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AUTHOR: Vladimirov, V. S.

TITLE: Analytic completion for special domains, its construction and application

SOURCE: Akademiya nauk SSSR. Matematicheskiy institut. Trudy. v. 60, 1961, 101 - 144

TEXT: Various proofs of dispersion relations, introduced by Bogolyubov into quantum theory in 1956, are based on the construction of an analytic completion of a given domain G. In the present paper, the author carries out such a construction for domains of a special kind. A domain G is said to be analytic if there is a function that is analytic in G but not in a domain including G. The analytic completion H(G) is the greatest domain including G, which is contained in the intersection of the analytic domains of all functions that are analytic in G. The convex completion K(G), which belongs to a given class K of functions, is the greatest domain including G, which is contained in the intersection of the analytic domains of the functions of K that are analytic in G. The author considers domains

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having the form $T \cup \tilde{G}$. T and $\tilde{G}$ are defined as follows: $T = T^+ \cup T^-$, $T^{\pm} = R^{n+1} + i\Gamma^{\pm}$, where R^{n+1} is the (n+1)-dimensional real Euclidean space with $x = (x_0, x_1, \ldots, x_n)$ as its points; $\Gamma^{\pm}$ is the set of all points x, for which $x^2 > 0$, and $x_0 \gtrless 0$ are valid; $G \subset R^{n+1}$; $\tilde{G}$ is a certain domain containing G. The author constructs the completion $K(T \cup \tilde{G})$ with the aid of the corresponding integral representation

$$f(\zeta) = L_0^s \int \psi_0(p', \lambda) \frac{\partial^s}{\partial \zeta_0^s} [(\zeta - p')^2 - \lambda]^{-\frac{n+1}{2}} dp' d\lambda + P(\zeta) + \quad (7.15).$$

$$+ L_0^s \sum_{j=0}^{n} \int \psi_{j+1}(p', \lambda) \frac{\partial^{s+1}}{\partial \zeta_0^s \partial \zeta_j} [(\zeta - p')^2 - \lambda]^{-\frac{n-1}{2}} dp' d\lambda +$$

$$+ \frac{n+1}{2} L_0^s \int \psi_{n+2}(p', \lambda) \frac{\partial^s}{\partial \zeta_0^s} [(\zeta - p')^2 - \lambda]^{-\frac{n+3}{2}} dp' d\lambda,$$

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L_o is the operator that is inverse to the operator $\frac{\partial}{\partial f_o}$; $P(f)$ is an arbitrary polynomial whose degree depends on the function f; ψ_j are weight functions. Finally, the author applies his results to differential equations. I. M. Gel'fand, G. Ye. Shilov (Obobshchennyye funktsii, vyp. 1 i 2. Fizmatgiz 1958), N. N. Bogolyubov, D. V. Shirkov (Vvedeniye v teoriyu kvantovykh poley, GTTI, 1957), and S. L. Sobolev (Méthode nouvelle à résoudre le problème de Cauchy, Matem. sb., 1936, 1(43): 1, 39 - 72) are referred to. N. N. Bogolyubov and I. T. Todorov are thanked for assistance. There are 38 references: 13 Soviet and 25 non-Soviet. The three most recent references to English-language publications read as follows: H. J. Bremermann, R. Oehme, J. G. Taylor. A proof of dispersion relations in quantized field theories, Phys. Rev., 1958, 109, 2178 - 2190; F. J. Dyson. Integral representations of causal commutators. Phys. Rev., 1958, 110, 1460 - 1464; R. F. Streater, Special methods of analytic completion in field theory. Proc. Roy. Soc., ser. A, 1960, 256, 39 - 52.

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VLADIMIROV, V.S.; NIKITIN, V.F.

Jost—Lehmann—Dyson's integral representation. Dokl.AN SSSR 138 no.4:809-812 Je '61. (MIPA 14:5)

1. Matematicheskiy institut imeni V.A.Steklova AN SSSR. Predstavleno akademikom N.N.Bogolyubovym.
(Topology)

VLADIMIROV, Vasiliy Sergeyevich; TODOROV, I.T., red.

[Methods in the theory of functions of several complex variables] Metody teorii funktsii mnogikh kompleksnykh peremennykh. Moskva, Nauka, 1964. 411 p.
(MIRA 17:10)

SAMUNDZHAN, Ye.M. (Kiyev, ul. Ordzhonikidze, d.3, kv.53);
VLADIMIROVA, V.S. (Kiyev, ul. Ordzhonikidze, d.3, kv.5)

Functional state of the adrenal cortex in benign and malignant tumors of the uterus and ovaries. Vop. onk. 10 no.3:93-98 '64. (MIRA 17:8)

1. Iz Ukrainskogo nauchno-issledovatel'skogo instituta eksperimental'noy i klinicheskoy onkologii (dir. - akademik AN UkrSSR prof. R.Ye. Kavetskiy) i Kiyevskogo rentgenoradiologicheskogo i onkologicheskogo instituta (dir. - prof. I.T. Shevchenko).

VLADIMIROV, V.S.

Corrections to V.S. Vladimirov's article "Functions, holomorphic in tubular cones." Izv. AN SSSR. Ser. mat. 27 no.5: 1186 S-O '63. (MIRA 16:11)

VLADIMIROV, V.S. (Moskva); SHIRINBEKOV, M. (Moskva)

Construction of holomorphy envelopes for Hartogs regions. Ukr. mat. zhur. 15 no.2:189-192 '63. (MIRA 16:9)

VLADIMIROV, V.S., inzh; KOSOY, Yu.M., inzh.

Choice of voltage and power rating for pole pairs of pulsating current motors. Vest. elektroprom 34 no.6:20-24 Je '63. (MIRA 16:7)

(Electric railway motors)

VLADIMIROV, V.S.

Functions, holomorphic in tubular cones. Izv.AN SSSR.Ser.mat. 27 no.1:75-100 Ja-F '63. (MIRA 16:2)
(Functions, Analytic) (Cone)

VLADIMIROV, V.S.

On Bogoliubov's "edge of the wedge" theorem. Izv.AN SSR.Ser.mat. 26 no.6:825-838 N-D '62. (MIRA 15:12)
(Quantum field theory)

ALEKSANDROV, P.S., red.; BOL'SHEV, L.N., red.; VLADIMIROV, V.S., red.; KUDRYAVTSEV, L.D., red.; LEONT'YEV, A.F., red.; NIKOL'SKIY, S.N., red.; POSTNIKOV, M.M., red.; SOLOMENTSEV, Ye.D., red.; SHAFAREVICH, I.R., red.; GRIBOVA, M.P., tekhn. red.

[English-Russian mathematical dictionary]Anglo-russkii slovar' matematicheskikh terminov. Red. kollegiia; P.S.Aleksandrov (predsedatel') i dr. Moskva, Izd-vo inostr. lit-ry, 1962. 369 p. (MIRA 15:11)

1. Akademiya nauk SSSR. Matematicheskiy institut.
(English language--Dictionaries--Russian)
(Mathematics--Dictionaries)

VLADIMIROV, V.S.

Some variational methods of an approximate solution of the transport equation. Vych.mat. no.7:95-114 '61. (MIRA 15:4)
(Distribution (Probability theory)) (Calculus of variations)
(Approximate computation)

VLADIMIROV, V. S.

"Some generalizations of the Paley-Wiener-Schwartz theorem"

report submitted at the Intl Conf of Mathematics, Stockholm, Sweden, 15-22 Aug 62

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AUTHOR: Vladimirov, V. S.

TITLE: Mathematical problems of single-velocity theory for the transfer of particles

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 95, abstract 6B403 (Tr. Matem. in-ta. AN SSSR, v. 61, 1961)

TEXT: This is a monograph in which a mathematical theory is produced for one class of boundary problems for integro-differential equations with first order partial derivatives. This class of problems depicts various physical processes, among which in particular are the transfer of neutrons in substances, the scattering of light in the atmosphere, the passage of γ-rays through diffusing media, the transfer of radiation in stellar atmosphere, and cosmic ray showers. When interpreting the mathematical results, the process of transfer of neutrons is borne principally in mind in the problem of calculating for nuclear reactors. It is assumed that: (1) the bounded region G in which the process of transfer of neutrons takes place is convex and bounded by the piecewise smooth surface B; (2) the velocities of the neutrons are identical;

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(3) the indicatrix of scattering depends on the directions $\vec{v}|\vec{v}|^{-1} = \vec{s}$, and $\vec{s}' = \vec{v}'|\vec{v}'|^{-1}$ of the velocities $\vec{v}$ and $\vec{v}'$ only through the cosine of the angle between them, $\mu_0 = (s,s')$; (4) no external flow of neutrons impinges on B. On these assumptions, the integro-differential equation

$$\frac{1}{\alpha(P)}(s,\operatorname{grad}\varphi) + \varphi = \frac{\lambda}{4\pi}\int_{\omega}\theta(P,\mu_0)\varphi(s',P)ds' + F(s,P) \qquad (1)$$

is obtained; in this equation the boundary conditions are $\varphi(s,P) = 0$, $P \in B$, $(s,\vec{n}) < 0$ ($\vec{n}$ is the unit vector of the external normal), where the unknown function $\varphi(s,P)$ denotes the density of the particles leaving the point $P = (x_1,x_2,x_3) \in G$ in the direction $\vec{s}$ $\in\omega$ (ω is the unit sphere with its center at the origin of the coordinates of three-dimensional Euclidean space); the function $\alpha(P)$, which signifies the absorption of the medium, is measurable, positive, and bounded almost everywhere on $\bar{G}$; the kernel $\theta(P,\mu_0)$, which characterizes the anisotropy of scattering, is a degenerate

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kernel

$$\theta(P,\mu_0) = \sum_{i=1}^{n} b_i(P)\theta_i(\mu_0),$$

while $\theta_i(\mu_0)$ is integrable on $[-1,+1]$ and $b_i(P)$ is measurable and bounded almost everywhere on G; the function $F(s,P)$, which signifies the intensities of the sources, is integrable with the power $p(1 \leqslant p \leqslant +\infty)$ and the weight $a(P)$ on $\omega \cdot G$, i. e. $F(s,P) \in f_p$; and λ is a real parameter. The solution $\varphi(s,P)$ is sought among the functions belonging to f_p, and (almost everywhere) satisfying the boundary conditions. The monograph consists of 16 paragraphs and appendices. §§ 1-2 indicate the purpose of the work, sources of information, and basic assumptions; definitions are given, and the contents of the paragraphs set forth briefly. The class of functions D_p to which the solution of the problem concerned must belong is introduced in § 3, and inequalities are established for it similar to the theorems of S. L. Sobolev. After this, making allowance for the boundary condition, equation (1) is written in the brief form

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$$L\varphi = \lambda S\varphi + F, \quad \varphi \in D_p, \quad F \in f_p. \qquad (2)$$

The properties of the operators L and S are established in § 4. It is shown, in particular, that in f_p, L has a limited inverse operator, and $\|L^{-1}\|$, $(L^{-1})^*$ and L^* are found. The full continuity of the operators $SL^{-1}S$ and $L^{-1}S$ in the space f_p is proved, in § 5, for $1 \leqslant p \leqslant +\infty$ and $1 < p < +\infty$ respectively, and this does not follow directly from the known signs of full continuity for integral operators. This enables the author, in § 6, to investigate the properties of solutions to equations (2) and to establish the validity of the Riesz-Shauder-Radon theory. It turns out that all the eigenfunctions and adjoined functions of the operator $L^{-1}S$ are effectively limited. In view of this, starting from § 7, the problem is principally investigated in the Hilbert space f_2. Four conditions are established in § 7, each of which is sufficient for the existence of the eigenvalues λ_k and of the corresponding eigenfunction $\varphi_k \in D_2 \subset f_2$ of the

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operator $L^{-1}S$. The first two conditions are reduced to the properties indicated for the operator $L^{-1}S$ by means of the generalized Yentch theorem established by M. G. Kreyn and M. A. Rutmat (Uspekhi matem. nauk, v. 3, no. 1, 1948, 3-95), and the second two conditions are reduced to these properties by means of the theory for symmetrizable and fully continuous operators. The case of isotropic scattering, when $\theta(P,\mu_0) = h(P) > 0$, is studied in § 8. It is shown that in this case equation (2) is equivalent to the Peierls equation

$$n(P) = \frac{1}{4\pi}\int_G \alpha(P')\frac{\exp\left\{-\int_0^{\infty}\alpha[tP + (1-t)P']\,dt\right\}}{|P-P'|^2}\times$$

$$\times\left[h(P')n(P')\lambda - F\left(\frac{P-P'}{|P-P'|}, P'\right)\right]dP'. \qquad (3)$$

The full continuity of the Peierls integral operator in different functional spaces is proved. It is established that all the eigenvalues

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λ_k of the homogeneous Peierls equation are positive, and that the eigenfunctions φ_k corresponding to them form a complete system in space of real functions which are quadratically integrable on G with a weight $a(P)h(P)$, while λ_k, φ_k and the solution of the equation for $\lambda \neq \lambda_k$ depend continuously on a and h. With further limitations on a, certain of the differentiability properties of solution (3) are established, and it is found that the eigenfunctions of the homogeneous equation, corresponding to equation (3), belong to Lip α for any $\alpha < 1$. In § 9, a Kellogg type integration process is given for equation (2), and it is proved to converge with velocities q^{2m}, q^m and $q^m (0 < q < 1)$ to the eigenvalues, the eigenfunctions, and the solution of the inhomogeneous equation, respectively. In addition, various variation principles associated with the problem under study are examined. In particular, in § 13 the boundaries of variation in the characteristic numbers are indicated with relation to the variation in $a(P)$ and $\theta(P, \mu_0)$. The case of monotonic change in a spectrum is singled out. In § 14, the

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Bubnov-Galerkin method is used to obtain an approximate solution to equation (2), and to find the characteristic numbers and proper functions in the corresponding homogeneous equation. The results obtained by S. G. Mikhlin (Mikhlin, S. G., Variation methods in mathematical physics, Gostekhizdat, 1957) are used for establishing the convergence of this method. In § 15 an approximate method is studied of solving equation (2) for the case of $\theta(P, \mu_0)$ and $F(s,P)$ being even-numbered with respect to μ_0 and s; the basis of the method lies in using the spherical functions and variation principles established in § 12. For this case, the boundary conditions are unambiguously selected, ensuring the minimum for the corresponding functional, i. e., the problem under discussion, of selecting the boundary conditions on the outer boundary in the spherical functions method, is solved for a wide range of problems. 92 references.
[Abstracter's note: Complete translation.]

Card 7/7

VLADIMIROV, V.S.

Generalization of the Liouville theorem. Trudy Mat.inst. 64:9-27 '61. (MIRA 15:3)
(Functions)

VLADIMIROV, Y. S.

"Quantization of the Torsion Field"

report presented at the Intl. Conference on Relativistic Theories of Gravitation, Warsaw, Poland, 25-31 July 1962

Physics Faculty of the Moscow State-University, Moscow, USSR.

TEMKIN, Solomon Yefimovich; VLADIMIROV, V.T., inzh.-polkovnik, red.; ANIKINA, R.F., tekhn.red.

[Pulse modulator tubes] Impul'snye moduliatornye lampy. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 90 p. (MIRA 13:5)
(Radio pulse time modulation) (Electron tubes)

MATLIN, Ivan Ivanovich. Prinimal uchastiye VRUBLEVSKIY, A.V., VLADIMIROV, V.T., inzh.-polkovnik, red.; MEDNIKOVA, A.N., tekhn.red.

[Radar; study aid for enlisted men] Radiolokatsiia; uchebnoe posobie dlia soldat i serzhantov. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 442 p. (MIRA 13:7)
(Radar)

PHASE I BOOK EXPLOITATION SOV/3580

Vladimirov, Viktor Timofeyevich

Vypryamitel'nyye ustroystva (Rectifying Devices) Moscow, Voyenizdat, 1959. 77 p. (Series: Radiolokatsionnaya tekhnika) No. of copies printed not given.

Ed.: A.V. Vrublevskiy, Engineer, Lt. Colonel; Tech. Ed.: R. L. Solomonik.

PURPOSE: This booklet is intended for officers engaged in the operation of radio engineering facilities. It may also be of use to the general reader interested in familiarizing himself with separate units and components of radar.

COVERAGE: The author describes the principles of alternating current rectification, physical processes occuring in various types of rectifiers, and special features of rectifier operation. He also discusses problems of voltage and current stabilization. No personalities are mentioned. There are no references. A list of booklets in the Series "Radiolokatsionnaya tekhnika" is given on the inside back cover.

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TABLE OF CONTENTS:

Rectifying Devices SOV/3580

AVAILABLE: Library of Congress (TK2798.V4)

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TP/lsb
5-24-60

KICHKA, Vasiliy Yerestovich; VLADIMIROV, V.T., inzh.-polkovnik, red.; KONOVALOVA, Ye.K., tekhn. red.

[Infrared rays in warfare] Infrakrasnye luchi v voennom dele. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 93 p. (MIRA 11:10)
(Photography, Infrared)
(Night fighting(Military science))

VAVILOV, Nikolay Fedorovich; VLADIMIROV, V.T., inzh.-polkovnik, red.; SOKOLOVA, G.F., tekh.red.

[Electron tubes] Elektronnye lampy. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 92 p. (MIRA 12:2)
(Electron tubes)

VERESHCHAGIN, Yevgeniy Mikhaylovich; VLADIMIROV, V.T., red.

[Antennas and the propagation of radio waves] Antenny i rasprostranenie radiovoln. Moskva, Voenizdat, 1964. 237 p.
(MIRA 17:12)

TOFANYUK, Anatoliy Stepanovich,; VLADIMIROV, V.T., inzh.-polkovnik, red.; AMIKINA, R.F., tekhn. red.

[Voltage stabilizers.] Stabilizatory napriazheniia. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 81 p. (Radiolokatsionnaia tekhnika). (MIRA 11:10)

(Voltage regulators)

FEDORTSOV, Leonid Mironovich; LESHCHINSKIY, Il'ya Shayevich; VLADIMIROV, V.T., inzh.-polkovnik, red.; KRASAVINA, A.M., tekhn.red.

[Crystal mixing detectors] Kristallicheskie smesitel'nye detektory. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 61 p. (MIRA 13:6)

(Radio detectors)

Vladimirov, V.T.

PHASE I BOOK EXPLOITATION 403

Karus', Anatoliy Petrovich

Antennyye pereklyuchateli (Antenna switches) Moscow, Voyen. izd-vo Min-va obor. SSSR, 1957. 44 p. (Radiolokatsionnaya tekhnika)

Ed: Vladimirov, V.T., Lt. Col.; Tech. Ed.: Mednikova, A.N.

PURPOSE: The booklet, published in the Radiolokatsionnaya tekhnika (Radar Techniques) series, is intended for officers concerned with the operation of radio-engineering equipment, and is recommended also for a wide circle of readers wishing to acquaint themselves with the details of separate radar unit and component performance.

COVERAGE: The booklet examines switches of the transmitter-receiver type. It describes the principles of operation and the design of antenna switches on coaxial lines and on waveguides. A list of booklets in the Radar Technique series is given on the inside back cover.

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TABLE OF CONTENTS:

Antenna Switches

AVAILABLE: Library of Congress

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JJP/ksv
6-18-58

LEVICHEV, Vladimir Grigor'yevich; STEPUK, Yakov Vasil'yevich; FOGEL'SON, Boris Il'ich. Prinimal uchastiye KALASHNIKOV, A.M.; VLADIMIROV, V.T., red.

[Principles of radio engineering and radar; radio transmitting and receiving systems] Osnovy radiotekhniki i radiolokatsii; radioperedaiushchie i radiopriemnye ustroistva. Izd. 2., perer. Moskva, 1965. 583 p. (MIRA 18:5)

KALASHNIKOV, Anatoliy Mikhaylovich; STEPUK, Yakov Vasil'yevich; VLADIMIROV, V.T., red.

[Principles of radio engineering and radar; oscillatory systems] Osnovy radiotekhniki i radiolokatsii; kolebatel'nye sistemy. Izd.3., perer. Moskva, Voenizdat, 1965. 382 p. (MIRA 18:5)

Vladimirov, V.T.

VRUBLEVSKIY, Aleksandr Vikent'yevich; VLADIMIROV, V.T., podpolkovnik, red.; MIDNIKOVA, A.M., tekhn.red.

[Scan of indicators] Razvertki indikatorov. Moskva, Voen.izd-vo M-va obor. SSSR, 1957. 59 p. (MIRA 11:2)
(Radar)

VLADIMIROV, V.T.

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PHASE I BOOK EXPLOITATION

Zavarin, Georgiy Dmitriyevich

Usiliteli (Amplifiers) Moscow, Voyen. izd-vo Min-va obor. SSSR, 1957. 79 p.

Ed.: Vladimirov, V. T., Lt. Col; Technical Editor, Volkova, V. Ye.

PURPOSE: The booklet, published in the series "Radiolokatsionnaya tekhnika" (Radar Technique), is intended for officers concerned with the operation of radio engineering equipment, and is recommended also for a wide circle of readers wishing to acquaint themselves with the details of separate radar unit and component operations.

COVERAGE: The booklet describes in a popular form the input systems of radar receivers, H-F and I-F amplifiers, and also video amplifiers. It concludes with a table of basic parameters for receiving tubes, including low-power amplifiers. A list of booklets in the "Radar Technique" series is given on the inside back cover.

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Amplifiers

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AVAILABLE: Library of Congress

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BYCHKOV, S.I.; DROBOV, S.A., redaktor; VLADIMIROV, V.T., podpolkovnik, redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor.

[Magnetron transmitters] Magnetronnye peredatchiki. Pod red. S.A.Drobova. Moskva, Voen.izd-vo Ministerstva oborony SSSR, 1955. 215 p. (MLRA 8:11)
(Radio--Transmitters and transmission)

VLADIMIROV, V.T.

SOKOLOV, Mikhail Aleksandrovich; VLADIMIROV, V.T., podpolkovnik, red.; SOLOMONIK, R.L., tekhn.red.

[Frequency changers] Preobrazovateli chastoty. Moskva, Voen.izd-vo M-va obor. SSSR, 1957. 97 p. (MIRA 11:2)
(Frequency changers)

VLADIMIROV, V.T.

FOGEL'SON, Boris Aronovich; VLADIMIROV, V.T., podpolkovnik, red.; SRIBNIS, N.V., tekhn.red.

[Wave guides] Volnovody. Moskva, Voen.izd-vo M-va obor. SSSR, 1958. 123 p. (MIRA 11:5)
(Wave guides)

VLADIMIROV, V. T.

BYCHKOV, Sergey Ivanovich; VLADIMIROV, V.T., podpolkovnik, red.; MEZHERITSKAYA, N.P., tekhn.red.

[Magnetrons] Magnetron. Moskva, Voen.izd-vo M-va obor.SSSR, 1957. 49 p. (MIRA 10:12)
(Electron tubes)

VLADIMIROV, V.T.

PETROV, Igor' Nikolayevich; VLADIMIROV, V.T., podpolkovnik, red.; MEDNIKOVA, A.N., tekhn.red.

[Semiconductor instruments] Poluprovodnikovye pribory. Moskva, Voen. izd-vo M-va obor. SSSR, 1957. 124 p. (MIRA 11:2)
(Semiconductors)

ZISMAN, Girsh Abramovich; VLADIMIROV, V.T., podpolkovnik, redaktor; SOLOMONIK, R.L., tekhnicheskiy redaktor

[Working electrons] Rabotaiushchie elektrony. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 227 p. (MLRA 10:2)
(Electrons)

LEVINZON-ALEKSANDROV, Fedor L'vovich; DAVYDOV, Sergey L'vovich; ZHEREBTSOV, Ivan Petrovich; VLADIMIROV, V.T., podpolkovnik, redaktor; SOLOMONIK, R.L., tekhnicheskiy redaktor

[Radio engineering; a manual for sergeants in the signal corps] Radiotekhnika; uchebnoe posobie dlia serzhantov voisk sviazi. Izd. 2-oe, ispr. i dop. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 370 p. (MLRA 9:10)
(Radio)

FINKEL'SHTEYN, Moisey Ionovich; VLADIMIROV, V.T., red.; MEDNIKOVA, A.N., tekhn. red.

[Artificial lines] Iskusstvennye linii. Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 84 p. (MIRA 14:7)
(Radio lines) (Delay networks)

KOSTYKOV, Yuriy Vasil'yevich; YERMOLAYEV, Lev Nikolayevich; VLADIMIROV, V.T., red.; MEDNIKOVA, A.N., tekhn.red.

[First book for the radio amateur] Pervaia kniga radioliubitelia. Izd.2., perer. i dop. Moskva, Voen.izd-vo M-va obor. SSSR, 1961. 287 p. (MIRA 14:3)
(Radio)

DAVYDOV, Sergey L'vovich; ZHEREBTSOV, Ivan Petrovich; LEVINZON-ALEKSANDROV, Fedor L'vovich; VLADIMIROV, V.T., red.; SOKOLOVA, G.F., tekhn. red.

[Radio engineering]Radiotekhnika; uchebnoe posobie dlia serzhantov voisk sviazi. [By]S.L.Davydov, I.P.Zherebtsov, F.L.Levinzon-Aleksandrov. 4zd.3., perer. i dop. Moskva, Voenizdat, 1963. 342 p. (MIRA 16:3)
(Radio, Military)

VLADIMIROV, V.V.

Theory of high-frequency balancing of the helical instability of the electron-hole plasma of a semiconductor. Part 1. Zhur.eksp. i teor.fiz. 49 no.5:1562-1575 N '65. (MIRA 19:1)

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ACC NR: AP6000216 SOURCE CODE: UR/0056/65/049/005/1562/1575

44,55

AUTHOR: Vladimirov, V. V.

ORG: none

TITLE: Theory of high-frequency stabilization of the screw instability in an electron-hole semiconductor plasma. I.

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 5, 1965, 1562-1575

21, 44, 55

TOPIC TAGS: semiconductor plasma, plasma instability, electron recombination, electron hole, electron motion

ABSTRACT: The author shows that in the case of screw (current convective) instabilities in a plasma, the standard theoretical technique of using hydrodynamic perturbations cannot be employed, since the equations which describe diffusional screw instability are of first-order in the time and do not lead to the usual Mathieu or Hill equations when the ordinary techniques are applied. By analyzing the continuity and motion equations for the electrons and holes it is shown, in the case of a sufficiently long thin cylindrical sample (the non-equilibrium carriers can recombine only on the surface), that the stabilization of screw instability in semiconductors is due to the presence, besides the primary wave, of waves reflected from the ends of the sample. These waves give rise to helical modes with different spatial periods along the longitudinal axis, and the time correlation of these modes produces high-frequency modulation of the current in the presence of the radio-frequency field and thus results in stabilization. The frequency of the field capable of stabilizing the plasma

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L 10732-66

ACC NR: AP6000216

is determined. Possible ways of observing helical modes in such a sample are discussed. It is also shown that the approach used in the paper can be used to study high-frequency stabilization of the screw instability in a positive column. This will be treated in a separate paper. Author thanks B. B. Kadomtsev for suggesting the topic and directing the work, Academician M. A. Leontovich for comments, and L. V. Dubovoy, I. M. Royfe, and V. F. Shanskiy for discussion. Orig. art. has: 4 figures and 50 formulas. [02]

SUB CODE: 20/ SUBM DATE: 05Jun65/ ORIG REF: 005/ OTH REF: 010/
ATD PRESS: 4162

Card 2/2

VLADIMIROV, V.V.

Current convection of the positive column in a magnetic field at low pressure. Dokl. AN SSSR 164 no.4:775-777 O '65. (MIRA 18:10)

1. Submitted March 18, 1965.

VLADIMIROV, V. V., Cand. Veter. Sci. (diss) "Materials on Pathology and Therapy for Horses Sick with Epizootic "lifmangoit" Moscow, 1961, 15 pp. (Moscow Veter. Acad.) 200 copies (KL Supp 12-61, 281).

YUKHNOVSKIY, I.R. [Yukhnovs'kyi, I.R.]; RAKHIMOVA, I.Sh. VLADIMIROV, V.V. [Vladymyrov, V.V.]

Contribution to the theory of systems of charged particles in an external field. Ukr. fiz. zhur. 4 no.3:334-344 My-Je '59. (MIRA 13:2)

1.L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Plasma (Ionized gases))

SOV/20-126-3-23/69

24(2)

AUTHORS: Glauberman, A. Ye., Vladimirov, V. V., Stasyuk, I. V.

TITLE: A New Form of the Polar Model of a Crystal (Novaya forma polyarnoy modeli kristalla)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 543 - 545 (USSR)

ABSTRACT: In the first part of the present paper the so-called polar model, which is of great importance in the many-electron theory of solids in connection with transport processes, is dealt with. If the polar states are taken into account, it is possible to represent the Hamiltonian of a crystal in form of the equation (1) (in second quantization), in which the complex index denotes the number of lattice points, the state of the valence electron, and the spin. The formulation of the problems of elementary excitation (quasicorpuscular) is considered to be of basic and practical importance, and so is the theoretical investigation of the polar model by the method introduced by S. Shubin and S. Vonsovskiy. Here, the bilinear groups of Fermi amplitudes are replaced by the sum of a group of new Bose operators. In the second part of this paper the new form of the theory is discussed, and it is initially pointed out that it contains no major errors. By a canonical transformation

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A New Form of the Polar Model of a Crystal SOV/20-126-3-23/69

of the Fermi operators the excitation operators of the dyads and holes are obtained. For purposes of illustration, the problem of the atomic semiconductors is then investigated according to the new method, and a comparison is drawn with that developed by Shubin and Vonsovskiy. The scheme introduced makes it possible to investigate the saturated spin background and the displaced background, as well as to calculate the excitons. There are 6 references, 5 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Ivana Franko (L'vov State University imeni Ivan Franko)

PRESENTED: February 16, 1959, by N. N. Bogolyubov, Academician

SUBMITTED: January 12, 1959

Card 2/2

STOLBOV, Yu.I., inzh.; VLADIMIROV, V.V., inzh.; BARUTKIN, F.Ye., inzh.

System for stabilizing the length of the arc in argon arc welding with a nonconsummable electrode and a direct current. Svar. proizv. no.3:36-37 Mr '65. (MIRA 18:5)

VLADIMIROV, V.V.

Collisionless current convection and its dynamic stabilization. Dokl. AN SSSR 162 no.4:785-788 Je '65. (MIRA 18:5)

1. Submitted December 10, 1964.

VLADIMIROV, V.V. [Vladymyrov, V.V.]; MATVIISHINA, N.N. [Matviishyna, N.M.]

Motion of a current-carrying conductor inside a conducting chamber. Ukr. fiz. zhur. 8 no.4:490-492 Ap '63. (MIRA 16:8)

1. Institut fiziki AN UkrSSR, Kiyev.
(Induction (Electricity))

VLADIMIROV, V.V. [Vladymyrov, V.V.]

Stability of a tubular layer of plasma. Ukr. fiz. zhur. 8 no.7:803-805 Jl '63. (MIRA 16:8)

1. Institut fiziki AN UkrSSR, Kiyev.
(Plasma (Ionized gases))

S/181/60/002/01/27/035
B008/B014

AUTHORS: Glauberman, A. Ye., Vladimirov, V. V., Stasyuk, I. V.

TITLE: Theory of Elementary Excitation in Atomic Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 133-143

TEXT: In theoretical studies on the multielectron theory of solids the polar model is often based on the method developed by S. I. Shubin and S. V. Vonsovskiy. As the usual scheme of this method causes many difficulties, the authors of the article under review devised a new general scheme for the "re-denotation" of operators. This scheme permits a logical development of the theory of elementary excitation in semiconductors if one s-state and the p-states are taken into account. The statistics of true elementary excitations results unambiguously from the model. The separation of the background and "averaging" over the background are fully satisfied. An introductory rule is set up for exciton operators in this connection. The scheme described apparently offers special advantages in the case of the "open spin" degenerate background. Here, the problem of averaging over the background has not yet been solved

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Card 1/2

Theory of Elementary Excitation in Atomic Crystals

S/181/60/002/01/27/035
B008/B014

satisfactorily. The rules governing the elimination of true excitation from undefined operators (if they do not agree with one another) also result unambiguously from the model. These rules permit an accurate verification of the terms of "quadratic" approximation as well as the terms of higher orders of magnitude describing kinetic phenomena. Mention is made of Frenkel'. There are 7 Soviet references.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet (L'vov State University)

SUBMITTED: February 26, 1959

VB

Card 2/2

L 28732-65 EWT(1)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EWA(m)-2 Po-4/Pz-6/Pab-10/Pi-4
IJP(c) AT

ACCESSION NR: AP5004392 S/0056/65/048/001/0175/0184

AUTHOR: Vladimirov, V. V.

TITLE: Positive column instability in a magnetic field at low pressure. Instability of the positive column

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1965, 175-184

TOPIC TAGS: positive column, plasma instability, discharge plasma, plasma magnetic field interaction

ABSTRACT: The author considers in detail the occurrence of instability of the positive column of low pressure in a longitudinal magnetic field, under the assumption that the longitudinal current does not influence the stability of the discharge and can be neglected in the stability analysis. It is assumed that the ions are accelerated from the points of their generation (which occurs at zero

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velocity) in an ambipolar field to the wall (without collisions with the neutral atoms); the wall is at negative potential relative to the plasma volume. The analysis is based on the kinetic equations for the ele[illegible] state of such a system is determined [illegible] solution of the Langmuir problem) with account of the magnetic field. It is shown that when account is taken of [illegible] the ambipolar field the inhomogeneous [illegible] ly azimuthal wave can build up in the plasma, with a phase velocity that is close to the [illegible] flow out in the ambipolar field. [illegible] this wave is in satisfactory agreement with [illegible] Nedospasov et al. (Yadernyy sintez, v. 4, No. 2, 1964). The instability mechanism considered here, which is not connected directly with the current and [illegible] can come into play in [illegible]

L 28732-65

ACCESSION NR: AP5004392

4

"In conclusion I am deeply grateful to B. B. Kadomtsev for suggesting [illegible] Leontovich for many valuable [illegible] and A. V. Timofeev for [illegible] here." Orig. art. has: [illegible]

[illegible]

SUBMITTED: [illegible] SUB CODE: ME

NR REF SOV: [illegible]

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001860220002-0"

L 2890-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT

ACCESSION NR: AP5015415 UR/0020/65/162/004/0785/0788

AUTHOR: Vladimirov, V. V. 44,55

TITLE: Collisionless current convection and its dynamic stabilization

SOURCE: AN SSSR. Doklady, v. 162, no. 4, 1965, 785-788

TOPIC TAGS: inhomogeneous plasma, plasma stability, ionized plasma

ABSTRACT: The author shows by analysis of the kinetic equation and the hydrodynamic equation for cold ions that current convection can arise in a low-pressure inhomogeneous plasma situated in a constant magnetic field when the collision frequency is smaller than all the other characteristic frequencies. This can develop into collisionless current convection, an important role in the mechanism of which is played by the inertia of the ions. The range of wave numbers in which such collisionless current convection develops is determined. The possibility of dynamic stabilization of this instability by superposition of a high frequency current on the main current is considered and it is shown that the shortwave disturbances can be stabilized in

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L 2890-66

ACCESSION NR: AP5015415 6

this manner. 'I am deeply grateful to B. B. Kadomtsev 44,55 and A. V. Timofeyev for several remarks.' This report was presented by M. A. Leontovich. 44,55 Orig. art. has: 14 formulas

ASSOCIATION: None

SUBMITTED: 24Nov64 ENCL: 00 SUB CODE: ME

NR REF SOV: 005 OTHER: 003

KC

Card 2/2

IVANOV, B.N.; VLADIMIROV, V.V.; MENDEL'SVAYG, Yu.B.

Semiconductor CdS crystal dosimeters. Nov.med. tekh. no.4: 52-67'61. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.
(RADIOMETRY)

GLAUBERMAN, A.Ye.; VLADIMIROV, V.V.; STASYUK, I.V.

Theory of elementary excitations in atomic crystals. Fiz. tver. tela 2 no.1:133-143 Jan '60. (MIRA 14:9)

1. L'vovskiy gosudarstvennyy universitet.
(Crystal lattices)

BELOUSOV, Ye.F., inzh.; VLADIMIROV, V.V., inzh.; KLYASHCHITSKIY, M.S., inzh.

Wear-resistant hard facing of suction dredge parts which deteriorate quickly. Mekh.stroi. 18 no.7:28-30 Jl '61. (MIRA 14:7)

1. Nauchno-issledovatel'skiy institut tekhnologii mashinostroyeniya (g. Chelyabinsk).
(Hard facing) (Dredging machinery—Equipment and supplies)

VLADIMIROV, V. V.

"Bases for the Choice of a Lorry (Type and Size) for Underground Operations in the Iron-Ore Industry." Cand Tech Sci, Leningrad Order of Lenin and Labor Red Banner Mining Inst, Min Higher Education USSR, Leningrad, 1954. (KL, No 1, Jan 55)

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

VLADIMIROV, V.V.

[Unit method of equipment repair; as told by the mechanics and foremen of MPSM plants] Pouzlovoi remont oborudovaniia; rasskazy mekhanikov i brigadirov-slesarei zavodov MPSM SSSR. [Literaturnaia zapis' V.V.Vladimirova] Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1952. 50 p. (MLRA 6:8)
(Industry--Organization, control, etc.)

VLADIMIROV, V. V., Post-Graduate Student
ALL-Union Institute of Experimental Veterinary Medicine
"On hemoagglutination reaction in dog plague."
SO: Veterinariya 26 (7), 1949, p. 59

41566
S/057/62/032/010/004/010
B104/B102

26.7321

AUTHORS: Vladimirov, V. V., and Marchuk, P. M.

TITLE: Stability of an inverse pinch

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 10, 1962, 1212-1215

TEXT: The authors study the stability of a Triax pinch in which the plasma is placed between a coaxial current-carrying conductor and a casing which is also a conductor. The field distribution in the plasma is

$$H^0=\begin{cases}0,\ \frac{a}{r}H^0_{\varphi 1},\ H^0_{z1} & c<r<a\\ 0,\ H^0_{\varphi 1},\ H^0_{z1} & a<r<b\\ 0,\ \frac{b}{r}H^0_{\varphi 2},\ H^0_{z2} & b<r<R\end{cases} \quad (1)$$

where I_1 is the current in the central conductor, I_2 the current in the plasma and α_1 a coefficient characterizing the skin effect in the central conductor. The longitudinal field in the vacuum gaps is constant, hence in the case of equilibrium

$$H^0_{\varphi 1}=\frac{2I_1}{ca},\quad H^0_{\varphi 2}=\frac{2}{cb}(\alpha_1 I_1-I_2),\quad \alpha_1\leqslant 1.$$

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Stability of an ...

$$\left.\begin{aligned} H_{\rho 1}^2 + H_{\varphi 1}^2 &= H_{z1}^2 + H_{\varphi 1}^2 + 8\pi p|_{r=a}, \\ H_{z2}^2 + H_{\varphi 2}^2 &= H_{z1}^2 + H_{\varphi 1}^2 + 8\pi p|_{r=b}. \end{aligned}\right\} \quad (2).$$

The perturbation of an arbitrary quantity is sought in the form $\vec{A}-\vec{A}^0=A_1(r)\exp[i(kz+m\varphi)+\sigma t]$.

The perturbed magnetic field is given in the form

$$\mathbf{H}_1=\frac{1}{\omega}\cdot\left\{i\left(\frac{m}{r}H_{\varphi 1}^0+kH_{z1}^0\right)V_{1r},\ i\left(\frac{mH_{\varphi 1}^0}{r}+kH_{z1}^0\right)V_{1\varphi}-\right.$$

$$\left.-r\left(\frac{H_{\varphi 1}^0}{r}\right)'V_{1r},\ i\left(\frac{mH_{\varphi 1}^0}{r}+kH_{z1}^0\right)V_{1z}-H_{z1}^{0'}V_{1r}\right\}. \quad (3)$$

from which the dispersion relations

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Stability of an ...

$$X\Big|_{r=a} = -\frac{k\left(H^0_{zi}H^{0'}_{zi} + H^0_{\varphi i}H^{0'}_{\varphi i} + \frac{H^{02}_{\varphi 1}}{a}\right) + \left(kH^0_{z1} + \frac{m}{a}H^0_{\varphi 1}\right)^2 N_m(k)}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi i}}{a} + kH^0_{zi}\right)^2}\Bigg|_{r=a},$$

$$X\Big|_{r=b} = -\frac{k\left(H^0_{zi}H^{0'}_{zi} + H^0_{\varphi i}H^{0'}_{\varphi i} + \frac{H^{02}_{\varphi 2}}{b}\right) + \left(kH^0_{z2} + \frac{m}{b}H^0_{\varphi 2}\right)^2 Q_m(k)}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi i}}{b} + kH^0_{zi}\right)^2}\Bigg|_{r=b}, \qquad (4)$$

$$X = \frac{iv_{1z}}{v_{1z}};\ N_m(k) = \frac{I_m(ka)K'_m(kc) - I'_m(kc)K_m(ka)}{I'_m(kb)K'_m(kR) - I'_m(kR)K'_m(kb)};\ N_m(k) > 0,$$

$$Q_m(k) = \frac{I_m(kb)K'_m(kR) - I'_m(kR)K_m(kb)}{I'_m(ka)K'_m(kc) - I'_m(kc)K'_m(ka)};\ Q_m(k) < 0.$$

are obtained if the discharge current increases slowly. $I_m(x)$ and $K_m(x)$ are modified Bessel functions and X is determined from the generalized differential equation of Riccati

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Stability of an ...

$$X' = f(r)X^2 + g(r)X + h(r),$$

$$f(r) = k\left(1 + \frac{m^2}{k^2r^2}\right),$$

$$g(r) = \frac{1}{r} - \frac{2mH^0_{\varphi l}}{r} \cdot \frac{\left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)^2} -$$

$$- 2\left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right) \cdot \left(\frac{mH^{0'}_{\varphi l}}{r} + kH^{0'}_{zl}\right) \cdot \frac{1}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)^2}, \qquad (5).$$

$$h(r) = -k\left\{1 - \left[\frac{2H^0_{\varphi l}}{r} \cdot \frac{\left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)^2}\right]^2 - \right.$$

$$\left. - \frac{2H^0_{\varphi l}\left(\frac{H^0_{\varphi l}}{r}\right)'}{4\pi\omega^2\rho + \left(\frac{mH^0_{\varphi l}}{r} + kH^0_{zl}\right)^2}\right\}.$$

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S/057/62/032/010/004/010
B104/B102

Stability of an ...

By way of the substitutions a) $X=-\frac{u'}{fu}$ $u''-\left(\frac{f'}{f}+g\right)u'+fhu=0,$

б) $X=+\frac{hu}{u'}$ $u''+\left(g-\frac{h'}{h}\right)u'+fhu=0.$

equation (5) is reduced to a linear second-order differential equation. The solutions to (5) for arbitrary field distributions can be obtained only numerically. If $H^o_{\gamma i}$ = 0 and H^o_{zi} = const then $\omega^2<0$ is obtained as stability criterion. If $H^o_{\gamma i}=\frac{A}{r}$, H^o_{zi} = const, A = $\alpha_2 a H^o_{\gamma 1}$, $\alpha_2 \leqslant 1$, the stability criterion has the form

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Stability of an ...

$$\left(\frac{a_2 m H_{\varphi 1}^0}{a}+kH_{s1}^0\right)^2\cdot\left(\frac{a_2 m a}{b^2}H_{\varphi 1}^0+kH_{s1}^0\right)^2>$$

$$>\left[\frac{kH_{\varphi 1}^{02}}{a}\cdot(1-a_2^2)+\left(kH_{s1}^0+\frac{m}{a}H_{\varphi 1}^0\right)^2 N_m(k)\right]\cdot\left[\frac{kH_{\varphi 2}^{02}}{b}\cdot\left(1-\frac{a_2^2a^2}{b^2}\cdot\frac{H_{\varphi 1}^{02}}{H_{\varphi 2}^{02}}\right)+\right.$$

$$\left.+\left(kH_{s2}^0+\frac{m}{b}H_{\varphi 2}^0\right)^2 Q_m(k)\right]\cdot\frac{\varphi_1(k)}{F}+$$

$$+\left(\frac{a_2 m H_{\varphi 1}^0}{a}+kH_{s1}^0\right)^2\cdot\left[\frac{k}{b}H_{\varphi 2}^{02}\left(1-\frac{a_2^2}{b^2}a^2\frac{H_{\varphi 1}^{02}}{H_{\varphi 2}^{02}}\right)+\right.$$

$$\left.+\left(kH_{s2}^0+\frac{m}{b}H_{\varphi 2}^0\right)^2 Q_m(k)\right]\cdot\frac{\varphi_2(k)}{F}-\left(\frac{a_2 m a}{b^2}H_{\varphi 1}^0+kH_{s1}^0\right)^2\times$$

$$\times\left[\frac{k}{a}H_{\varphi 1}^{02}(1-a_2^2)+\left(kH_{s1}^0+\frac{m}{a}H_{\varphi 1}^0\right)^2 N_m(k)\right]\cdot\frac{\varphi_3(k)}{F}.$$

(7). It is concluded that long-wave inflections ($m=1$, $kb\leqslant 1$) cannot be stabilized by a longitudinal magnetic field. The criterion (7) for stability against these perturbations can be fulfilled under the condition

$$\frac{a_2^2a^2}{b^2}\cdot\frac{H_{\varphi 1}^{02}}{H_{\varphi 2}^{02}}>-\frac{K_0(kb)}{K_1'(kb)}.$$

Card 6/7

S/057/62/032/010/004/010
B104/B102

Stability of an ....

ASSOCIATION: Institut fiziki AN USSR, Kiyev (Institute of Physics AS UkrSSR, Kiyev)

SUBMITTED: December 30, 1961

Card 7/7

L 17025-63 EWT(1)/EWG(k)/EWS/ES(w)-2 AFFTC/ASD/ESD-3/APWL/IJP(C)/
SSD Pab-4/Pz-4 AT S/185/63/008/004/011/015

AUTHOR: Vladymyrov, V. V. and Matviyishyna

TITLE: Concerning the motion of a conductor with current inside a conducting chamber

PERIODICAL: Ukray'ns'kyy fizychnyy zhurnal, v. 8, no. 4, April 1963, 490-492

TEXT: Using the results of M. A. Leontovich presented in Fizika plazmy i problema upravlyayemykh termoyadernykh reaktsiy (Plasma Physics and the Problem of Controlled Thermonuclear Reactions v. 1, 1958, p. 110) in which the equations for a magnetic field induced by inductive currents which arose in a conducting chamber as a result of the biases of a conductor with current from the axis of the chamber, the authors set up a two-equation system to determine the motion of a conductor in a conducting chamber. Equations are developed. The results, computed on the M-20 computer, are given in 1 table.

ASSOCIATION: Instytut fizyky AN URSR (Physics Institute, Ukrainian Academy of Sciences, Kiev)

SUBMITTED: October 24, 1962

Card 1/1

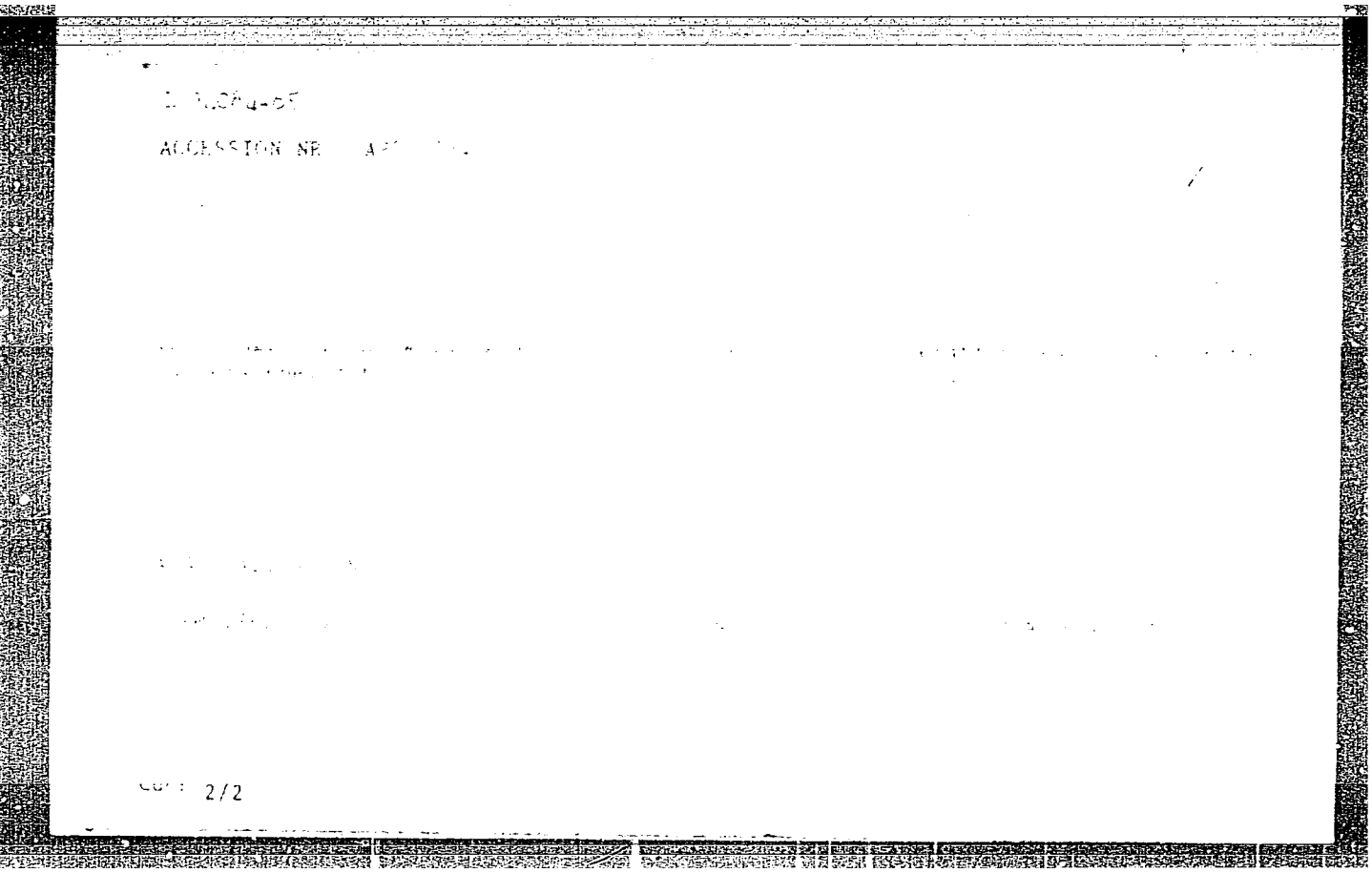
VLADIMIROV, V.V.

Instability of a positive column in a magnetic field at low pressure. Zhur. eksp. i teor. fiz. 48 no.1:175-184 Ja '65.
(MIRA 18:4)

(Sv...er

SOURCE: Svarochnoye proizvodstvo, [illegible]

TOPIC TAGS: [illegible] welding, arc length stability, direct current



ACCESSION NR

2/2

MANDEL'TSVAYG, Yu.B.; IVANOV, B.N.; VLADIMIROV, V.V.

Beta-particle counters having a cadmium sulfide crystal basis.
Nov. med. tekh. no.2:68-74 '62. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.

L 15533-66 EWT(1) IJP(c) AT

ACC NR: AP5025856 SOURCE CODE: UR/0020/65/164/004/0775/0777

41
40
B

AUTHOR: Vladimirov, V. V.

ORG: none

TITLE: Current convection at low pressures in a positive column within a magnetic field 21,44,55

SOURCE: AN SSSR. Doklady, v. 164, no. 4, 1965, 775-777

TOPIC TAGS: gas discharge, gas discharge plasma, positive column, magnetic field plasma effect

ABSTRACT: B. B. Kadomtsev and A. V. Nedospasov (J. Nucl. Energy, part C, 1, 230, 1960) showed that in high pressure positive columns in which the mean free path of charged particles is significantly smaller than the size of the system a current convection may develop, the propagation of which is greatly influenced by collisions of charged particles with neutral molecules. However, current convection becomes modified in an interesting manner when the mean free path and the ionic Larmor radii become large (l_i, $l_e > a$, $r_{iH} > a$; a radius of the tube). The author discusses theoretically such a low-pressure, positive-column current convection, the mechanism of which is influenced essentially by the

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L 15533-66

ACC NR: AP5025856

inertia of the ions. The results show that in this case the transfer processes within an ambipolar electrical field are of fundamental importance. The development is based on a generalization of the dispersion relation, neglecting the axial plasma current. The newly developed theory may explain results obtained experimentally by A. V. Nedospasov, L. Artsimovich, and S. S. Sobolev (Yadernyy sintez, 4, 125, 1964). The author thanks B. B. Kadomtsev for numerous useful remarks. The paper was presented by Academician M. A. Leontovich, 18 March 1965. Orig. art. has: 15 formulas.

SUB CODE: 20 / SUBM DATE: 16Mar65 / ORIG REF: 002 / OTH REF: 001

PC

Card 2/2

L 35885-66 EWT(1) IJP(c) AT

ACC NR: AP6024511 SOURCE CODE: UR/0386/66/004/002/0046/0048

AUTHOR: Vladimirov, V. V.; Volkov, A. F.

ORG: Moscow Physicotechnical Institute (Moskovskiy fiziko-tekhnicheskiy institut)

TITLE: Possibility of exciting cyclotron instability in semiconductors

SOURCE: Zh eksper i teor fiz. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 2, 1966, 46-48

TOPIC TAGS: semiconductor plasma, plasma instability, cyclotron resonance, dispersion equation, indium compound, antimonide

ABSTRACT: In view of recent interest in the excitation of microwave oscillations in solid-state plasma, the authors consider the possibility of exciting cyclotron instability in a two-component solid-state plasma by means of a current. The dispersion equation is written out in an approximation wherein the cyclotron instability is excited by resonance with the first harmonic, and the increment of the instability is calculated on this basis. The results are used for a numerical estimate of the excitation of hole cyclotron instability in InSb (electron-hole plasma). It is shown that in this case the required magnetic field is $H > 3 \times 10^3$ Oe, and for an intrinsic semiconductor the electron velocity should exceed the hole velocity by a factor larger than 5. This is realized in an electric field ~150 v/cm. In doped semiconductors, the excitation can be effected in even weaker fields (~30 v/cm for p-InSb). It is not excluded that the microwave radiation observed in InSb by R. D. Larrabee (Bull.

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L 35885-66

ACC NR: AP6024511

Amer. Phys. Soc. v. 9, 258, 1964) is due to hole cyclotron instability. The authors thank B. B. Kadomtsev and D. A. Frank-Kamenetskiy for a discussion of the work. [02]
Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 10May66/ OTH REF: 005/ ATD PRESS: 5037

Card 2/2

L 47178-66 EWT(m)/EWP(v)/T/EWP(j) IJP(c) WW/RM

ACC NR: AP6032609 (N) SOURCE CODE: UR/0191/66/000/010/0012/0013

AUTHOR: Tsubina, Kh. V.; Al'shits, I. M.; Vladimirova, I. L.; Grad, N. M.; Mel'nikov, N. N.

ORG: none

TITLE: Self-extinguishing unsaturated polyester resin based on dichloromaleic anhydride

SOURCE: Plasticheskiye massy, no. 10, 1966, 12-13

TOPIC TAGS: polyester ~~resin, self-extinguishing~~ plastic resin, unsaturated resin, dichloromaleic anhydride based resin

ABSTRACT: A new self-extinguishing unsaturated polyester resin has been prepared by polycondensation of ethylene glycol, maleic- and dichloromaleic anhydrides, followed by addition of 30% styrene and 5% antimony trioxide to the polycondensation product. The resin is curable with 3% cumene hydroperoxide and 8% cobalt naphthenate (in the form of a 10% styrene solution), and can be used as a binder in glass-reinforced plastics. Contact-molded specimens of such plastics were self-extinguishing and exhibited good mechanical properties (tensile strength, 3050—3950 kg/cm^2; compressive strength, 2090—2650 kg/cm^2). [BO]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 002/ ATD PRESS: 5091

UDC: 678.642',522',448',420.01:536.468

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L 28868-66 EWP(k)/EWT(m)/T/EWP(v)/EWP(t)/ETI IJP(c) JH/JD/HM

ACC NR: AP6011536 SOURCE CODE: UR/0135/66/000/004/0020/0021

68
B

AUTHOR: Barutkin, F. Ye. (Engineer); Vladimirov, V. V. (Engineer)

ORG: none

TITLE: Circuits of three-phase arc power sources for argon-arc welding

SOURCE: Svarochnoye proizvodstvo, no. 4, 1966, 20-21

TOPIC TAGS: welding transformer, circuit design, arc welding, electric power source, phase shift / TSD-1000 welding transformer, TS-500 welding transformer

ABSTRACT: The three-phase arc, which involves the combustion of three electric arcs, provides a stronger and more stable heat source and thus makes it possible to accomplish a speedy non-V welding of aluminum thicker than 5 mm. Studies performed by the authors show that the stability of the process of three-phase argon-arc welding with a consumable electrode is primarily a function of correct adjustment of the power-source circuit with respect to a 120° phase-shift of the welding voltages. Different variants of the circuits of three-phase arc power sources may be used, but the circuits with a somewhat higher voltage on the first electrode additionally enhance the stability of the welding process. The optimal circuit of the three-phase arc power source is a circuit where inductive reactances are connected to all three phases, and

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a pair of standard welding transformers such as, e.g. the TSD-1000 and TS-500, is employed. The presence of inductive reactances assures a uniform phase shift of the arc welding voltages such that the welding current ratio for the phases is $I_3 > I_1 > I_2$ while the choke assures a smooth regulation of the welding current. Orig. art. has: 6 figures.

SUB CODE: 13/ SUBM DATE: none/

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ACC NR: AP7003228 SOURCE CODE: UR/0056/66/051/006/1870/1872

AUTHOR: Vladimirov, V. V.; Shanskiy, V. F.

ORG: none

TITLE: Effect of rate of surface recombination on the excitation threshold of an oscillistor

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1870-1872

TOPIC TAGS: semiconductor plasma, surface effect, recombination, semiconductor carrier, physical diffusion

ABSTRACT: The article deals with the excitation of diffusion helical instability of an electron-hole plasma in a semiconductor crystal placed in a strong magnetic field (oscillistor effect). The results of an earlier paper (ZhETF v. 49, 1562, 1965) are used to establish a criterion for the excitation of this instability on the surface of the semiconductor or within its volume. The effect of the rate of surface recombination on the excitation threshold of the oscillistor was investigated experimentally on n-type germanium with near-intrinsic conductivity. A parameter $G_s = D_a/as$ (D_a - coefficient of ambipolar diffusion of the carriers, a - transverse dimension of the sample, s - rate of surface recombination) is introduced and it is shown that when $G_s > 4$ a surface oscillistor effect takes place, when $1 < G_s < 4$ the experimental points lie between the surface and volume values, and when $G_s < 1$ the experimental points correspond to threshold of excitation of the volume oscillistor. It is

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ACC NR: AP7003228

suggested that the results can be used to determine the rate of surface recombination by measuring the threshold of oscillistor excitation. The authors thank M. A. Leontovich, B. B. Kadomtsev, and L. V. Dubovoy for a discussion of the results. Orig. art. has: 1 figure and 2 formulas.

SUB CODE: 20/ SUBM DATE: 01Jul66/ ORIG REF: 002/ OTH REF: 006

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VLADIMIROV, Vasiliy Yakovlevich,

VLADIMIROV, Vasiliy Yakovlevich, for basic degree of Doctor of Medical Sciences, based on his defense, 15 December 1955, in the Council of the Central Inst of the Advanced Training of Physicians, of his dissertation entitled: "The changes in certain hemodynamic and biochemical indices of blood in infectious-toxic[illegible]."

For the Academic Degree of Doctor of Sciences.

Byulleten' Ministerstva Vysshego Obrazovaniya SSSR, List No. 7, 31 March 1956
Decision of Higher Certification Commission Concerning Awarding Scientific Degrees and Titles.

JPRS 512

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