLRA 7:6)

(DRUGS,
*safe time of preserv.)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOMISASHVILI, K.I.

Organization of a supervisory and analytical service in the Georgian S.S.R. Apt. delo 13 no.4:73-76 Jl-Ag '64. (MIRA 18:3)

1. Respublikanskaya kontrol'no-analiticheskaya aptechnaya laboratoriya Gruzinskoy SSR, Tbilisi.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 15486-66

ACC NR: AT6007453 SOURCE CODE: HU/2505/65/026/00X/0052/0052

AUTHOR: Kovacs, S.; Vertes, Zsuzsa; Sandor, A.; Vertes, Marietta 30 B+1

ORG: Institute of Physiology, Medical University of Pecs (Pecsi Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Effect of thalamic stimulation on pituitary-thyroid activity [This paper was presented at the 29th Meeting of the Hungarian Physiological Society held in Szeged from 2 to 4 July 1964]

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 26, Supplement, 1965, 52

TOPIC TAGS: rat, electrode, electrophysiology, gland, radioisotope, iodine, brain, thyroid gland, endocrinology 55

ABSTRACT: The effect of stimulation of different thalamic areas on pituitary-thyroid function has been investigated on male albino rats with chronic deep electrodes. The results were as follows. When the electrode was placed medially or dorsally in the anterior part of the thalamus, stimulation led to a significant increase in I^{131} uptake. In contrast, the I^{131} uptake was reduced when the lateral thalamus was stimulated. When stimulation was applied with the electrode placed epithalamically and in contact with the nucleus habenulae, the rate of I^{131} uptake

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ACC NR: AT6007453

depended on the frequency of the stimuli. On stimulation with a frequency of 50 c/s, the I^{131} uptake decreased, while at a frequency of 15 c/s the I^{131} uptake increased significantly. [JPRS]

SUB CODE: 06 / SUBM DATE: none

Card 2/2 mc

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

L 43014-66

ACC NR: AT6031824 SOURCE CODE: HU/2505/65/026/003/0227/0233

40
B+1

AUTHOR: Kovacs, Sandor--Kovach, Sh.; Vertes, Zsuzsa--Vertesh, Zh.; Sandor, Attila--Shandor, A.; Vertes, Marietta--Vertesh, M.

ORG: Institute of Physiology, Medical University of Pecs, Pecs (Pecsi Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Effect of mesencephalic lesions and stimulation of pituitary-thyroid function

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 26, no. 3, 1965, 227-233

TOPIC TAGS: radioisotope, iodine, rat, brain, thyroid gland, endocrinology, cortisone

ABSTRACT: It has been shown by experiments on male albino rats that bilateral electrocoagulation in the mesencephalic reticular formation results in a considerable increase in thyroid I^{131} uptake. On stimulation of the same site with implanted deep electrodes, the I^{131} uptake decreases considerably. The decrease in I^{131} uptake as a result of stimulation was present in adrenalectomized as well as cortisone-treated animals. Following stimulation, the rate of I^{131} release by the thyroids also decreases. Orig. art. has: 6 figures. [Orig. art. in Eng.] [JPRS]

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ACC NR: AT6019374 SOURCE CODE: HU/2505/65/027/003/0221/0227

AUTHOR: Kovacs, Sandor; Sandor, Attila; Vertes, Zsuzsa; Vertes, Marietta

ORG: Institute of Physiology, Medical University of Pecs (Pecsi Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Effect of lesions and stimulation of the amygdala on pituitary-thyroid function

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 27, no. 3, 1965, 221-227

TOPIC TAGS: adrenal gland, cortisone, rat, thyroid gland, biologic metabolism

ABSTRACT: The possible regulatory role of the amygdaloid nucleus in pituitary-thyroid function has been studied in male albino rats. Bilateral electrocoagulation in the amygdaloid nucleus did not influence the I^{131} uptake by the thyroid. In response to electric stimulation, the I^{131} uptake varied with the applied frequency. Following stimulation at 50 c/s, 3 msec pulses, 0.5-1.5 V, the I^{131} uptake showed a marked decrease. The same stimulation failed to produce a decrease in I^{131} uptake after adrenalectomy or cortisone treatment. A considerable increase in I^{131} uptake occurred following stimulation with lower frequencies: 15 c/s, 3 msec pulses, 0.5-1.5 V. Orig. art. has: 7 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: 08Jul64 / ORIG REF: 006 / OTH REF: 018

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KOVACS, S.; VERTES, Zsuzsa; SANDOR, A.; VERTES, Marietta.

The effect of mesencephalic lesions and stimulation on pituitary thyroid function. Acta physiol. acad. sci. Hung. 26 no.3:227-233 '65.

1. Institute of Physiology, University Medical School, Pecs.

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SANDOR, Anna

Development of the village of Szomolya after the liberation. Borsod szemle 7 no.1:10-18 '63.

1. Megyei Statisztikai Hivatal munkatarsa.

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SANDOR, Antoni

Ever-burning "Thermocoke" tile stove. Elet tud 19 no.2:50
10 Ja '64

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

PILLICH, Lajos; SANDOR, Bela

Drug manufacture. Magy kem lap 19 no. 12:649-650 D '64.

Wrapping. Ibid.:650-651

1. Kobanya Drug Factory, Budapest.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

Sandor, Endre

USSR / Solid State Physics / Structural Crystallography E-4

Abs Jour : Ref Zhur - Fizika, No. 5, 1957 No. 11590

Author : Sandor, Endre
Inst : -
Title : Investigation of the Crystal Structure by Means of X-rays.

Orig Pub : Fiz. szemle, 1955, 5, No. 4, 103 - 113.

Abstract : Survey of methods and techniques for X-ray investigations of the crystalline structure.

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SANDOR, E.

Investigation of badly formed single crystals of unknown symmetry with the x-ray goniometer. E. Sandor (Phys. Inst. Budapest Univ.). Acta Cryst. 1, 677-80 (1956). — A technique is described for finding the principal zone axes of an unknown crystal from Laue photographs taken on a cylindrical film in an x-ray goniometer and for setting the crystal to rotate about any required axis. A special cassette that will record 4 successive photographs is used.

A. L. Mackay

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SANDOR, E

4

The preparation of small spheres from single crystals. B. Sándor and P. Gado (Phys. Inst., Budapest Univ.). *Kristallografiya* 1, 729-32(1956).—A small grinder in which a crystal is blown around the inner abrasive surface of a cylinder by a tangential blast of air is described. Sphere diams. decreased linearly with time. A. L. Mackay

Mech Dev

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SANDOR, E.

X-ray radiation is 60 years old. p. 113.
(FIZIKAI SZEMLE. Vol. 6, no. 4, July 1956. Hungary)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 6, June 1957. Uncl.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SIPOS, Jozsef, dr.; SANDOR, Erzsebet, dr.

Treatment of patients with heart failure with K-Strophantomuse.
Orv. hetil. 106 no.13:610-611 28 Mr '65.

1. Fehergyarmati Jarasi Korhaz, Belgyogyaszati Osztaly (Igazgato: Kovacs, Laszlo, dr.).

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NOVAK, J.; BERNAT, I.; DOZSAN, G.; SANDOR, E.

The disorder in iron metabolism developing in burns disease. Acta chir. plast. (Praha) 7 no.4:310-316 '65.

1. Medical Service of the Hungarian People's Army, Budapest, Hungary.

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SANDOR, E.

Exhibition of instruments manufactured in the Hungarian People's Republic. p. 2. TEHNICA NOUA. (Asociatia Stiintifica a Inginerilor si Tehnicienilor) Bucuresti. Vol. 2, no. 16, June 1955.

So. East European Accessions List Vol. 5, No. 9 September, 1956

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOR, F.

11-4614

65 Magnetic loop cores for digital computing machines. F. Sandor. A Magyar Tudományos Akadémia Mérésügyi Kutató Intézete Közleményei (Proceedings of the Institute of Measuring Technique and Instruments of the Hungarian Academy of Sciences). 1956, No 1, pp 108-137, 25 figs.

The application of ferromagnetic cores with rectangular hysteresis loop in the memory and arithmetic units of digital computers is discussed. The memory matrix, magnetic stepping register, trans-luxor and single core magnetic amplifier are described. The applicability of cores depends upon two facts, the rectangular factor and the change-over time. A method developed for their measurement is dealt with. The rectangular factor, the ratio of remanent flux to saturation flux, indicates the extent to which the hysteresis curve of the core approximates the ideal rectangle loop. This factor is a direct derivative of the hysteresis loop. Change-over time, the other datum, is the time required by the core for changing over from one stable state to the other. Upon this depends the impulse-repetition frequency [illegible] in units composed of magnetic cores [illegible] the [illegible] is required [illegible] the transit resistance of the coil neither is the internal

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SANDOR, F.

resistance of the generator excessive. As a consequence the impulse current passing the measuring coil is not [illegible] but consists basically of two stepped [illegible] evaluation of change-over time and of the [illegible] force may be effected on the base of [illegible] of the height of the [illegible] ferrite cores with [illegible] change [illegible]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

SANDOR, Ferenc

General algorithm for making numerical quadrature. Koz fiz kozl MTA 10 no.1:65-68 '62.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001447110006-7

MOLNAR, Laszlo, okleveles banyamernok; POTHORNIK, Jozsef; LASSAN, Jozsef, banyamernok; BERCSENYI, Lajos, banyamernok; SZEBENYI, Ferenc, banyamernok; FENYES, Gyula, banyamernok; SULT, Tibor, banyamernok; ZSUFFA, Miklos, banyamernok; JAMBRICH, Gyula, banyamernok; REVFALVI, Janos, banyamernok; SZENDREY, Zoltan, banyamernok; BOCSI, Otto, banyamernok; SCHAFFER, Peter, banyatechnikus; SZTERMEN, Jozsef, banyamernok, muszaki fejlesztesi csoportbeli foeloado; MAGYARFY, Karoly, gepeszmernok; SANDOR, Gasper, banyamernok; VISKARDI, Laszlo, gepeszmernok; GORDOS, Pal, gepeszmernok; CHMELL, Ferenc, gepeszmernok; ALMASIM Geza, gepeszmernok; AJTAY, Zoltan, dr., banyamernok; MARTOS, Ferenc, dr., banyamernok

Conference on technical development in Salgotarjan. Bany lap 97 no.10:720-722 O '64.

1. Nograd Coal Minig Trust (for Pothornik, Lassan and Bercsenyi). 2. Nagybatnoy Colliery (for Szebenyi, Fenyes, Molnar, Sult and Chmell). 3. Mizserfa Colliery (for Zsuffa and Jambrich). 4. Matranovak Colliery (for Revfalvi, Szendrey and Bocsi). 5. Kanyas Colliery (for Schaffer, Sztermen and Magyarfy). 6. Zagyva Colliery (for Sandor, Viskardi and Gordos). 7. Director, Mining Research Institute, Budapest (for Ajtay). 8. Department Chief, Mining Research Institute, Budapest (for Martos).

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