"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, Arkadiy Vasil'yevich; KHOTSIALOV, Ye.S., red.; ZINCHENKO, V.S., red. izd-va; GURKIN, V.G., tekhn. red.; PAVLOVSKIY, A.A., tekhn. red.

[Ship inspection and construction supervision] Priemka sudov i nabliudenie za ikh postroikoi; spravochnoe rukovodstvo. Moskva, Vneshtorgizdat, 1961. 733 p. (MIRA 14:9)
(Shipbuilding) (Ships--Inspection)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

BARABANOV, Gleb Fedorovich [deceased]; SOKOLOV, Anatoliy Valentinovich; BELYY, V.D., otv.red.; KAUFMAN, A.M., red.izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.

[Hoisting and mine surface arrangement of coal mines in foreign countries] Pod"em i poverkhnost' na ugol'nykh shakhtakh za rubezhom. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 185 p. (MIRA 13:2)
(Coal mines and mining)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

5(1) SOV/28-59-3-10/25

AUTHORS: Proshkin, A.A., Candidate of Technical Sciences, and Sokolov, A.V., Engineer

TITLE: The Determination of the Fractional Composition of Light-Color Oil Products (Opredeleniye fraktsionnogo sostava svetlykh nefteproduktov)

PERIODICAL: Standartizatsiya, 1959, Nr 3, p 34 (USSR)

ABSTRACT: The state standard "GOST 2177-48" prescribes determination of the fractional composition of benzine, ligroin and kerosene by fractionating in a one-seat apparatus permitting the analysis of only one sample at a time. The authors designed four-seat and six-seat apparatus (shown in figure) for simultaneous analysis of four or six samples, with connection of every flask to the corresponding pipe of the condenser. The work experience with this new apparatus at the laboratories of the Novo-Ufimskiy (Novo-Ufimskiy), Novo-Kuybyshevskiy (Novo-Kuybyshevskiy) and Ufimskiy

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Quality of synthetic ethyl alcohol. Standartizatsiia 24 no.6:34-36 Je '60. (MIRA 13:7)
(Ethyl alcohol--Standards)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

Welding & Flame-Cutting

Welded Tangential Cutters. A. V. Sokolov and N. E. Budnikov. (*Metsg. Delo*, 1949, No. 7, 24–26). [In Russian]. The effect of pressure during the flash-welding of high-speed and other steels to form cutter blanks, and the effect of their subsequent heat-treatment on the properties of the joint are described.—S. K.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Welding of all-welded bodies. Avt.prom. 28 no.5:31-33 My '62. (MIRA 15:5)

1. Ul'yanovskiy avtozavod.
(Motor vehicles--Bodies) (Electric welding)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

ARYKIN, Ivan Grigor'yevich, kand.tekhn.nauk; VOSKRESENSKIY, Yuliy Sergeyevich, nauchnyy sotrudnik; LEBEDEV, Mikhail Petrovich, nauchnyy sotrudnik; SOKOLOV, Aleksandr Vasil'yevich, inzh.-konstruktor; FREYNKMAN, Isay Yefimovich, inzh.-konstruktor. Prinimali uchastiye: POPOV, A.I., kand.tekhn.nauk; YAKOVLEV, Ye.V., inzh.-konstruktor. LAZAREV, M.P., red.; POLTEVA, B.Kh., red.izd-va; PROKOF'YEVA, L.N., tekhn.red.

[Dredging streams used in timber rafting with the ZRS-1 dredging pump] Proizvodstvo dnouglubitel'nykh rabot na lesosplavnykh putiakh zemlesosno-refulernym snariadom ZRS-1. Moskva, Goslesbumizdat, 1959. 111 p. (MIRA 13:1)
(Dredging machinery)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, Aleksey Vasil'yevich, inzh.-polkovnik; ROSSAL, N.A., polkovnik, red.; SOKOLOVA, G.F., tekhn.red.

[Motor graders] Avtogreidery. Moskva, Voen.izd-vo M-va obor. SSSR, 1960. 104 p. (MIRA 14:2)
(Graders (Earthmoving machinery))

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

8 (6) SOV/91-59-4-2/28

AUTHOR: Sokolov, A. V., Boiler House Supervisor

TITLE: The Conservation of Boilers (Konservatsiya kotlov)

PERIODICAL: Energetik, 1959, Nr 4, pp 5 - 6 (USSR)

ABSTRACT: The author suggests keeping a boiler, which will not be used for some time, under a steam pressure of 3 - 5 atm to prevent the rusting of its interior. The steam is taken from the steam mains. The boiler drums are filled with water to the normal level, whereby the water is to be changed at regular intervals. This method is said to be more advantageous than filling the entire boiler with water, since with the latter method frequent draining of the water is required because of leaking valves. In addition, some parts of the boiler drums might not be completely filled. There is 1 diagram.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, Aleksandr Vasil'yevich; LOZBYAKOVA, Ye.S., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Collection of problems in hydraulics] Sbornik zadach po gidravlike. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi litry, 1956. 86 p. (MLRA 9:11)

(Hydraulics--Problems, exercises, etc.)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V., inzhener.

Improving the wearability of fabrics. Tekst.prom. 14 no.6:41-44 Je '54. (MLRA 7:7)
(Textile fabrics)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, Aleksey Vasil'yevich, inzh.-polkovnik zapasa; MASHEVSKIY, V.F., podpolkovnik, red.; KOKINA, N.N., tekhn. red.

[BTM high-speed trench digging machine]Bystrokhodnaia transheinaia mashina BTM. Moskva, Voenizdat, 1962. 150 p. (MIRA 16:2)

(Trench digging machine)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V. (Zaporozh'e)

Specific antigens of the central nervous system. Pat.fiziol. i eksp. terap. 7 no.1:79-81 Ja-F'63. (MIRA 16:10)

1. Iz Zaporozhskogo farmatsevticheskogo instituta.
(CEREBRAL CORTEX) (SPINAL CORD)
(ANTIGENS AND ANTIBODIES)

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L 24536-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l) JD/HM

ACC NR: AP6007718 SOURCE CODE: UR/0413/66/000/003/0119/0119

INVENTER: Sokolov, A. V.; Nasakin, A. P.; Gibatulin, R. B.; Grebtsev, N. V.

37

ORG: none

18

TITLE: Unit for ultrasonic welding in microparts. Class 49, No. 178659

18

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 119

TOPIC TAGS: ultrasonic welding, welding, welder, micropart, micropart welding

ABSTRACT: An Author Certificate has been issued for an ultrasonic welder for microparts equipped with an hf generator, waveguide, and welding accessories. To improve the quality of welding through indirect heating of parts, the welding section of the unit is made of a V- or U-shaped heating element. (see Fig. 1). Orig. art. has; 1 figure. [LD]

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L 24536-66

ACC NR: AP6007718

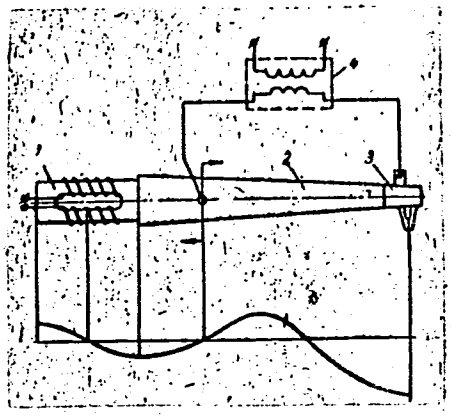

Fig. 1. Ultrasonic welder for microparts.
1 - generator; 2 - waveguide; 3 - welding section;
4 - transformer

SUB CODE: 13/ SUBM DATE: 22Dec64/

Card 2/2 UVR

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V., starshiy nauchnyy sotrudnik

Ways to lower consumption of mica insulating materials in the construction of electric locomotives. Elek.i tepl.tiaga 3 no.12:35-37 D '59. (MIRA 13:4)

1. Nauchno-issledovatel'skiy institut "NIIASBESTTsEMENT" Gosplana RSFSR.
(Electric locomotives--Design)
(Mica)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Radiorele'naya Svyaz', (By) S.V. Borodich, V.P. Minashin, (i) A.V. Sokolov. Moskva, Mashgiz, 1960.
434 p. illus., diagrs., graphs. 23CM
Bibliography: p. 430-432.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V., inzh. (Moskva)

Basic trends characterizing the use of mica-containing electric insulation in the United States. Elektrichestvo no.2:85-88 F '60. (MIRA 13:5)
(United States--Electric insulators and insulation)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Use of ground mica in the paint and varnish industry abroad. (MIRA 14:4)
Lakokras.mat.i ikh prim. no.3:79-81 '60.
(Mica)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V., starshiy nauchnyy sotrudnik

These dielectrices should find wide use in the transportation industry. Elek.i tepl. tiaga no.7:7-8 Jl '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy institut asbesttsement Gosplana RSFSR.
(Dielectrics) (Railroads--Electric equipment)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Preparing the "Trudy" of the State Commission for the Electrificattion of the R.S.F.S.R. for publication. Izv.Vses.geog.ob-va 92 no.4: 376-377 Jl-Ag '60. (MIRA 13:8)
(Electrification)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

S/196/61/000/009/004/052
E194/E155

AUTHOR: Sokolov, A.V.

TITLE: Substitutes for natural sheet mica in the electrical industry

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.9, 1961, 5, abstract 9B 41. (Vestn. elektroprom-sti, no.4, 1961, 17-20).

TEXT: The scarce and expensive split mica may be replaced as electrical insulation by (I) organic synthetic material combined with inorganic fillers, and (II) materials produced by special treatment of mica residues. The first group includes the following: (1) "Eskapon", a polymerisation product of synthetic rubber with valuable mechanical and insulating properties. It is produced in the form of compound, glass foil and adhesive glass tape for use in slot, end-winding and frame insulation of a.c. and d.c. machines with class A insulation for voltages of up to 6 kV (such as traction, induction and other motors). The principal advantages of Eskapon insulation are that the process of impregnation is replaced by heat treatment of the Eskapon tape to

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Substitutes for natural sheet mica ...

give a solid block of insulation, which reduces the cost and the consumption of insulating materials. (2) "Electronite" insulation, based on asbestos fibre and synthetic divinylstyrol rubber which, in the form of sheet material is mechanically strong, elastic, is easily cut and stamped, and is of class B heat resistance. "Electronite" insulating material has been used to replace shaped, lining and commutator micanite in a.c. motors and generators of up to 600 V for tropical and marine use and also in the form of insulating linings and washers in electrical equipment. (3) Insulating materials made of synthetic resin with fibre glass fillers АГ-4С (AG-4S) and asbestos filler К-6 (K-6) for forming into commutator cones less than 520 mm diameter for voltages of 3000 V at 2080 r.p.m. (traction motor type ДК-106Б-2 (DK-106B-2). (4) КО-rubber epoxide resins with inorganic materials, synthetic films and others. Group II includes the following: (1) Slyudonity — micanite sheet insulating material, made from broken mica bound with organic or КО-resin. It is used for shaped and applied glass micanite and tape, for insulating slots and winding bars of motors. (2) Slyudoplasty-micafoil sheet insulating materials, made of mica flakes, which are used

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Substitutes for natural sheet mica ... S/196/61/000/009/004/052
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as heat-resistant shaped, lining and commutator materials for motors. Abroad considerable attention is being devoted to the development of asbestos as a base for heat-resistant insulating materials which can successfully replace natural mica.

[Abstractor's note: Complete translation.]

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Use of ground mica in the rubber industry in the U.S.A. Kauch. i rez. 20 no.6:62-63 Je '61. (MIRA 14:6)
(United States--Mica)

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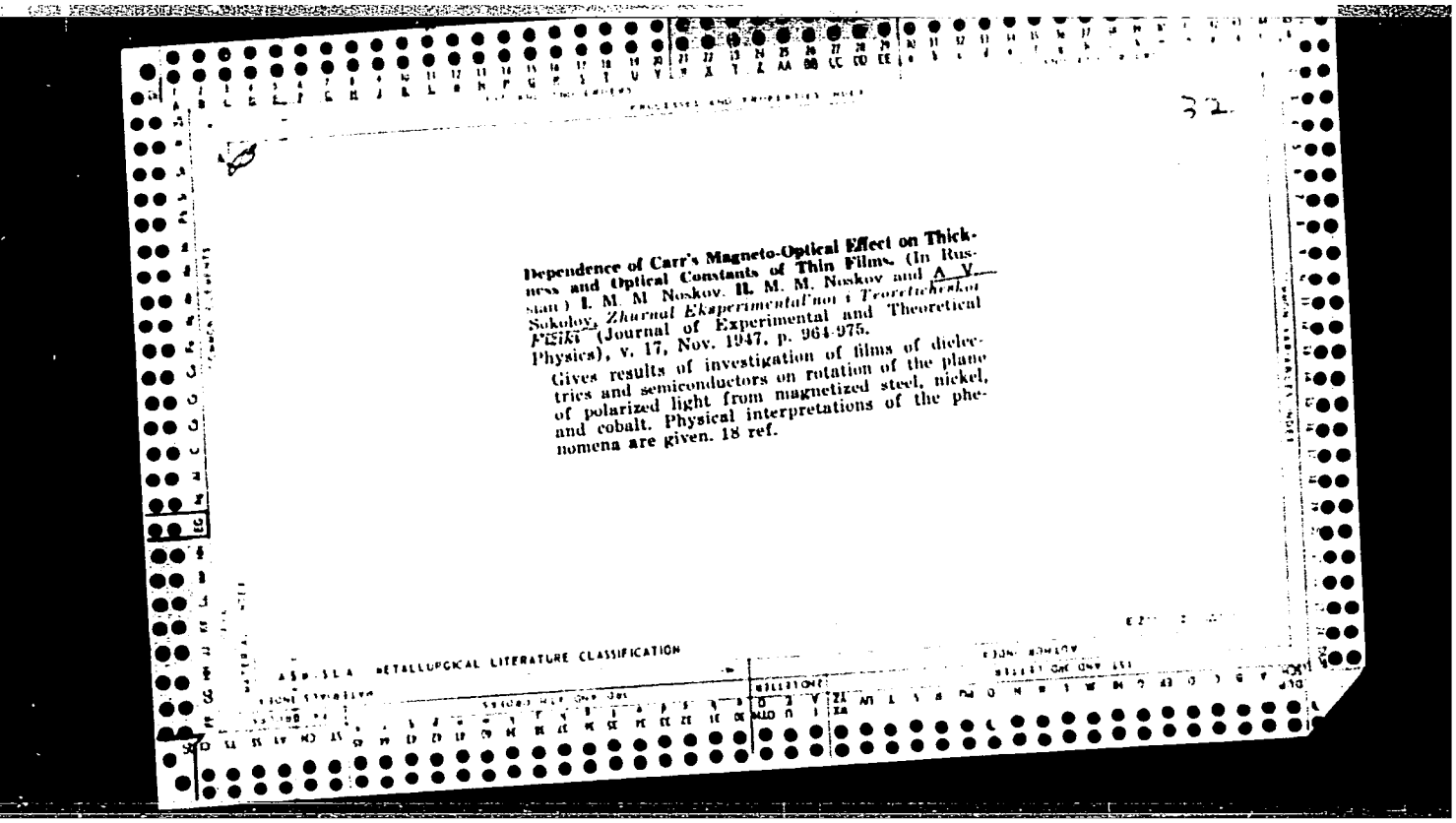

32

Dependence of Carr's Magneto-Optical Effect on Thickness and Optical Constants of Thin Films. (In Russian.) I. M. M Noskov. II. M. M. Noskov and A. V. Sokolov. *Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki* (Journal of Experimental and Theoretical Physics), v. 17, Nov. 1947, p. 964-975.

Gives results of investigation of films of dielectrics and semiconductors on rotation of the plane of polarized light from magnetized steel, nickel, and cobalt. Physical interpretations of the phenomena are given. 18 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

21390 KONSOVSKIY, S. V. I SOKOLOV, A. V. Opticheskie postuyannye ferromagnetikov. Zhurnal eksperim. i teoret. Fiziki, 1949, Vyp 7, S. 615-20.-Bibliogr: S. 620

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moska, 1949.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

Aug 49

USSR/Physics
Magnetism
Optics

"Magnetooptical Phenomena in Ferromagnetics," S. V. Vonsovskiy, A. V. Sokolov, Inst Phys of Metals, Ural Affiliate, Acad Sci USSR, 5 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 8

General explanation of rotation of the polarization plane and elliptical nature of light polarization when it passes through the ferromagnetic, and when it is reflected from the surface of a magnetized ferromagnetic mirror on the basis of the quantum theory of interacting inner and outer electrons of a ferromagnetic. Two basic conclusions were: (1) Angle of rotation of the polarization plane and degree of ellopticity of light in both cases increase in proportion to magnetization of the specimen. (2) Proportionality coefficients are functions of spontaneous magnetization. Submitted 25 Mar 49

PA 61/49T104

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CA

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Optical constants of ferromagnetic substances. S. V. Vonsovskii and A. V. Sokolov. *Zhur. Eksptl. Teoret. Fiz.* 19, 815-28(1949); cf. *C.A.* 40, 2150a.—The anomalies of the optical consts. of ferromagnetic metals are explained qualitatively on the basis of the (s-d)-exchange model of a crystal, which permits both the interaction of internal and external electrons and the acceleration of electrons in external elec. fields to be considered simultaneously. This model is used to calc. the dielec. const. ϵ and the sp. cond. σ for the far infrared part of the spectrum (where the magnetic permeability can be neglected) and for temps. near the Curie point (where the spontaneous magnetization y' and y of, resp., the s- and d-electrons is small and $y' = k_1 y$; $k_1 \sim 1.0$); they turn out to depend on y, which occurs as a function of temp. For this case the ferromagnetic anomaly of the emissive power E is given by: $(E_0^2 - E^2)/E_0^2 = g_2 y^2$ (where E_0 is E for $y = 0$, $g_2 = (\beta'/\beta)^2 + 4k_1(\delta'/\delta + k_1^2)$, and δ and δ' are "transition" energies of the order of magnitude 10^{-12} to 10^{-11} erg). The anomaly of the sp. resistance is $\Delta\rho/\rho_0 = g_1 y^2$. Exptl. results (cf. Wilson, *Quantum Theory of Metals*, O. G. I. Z., 1941, Chap. IV) completely confirm these results. General formulas are obtained for the range of visible and ultraviolet light, where effects connected with quantum transitions play the basic role. These expressions are complicated, but they show that the optical properties of ferromagnetic substances in the visible part of the spectrum should also have ferromagnetic anomalies at temps. below the Curie point, and that their nature is detd. by $y(T)$. Sufficient exptl. data are lacking to test these general formulas.

Ellen H. Dunlap

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V. PA 160T101

USSR/Physics - Magnetism May 50
Optics

"Phenomenological Theory of Magneto-Optic Phenomena," A. V. Sokolov, Inst of Phys of Metals, Ural Affiliate, Acad Sci USSR, 2 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 5

Shows phenomenological (gross, macroscopic) description of magneto-optic phenomena in ferromagnetic bodies can be obtained on basis of most general macroscopic considerations, without involving any microscopic models, as usually done previously. Submitted 12 Dec 49.

160T101

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SOKOLOV, A. V.

USSR/Physics - Conductivity, Electrical

Nov 51

"Theory of Electrical Conductivity of Metals Taking Into Account Electronic Interaction," S. V. Vonsovskiy, K. B. Vlasov, A. V. Sokolov, Inst of Phys of Metals, Acad Sci Ural SSR.

"Zhur Eksper i Teoret Fiz" Vol XXI, No 11, pp 1185-1200

Presents quantum mech computation of temp dependence of elec cond of metals near $0^{o}K$ within the framework of a poly-electron polar model. Performed computation in approximation of weak "polarization" which allows one to use the method of quasi-particles and to apply kinetic eqs. This approximation is valid for "bad" metals with weak electron cond, whose energy spectrum is of the Bose type. Analyzes theoretical results.

PA 204T88

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

USSR/Metals - Photoelectric Effect Dec 51

"Surface Photoelectric Effect in Ordered Alloys," A. V. Sokolov, Inst Phys of Metals, Ural Affiliate, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXI No 12, pp 1384-1388

Investigates dependence of photoelec emission and effective work of yield of ordered binary alloy upon the deg of far order. Photoelec current and effective work of alloy output in case of frequency near limit appear to be functions of deg of far order, which effects "order anomaly" of photoelec properties of ordered alloys. Submitted 23 Jan 51.

198T87

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

PA 175T102

USSR/Physics - Ferromagnetism, Photo- electric Effect in

11 Jan 51

"Superficial Photoelectric Effect in Ferromagnetics," S. V. Vonsovskiy, A. V. Sokolov, Inst Phys Metals, Ural Affiliate, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXVI, No 2, pp 197-200

Proves that effective output of ferromagnetic metal is function of spontaneous magnetization. Finds ratio of magnetic output to spontaneous magnetization.

[redacted]

175T102

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

Optical Properties of Metallic Alloys. S. V. Vonsovsky, A. A. Smirnov, and A. V. Sokolov (*Doklady Akad. Nauk S.S.S.R.*, 1951, 80, (3), 353–356).—In Russian]. According to the Drude–Zener theory, the elect. conductivity σ and the dielect. const. ε are given by $\sigma = Ne^2\gamma/[2\pi m^*(\nu^2 + \gamma^2)]$ and $\varepsilon = 1 - (2\sigma/\gamma)$, where the free path (relaxation) time $\tau = 1/(2\pi\gamma)$ and m^* is the effective mass of the electron in the lattice. If this be extended to a binary disordered alloy in which the concentrations of the components are c and $1 - c$, $\gamma = c\gamma_1 + (1 - c)\gamma_2 + Dc(1 - c)$, where $\tau_1 = 1/(2\pi\gamma_1)$ and $\tau_2 = 1/(2\pi\gamma_2)$ are the relaxation times for the scattering of the electrons on the atoms of the first and second kinds, resp., and D corresponds to the relaxation time for the residual resistance. This gives $\sigma = \{Ne^2/2\pi m^*\} \cdot \{Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2\}/[\nu^2 + \{Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2\}^2]$ and $\varepsilon = 1 - \{2\sigma/[Dc(1 - c) + c\gamma_1 + (1 - c)\gamma_2]\}$. A reflectivity/compn. curve has been computed for low frequencies (infra-red region) using these formulæ and the following data: $\nu = 10^{14}$ sec.$^{-1}$, $\gamma_1 = 4 \times 10^{12}$ sec.$^{-1}$, $\gamma_2 = 5{\cdot}4 \times 10^{13}$ sec.$^{-1}$, and $D = 6 \times 10^{14}$ sec.$^{-1}$. The curve is a catenary with min. value (~89) at 50 at.-%. This cannot be compared with experimental results because of the lack of data, but Bergman and Guertler's work on Cu–Ni alloys (*Z. techn. Physik*, 1935, 16, 235; *M.A.*, 3, 3) indicates a tendency towards catenary curves as the wave-length is increased. Formulæ are also derived for partially ordered alloys with b.c.c. lattice (cf. Sergeev and Chernikhovsky, *Zhur. Eksper. Teoret. Fiziki*, 1934, 4, 235; *M.A.*, 2, 93; Sergeev, *ibid.*, 1938, 8, 948; *M.A.*, 10, 135). The formulæ for σ and ε in the vicinity of the order/disorder transformation temp. reduce to expressions which are almost analogous to corresponding formulæ for ferromagnetic metals with the long-range order parameter η replacing the relative magnetization y. It is thought that the opt. properties of ordered alloys in the visible part of the spectrum must exhibit anomalies at temp. below the transformation point.—G. V. E. T.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

USSR/Physics - Ferromagnetic Materials Nov 51

"Thermionic Emission in Ferromagnetics," A. V. Sokolov, A. Z. Veksler, Inst of Phys of Metals, Ural Affiliate, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXXI, No 1, pp 27-31

Theoretical explanation of the thermionic emission anomaly of ferromagnetics assocd with the disappearance of spontaneous magnetization in the transition through the Curie point. Submitted by Acad A. F. Ioffe 11 Sep 51.

198T94

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

USSR/Metals - Infrared optics Apr 52

"Optical Properties of Metallic Alloys in Infrared Region of the Spectrum," A. V. Sokolov, V. I. Cherepanov, Inst of Phys of Metals, Acad Sci Ural SSR, and Sverdlovsk State U

"Zhur Eksper i Teoret Fiz" Vol XXII, No 4, pp 493-498

Studies optical properties of partially ordered metallic alloys in the long-wave band of spectrum. The optical characteristics of the specified alloys such as refraction and absorption indices, reflect-

215T54

ing and radiative properties, are functions of not only concn, but also deg of distant ordering, thus causing anomalies of optical properties. Received 22 Jul 51.

215T54

SOKOLOV, A.V.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, USSR. A. V.

Quantum optics of metals expressed in terms of dispersion equations based on the polyelectronic theory. A. V. Sokolov (Inst. Phys. of Metals, Ural Branch Acad. Sci. U.S.S.R., Sverdlovsk). *Zhur. Eksptl. i Teoret. Fiz.* 25, 341-51(1953).—Math. treatment of the behavior of a system of electrons in a metal under the influence of an external electromagnetic field. A. P. Kotloby

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A. V.

USSR

1017. Thermoelectronic emission in ferromagnetics. A. V. SOKOLOV AND A. Z. VEKSLER. *Zh. eksper. teor. Fiz.*, 25, No. 2(8), 215–24 (1953) In Russian.

Single-electron wave-functions for solids, not involving the introduction of the potential jump, are used for describing thermoemission in metals. The results are used for evaluating the current in ferromagnetics on the basis of Vensovskii's (*s-d*)-exchange model [*Zh. éksper. teor. Fiz.*, 16, 981 (1946)] which explains thermoemission as a result of interaction between two electron gases ("*s*" and "*d*"). Results of a previous research [Abstr. 7364 (1952)] are given a theoretical explanation. I. LACHMAN

BB

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Magnetooptic phenomena in ferromagnetics. Macroscopic theory. Usp.fiz. nauk 50 no.2:161-196 Je '53. (MLRA 6:7)
(Magnetooptics)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A. V.

Fused magnesium phosphate. A. V. Sokolov and T. D. Koritskaya. *Issledovaniya po Prikład. Khim., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk Sbornik Rabot* 1955, 313–24.—Various grains such as oats, rye, and millet were grown in pots in which podzolized clayey soil, sierozem, chernozem, and limed clayey soil were used. These grains were fertilized with fused magnesium phosphates of various mesh sizes as well as with slag and superphosphate. It was concluded that fused magnesium phosphate could be used effectively on sandy podzolized soils and on acidic podzolized clayey soils. On neutral and carbonate soils of the southern part of the U.S.S.R., on chernozems and sierozems, fused magnesium of a very fine mesh could be used to advantage.

Martin Derderian

(2)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A. V.

USSR/Physics - Ferromagnetics FD-1540

Card 1/1 Pub. 146-6/29

Author : Sokolov, A. V., and Tsipis, S. M.

Title : Results of the study of conductivity electrons in ferromagnetics

Periodical : Zhur. eksp. i teor. fiz. 28, 321-325, March 1955

Abstract : Within the framework of a model of interacting external and internal electrons of a ferromagnetic the authors discuss the problem of the density of the states of conduction electrons in ferromagnetic metals. Eleven references, mostly of S. V. Vonsovskiy in co-authorship with Ye. A. Turov, A. V. Sokolov, V. S. Veksler, K. P. Rodionov, and L. Ya. Kobelev, 1946-1953.

Institution: Institute of Physics of Metals of Ural Affiliate, Academy of Sciences USSR

Submitted : March 12, 1954

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A.V.

USSR/Physics - Ferromagnetics

FD-1849

Card 1/1 Pub. 146-9/25

Author : Sokolov, A. V.

Title : Absorption and emission of x-rays by ferromagnetic metals

Periodical : Zhur. eksp. i teor. fiz. 28, 326-329, March 1955

Abstract : Within the framework of a model of interacting external and internal electrons of a ferromagnetic the author discusses the problem of the absorption and emission of x-rays by ferromagnetic metals. He claims a theoretical treatment of this problem has not been given up to the present time; therefore he attempts here a solution, although a very qualitative approximation. Five references.

Institution: Institute of Physics of Metals of Ural Affiliate, Academy of Sciences USSR

Submitted : March 12, 1954

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A. V.

USSR/Physics - Quantum optics

FD-1850

Card 1/1 Pub. 146-10/25

Author : Sokolov, A. V.; Cherepanov, V. I.; Shteynberg, I. B.

Title : Dispersive formulas of quantum optics of metals in the poly-electron theroy taking into account of electron damping

Periodical : Zhur. eksp. i teor. fiz. 28, 330-334, March 1955

Abstract : For an aggregate of interacting electrons described by the general wave functions the authors derive the dispersive formulas of quantum optics of metals taking into account electron damping. One reference; namely, A. V. Sokolov, ibid., 25, 341, 1953.

Institution: Institute of Physics of Metals of Ural Affiliate, Academy of Sciences USSR

Submitted : March 12, 1954

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

4000

537.312.5

2883. THE PHOTOEFFECT IN METALS. S.V.Vonsovskii, A.V.Sokolov and A.Z.Veksler. Uspekhi fiz. Nauk, Vol. 56, No. 4, 477-530 (1955). In Russian.

A conventional treatment of the theoretical aspects of the problem starting with the ideas of R.H.Fowler and proceeding to the semiphenomenological theory and the quantum-mechanical theory of the photoeffect in metals. Also discussed are the surface effect in ordered alloys and the photoelectric effect in ferromagnetic metals. 65 refs. C.R.S.Manders

(2)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.; SHIROKOVSKIY, V.P.

Theory of groups and complete selection of physical magnitudes in quantum mechanics. Fiz.met.i metalloved. 3 no.1:22-25 '56. (MLRA 9:11)

1. Institut fiziki metallov Ural'skogo filiala AN SSSR.
(Groups, Theory of) (Quantum theory)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A. V.

Distr: 4E2c

General Phenomenological Theory of Magneto-Optical Effects in Ferromagnetics. A. V. Sokolov (*Fizika Metallov i Metallovedenie*, 1956, 3, (2), 208–215).—[In Russian]. Starting from Maxwell's equations with tensor expressions for the elect. and magnetic susceptibilities, S. derives formulæ for the magneto-opt. const. of ferromagnetics; in particular those related to the Kerr and Faraday effects.—A. F. B.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A. V. 3

Absorption and emission of x-rays by ferromagnetic materials. A. V. Sokolov. *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 20, 103–7(1956)(English translation).—See *C.A.* 50, 11799a. B. M. R.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

K-8

USSR/Optics - X-Rays.

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 8028

Author : Sokolov, A.V.
Inst : Institute of Physics of Metals, Ural' Branch, Academy of Sciences USSR.
Title : Absorption and Emission of X-rays from Ferromagnetic Metals.

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 1, 113-117

Abstract : On the basis of the model of the interacting internal and external electrons of transition metals (Vonsovskiy S.V., Zh Eksperim i teor fiziki, 1949, 16, 981; Referat Zhur Fizika, 1955, 887), a theoretical examination is made of the absorption and emission of X-rays from ferromagnetic materials. It follows from this theory that the emission and absorption of X-rays should depend on the value of the spontaneous magnetization of the ferromagnetic metal. This dependence has a simple quadratic character near the

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APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

USSR/Optics - X-Rays. K-8

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 8028

Curie point.
Calculations show also that the curve of the intensity of the K radiation of the metal in the ferromagnetic state should be located somewhat above the curve in the absence of magnetization.
The character of the X-ray spectrum should therefore experience a noticeable change upon transition through the ferromagnetic transformation curve. In this theory no account is taken of the fact that the d and s bands in real ferromagnetic materials overlap. Therefore, to compare the theory with experiments it is necessary first to separate the radiation due to the transitions from the s band from the radiation of the electrons of the d band and to consider only the former.

Card 2/2

- 118 -

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Sokolov, A.V. 100

AUTHOR: Sokolov, A.V. and Shirokovskiy, V.P.

TITLE: Description of the electron states in a cubic crystal. (Opisanie elektronnykh sostoyaniy v kubicheskom kristalle.)

PERIODICAL: "Fizika Metallov i Metallovedenie", (Physics of Metals and Metallurgy). 1957, Vol. IV, No.1, (10), pp.3-8, (U.S.S.R.)

ABSTRACT: The aim of this paper is to describe the electron states in a cubic crystal on the basis of the relations between the laws of conservation and the symmetry properties of systems. For an electron in the field of cubic symmetry the conserved parameters are: the electron energy, the quasi-moment of the momentum described by the operator of the class $\hat{K}(u)$ and the projection of the quasi-moment of the momentum on the z axis described by the operator $(-i\hat{L}_z u)$. Exact but non-linear equations were derived for determining the eigenfunctions and the eigenvalues of the quasi-moment and of the quasi-projection for an electron in the field of a crystal of cubic symmetry. An approximate solution was derived of these equations and eigenvalues and eigenfunctions of operators were determined which correspond to these conserved quantities, and thereby the harmonic form of the wave functions of the Hamiltonian for the electron in the field of a cubic crystal. The method described permits determination of the operators of the physical parameters which remain conserved in the movement of an electron in the field of any type of symmetry.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

126-5-3-2/31

AUTHORS: Orlov, A. N. and Sokolov, A. V.

TITLE: The Structures of X-ray Emission Spectra from Alloys Showing Order-Disorder Phenomena (Raschet struktury rentgenovskikh emissionnykh spektrov uporyadochivayushchikhsya splavov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol V, Nr 3, pp 390-4 (USSR)

ABSTRACT: The intensities of the L-series lines emitted by transitions from the conduction band are calculated for binary alloys with body-centred cubic lattices from the one-electron theory. In these alloys (of arbitrary concentration) there can be a forbidden band within the conduction band, of a width which is dependent on the degree of long-range order, if there is more than one conduction electron per atom; this forbidden band can lie above or below the Fermi level, depending how full the conduction band is. The calculations are performed in the strong-coupling approximation. Eq.(1) is taken from Wilson's Theory of metals; the conduction electrons are assumed to be in s-states, which automatically restricts the argument to L-series lines. A major assumption made in developing the argument is that the volume within the

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

The Structures of X-ray Emission Spectra from Alloys Showing Order-Disorder Phenomena

Fermi surface is constant. It is concluded that the long-wave emission edge moves to longer wavelengths, and the short-wave edge to shorter wavelengths, when ordering occurs; if there is more than one conduction electron per atom the forbidden band noted above gives rise to a gap in the emission band. No such effect has been found in the weak-coupling approximation, so it is concluded that in a real alloy we may only get a dip in the centre of the band. Acknowledgments are made to I. M. Shepelova for carrying out the numerical calculations.
There are 1 figure and 10 references, 6 of which are Soviet, 4 English.

ASSOCIATION: Institute of Metal Physics, Ural Branch of the Ac.Sc., U.S.S.R. (Institut Fiziki Metallov Ural'skogo Filiala AN SSSR)

SUBMITTED: December 26, 1956.

Card 2/2 1. Alloys--Spectra 2. X-ray spectrum--Analysis 3. Alloys --Electron transitions 4. Mathematics

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

56-4-52/52

AUTHOR: SOKOLOV, A.V., CHEREPANOV, V.I.

TITLE: A Correction Submitted to the Papers on 'The Dispersion Formulae of Quantum Optics of Metals in the Plural Electron Theory' (Ispravleniye k rabotam 'Dispersionnyye formuly kvantovoy optiki metallov v mnogoelektronnoy teorii. Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 4, pp 949 - 950 (U.S.S.R.)

ABSTRACT: In some preliminary papers, the authors of the paper under review determined the dispersion formulae of quantum optics of metals with and without taking into account electron damping for the infrared, the visible, and the ultraviolet regions of the spectrum. The paper under review aims at correcting inaccuracies contained in these previous papers, and at determining the final and correct dispersion formulae for ε and σ. Thus, for instance, a certain wave function is inconsequent for the system of interacting electrons in a crystal, because in this context the total quasi-impulse of the system (a magnitude which is preserved) equals the sum of the quasi-impulses of the different electrons. This, however, is only valid in rigid computation for a system of electrons that are not in interaction with each other. Then the paper under review gives an improved formulae for the wave function for the system of electrons which are in interaction with each other. This formula is more accurate insofar as here the common quasi-impulse of the

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V., Doc Phys-Math Sci--(diss) "Optical properties of metals." Sverdlovsk, 1958. 23 pp (Acad Sci USSR. Ural Affiliate Branch). Bibliography at end of text (30 titles) (KL,30-58,121)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

69400

SOV/137-59-4-8457

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 161 (USSR)

18.8100

AUTHOR: Sokolov, A.V.

TITLE: Quantum Theory on the Optical Properties of Metals

PERIODICAL: Tr. In-ta fiz. metallov, Ural'skiy fil. AS USSR, 1958, Nr 20, pp 53 - 69

ABSTRACT: The author presents a review of theoretical investigations into optical properties of metals and alloys, carried out at the theoretical department of the Institute of Physics of Metals UFAN USSR, from 1946 until the present. The author analyzes optical characteristics of ferromagnetic metals, magneto-optical phenomena in ferromagnetics; general phenomenological theory of magneto-optical phenomena in ferromagnetics; optics of metallic alloys; general principles of quantum multi-electron theory of metal optical properties; quantum theory of thermionic emission and photo-effect in metals; emission and absorption of X-rays by metals; application of the theory of symmetry to the solution of problems pertaining to the optics of metals. There are 53 bibliographical titles.

Card 1/1

V.D.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

EAST GERMANY/Optics - X-Rays. K

Abs Jour : Ref Zhur Fizika, No 2, 1960, 4755

Author : Sokolov, A.W.
Inst :
Title : On the Absorption and Emission of X-rays by Ferromagnetic Metals

Orig Pub : Phys. Abhandl. Sowjetunion. Ferromagnet., 1958, No 2, 193-198

Abstract : Translated from Zhur eksperim. i tear. fiziki [Journal of Experimental and Theoretical Physics] 1955, Vol. 28, 326 -- 329.
See Referat Zhur Fizika, 1955, No 11, 24988.

Card 1/1

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PHASE I BOOK EXPLOITATION SOV/4959

Ural'skoye soveshchaniye po spektroskopii

Materialy 2 Ural'skogo soveshchaniya po spektroskopii, Sverdlovsk, 1958 g. (Materials of the Second Urals Conference on Spectroscopy, Held in Sverdlovsk, 1958) Sverdlovsk, Metallurgizdat, 1959. 206 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Ural'skiy filial Akademii nauk SSSR. Komissiya po spektroskopii and Ural'skiy dom tekhniki VSNTO.

Eds.: Aron Borisovich Shayevich and Gennadiy Pavlovich Skornyakov; Tech. Ed.: R. M. Matlyuk.

PURPOSE: This collection of articles is intended for spectral analysis laboratory workers at ferrous and nonferrous metallurgical plants, and for laboratory personnel of the metal-working industry, geological and prospecting organizations, and similar scientific research laboratories.

COVERAGE: The collection contains papers read at the Second Urals Conference on the spectral analysis of ferrous and nonferrous metals and alloys, slags, ores, agglomerates, refractories and other materials used in industry. The material of the conference includes articles on the analysis of steels (including the determination of gases), ferroalloys, nonferrous and light metals and alloys, pure noble metals, etc. The present volume is intended to disseminate the latest experience in working with spectral laboratories, and to report on the results of scientific research. The author thanks R. I. Outkina and Yu. M. Buravlev. Almost all of the articles are accompanied by references.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOV/126-7-1-2/28

AUTHORS: Vekler, A. Z. and Sokolov, A. V.

TITLE: Multi-Electron Theory of the Photoeffect in Crystals (K mnogoelektronnoy teorii fotoeffekta v kristallakh)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 1, pp 11-20 (USSR)

ABSTRACT: Einstein's one-electron theory of photoemission (Refs. 1,2) explained the "threshold frequency", the relationship between the photon frequency and the maximum electron velocity, etc. The starting point of this theory is an assumption that a quantum of energy is absorbed by one electron. As a result of such an absorption only one electron would have its energy increased, all the remaining ones being unaffected. This assumption is valid only when electrons move independently of one another. Actually, because of the strong interaction between electrons, the absorbed energy may be shared between many electrons. The present paper establishes some general properties of photoemission and photoconductivity in the case of a strong interaction between electrons in a crystal (multi-electron theory). No simplifying assumptions were made

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

Multi-Electron Theory of the Photoeffect in Crystals

to derive the results. It was found that photocurrent may be calculated using the one-electron theory, provided that the number of photoelectrons taking part in the process is determined by the excited state of the crystal. The principle of conservation of energy applies now to the system as a whole, and not to a single electron. The Einstein law relating the photon frequency and the maximum emitted electron energy is still obeyed but it is given a somewhat altered interpretation. It was also found that the work function of some materials (e.g. semiconductors) may depend on frequency, as reported by Arsen'yeva-Geyl' (Ref.3) and Shuba (Ref.4). The paper is entirely theoretical. Acknowledgment is made to S.V. Vonsovskiy for his advice. There are 11 references, of which 7 are Soviet, 3 German and 1 English.

ASSOCIATION: Institute of Metal Physics, Ac. Sc. USSR; Sverdlovsk Branch of VNIIM (Institut fiziki metallov AN SSSR Card 2/3 Sverdlovskiy filial VNIIM)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOV/126-7-1-2/28

Multi-Electron Theory of the Photoeffect in Crystals

SUBMITTED: April 2, 1957

Card 3/3

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOV/126-7-2-21/39

24(3), 24(4)

AUTHORS: Kobelev, L. Ya. and Sokolov, A. V.

TITLE: On Magneto-Optical Phenomena in Ferromagnetic Binary Alloys in the Far Infrared Frequency Region (O magnetoopticheskikh yavleniyakh v ferromagnitnykh binarnykh splavakh v oblasti dalekikh infrakrasnykh chastot)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 289-291 (USSR)

ABSTRACT: The dependence of the Kerr and Faraday constants on the alloy composition and the degree of long range order in the above frequency range is calculated. The calculation was based on the theory of binary alloys given in Ref 2. The two constants are given by:

$$K_k \sim \frac{\nu^{1/2}\,\omega}{(\nu^2 - \nu_0^2)\sqrt{A}\sqrt{c(1-c) - \frac{\omega}{1-\omega}(q-c)^2\eta^2 + By^2}}$$

$$K_f \sim \frac{\nu^{3/2}\sqrt{A}}{(\nu^2 - \nu_0^2)}\left[c(1-c) - \frac{\omega}{1-\omega}(q-c)^2\eta^2 + By^2\right]^{1/2} \qquad (8)$$

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On Magneto-Optical Phenomena in Ferromagnetic Binary Alloys in the Far Infrared Frequency Region

where ν_0 is the effective frequency corresponding to the spin-orbit interaction, ν is the frequency of the incident radiation, η is the degree of long range order, c describes the composition of the alloy, A is a constant independent of c and the degree of long range order and q=1 for $c \geqslant 1/2$ and q=2c for $c < 1/2$; B is a constant, y is the spontaneous magnetisation of d-electrons which is a function of c and η, and ω is the matrix element of the operator representing the magnetic spin-orbit electron interaction energy.

Professor M. M. Noskov and A. N. Levkov are thanked for the discussion of the results. There are 3 references, two of which are Soviet, 1 English.

ASSOCIATIONS: Institut fiziki metallov AN SSSR (Institute of Metal Physics, Ac.Sc., USSR) and Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: July 2, 1957

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S/053/60/071/03/04/008
B006/B063

AUTHORS: Sokolov, A. V. Shirokovskiy, V. P.

TITLE: The Group-theoretical Method in Solid-state Quantum Physics (Spatial Symmetry)

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 71, No. 3, pp. 485-513

TEXT: In this article, the authors outline the fundamental ideas of the application of group-theoretical methods to solid-state quantum physics since a systematic representation has not been available so far in Soviet publications. The article contains the theoretical material on spatial symmetry. The introduction gives a brief survey of publications on this subject, and describes the specific purpose of the article. § 2 deals with the operations of spatial symmetry. The theory of space groups is thoroughly discussed on the basis of group-theoretical details given in § 3. § 4 deals with the space groups, their setup from the well-known representation of the 32 point groups, and their properties. § 5 is devoted to the general theory of space group representation. Next, the authors describe the possible

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PHASE I BOOK EXPLOITATION SOV/5961

Sokolov, Anatoliy Vyacheslavovich

Opticheskiye svoystva metallov (Optical Properties of Metals) Moscow, Fizmatgiz, 1961. 464 p. 6000 copies printed.

Ed.: K. P. Gurov; Tech. Ed.: V. N. Kryuchkova.

PURPOSE: This book is intended for theoretical physicists, optical and metal scientists, and for aspirants and advanced students in physics departments.

COVERAGE: The book presents the theory of the optical properties of metals and alloys. The modern theory of the interaction between light quanta and electrons of a metallic system is described, and the relations between optical characteristics and those resulting from the microscopic theory of a solid body are derived. Optical properties of ferromagnetic metals are investigated and the theory of the photoeffect in metals is given. A brief survey is made of experimental data and experimentation methods. The author thanks S. V. Vonsovskiy, Corresponding Member of the Academy of Sciences USSR, M. M. Noskov, Professor, G. A. Bolotin, and K. P. Gurov, Candidate of Physics and Mathematics.

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E032/E514

AUTHORS: Bolotin, G.A and Sokolov, A.V.

TITLE: Optical properties of a gyroelectric medium.
I The structure of tensors describing the forced anisotropy in the electrical and magnetic properties of an isotropic medium

PERIODICAL: Fizika metallov i metallovedeniy, v.12, no.4, 1961, 493-498

TEXT: The authors discuss the dielectric constant and the magnetic permeability tensors of an isotropic medium in the presence of a magnetic field. An invariant representation for these tensors is derived. The invariant form of the tensor $\hat{\varepsilon}$ is obtained as follows. Consider the complex conductivity tensor

$$\hat{\sigma}' = \hat{\sigma} + i\omega\hat{\alpha}$$

where $\hat{\alpha}$ is the polarizability tensor. If the dispersive medium has a conductivity $\sigma'(\omega)$ in the absence of a magnetic field, then as soon as the magnetic field is introduced and a special direction is thereby defined, the conductivity becomes

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different in different directions: it remains the same as before in the direction of the magnetic field but is different in the perpendicular direction. The electric field $\underline{E}$ (light wave) can be expanded as follows:

$$\underline{E} = \underline{b}\cdot\underline{b}\underline{E} - \frac{1}{2}(1 - i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x}\underline{E} - \frac{1}{2}(1 + i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x}\underline{E}.$$

where $\underline{b}$ is the unit vector in the direction of the magnetic field (gyrotropic axis). In this formalism the generalized Ohm's law takes the form

$$\underline{j}_{t} = \sigma_{0}'\underline{b}\cdot\underline{b}\underline{E} - \frac{1}{2}\sigma_{-}'(1 - i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x}\underline{E} - \frac{1}{2}\sigma_{+}'(1 + i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x}\underline{E}. \qquad (1)$$

and the conductivity tensor for an arbitrary orientation of the gyrotropic axis is given by

$$\hat{\sigma} = \sigma_{0}'\underline{b}\,\underline{b} - \frac{1}{2}\sigma_{-}'(1 - i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x} - \frac{1}{2}\sigma_{+}'(1 + i\underline{b}^{x})\underline{b}^{x}\underline{b}^{x} \qquad (2)$$

Assuming that the motion of the electrons in the medium is

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Optical properties of a ...

described by

$$m\dot{\underline{v}} = -e\underline{E} - \frac{e}{c}\left[\underline{v}\underline{H}_{3\phi}\right] - mr\underline{v}. \qquad (3)$$

where r is the relaxation frequency and $H_{3\phi}$ is the effective magnetic field "seen" by the conduction electrons, it is shown that the dielectric constant tensor is given by

$$\hat{\varepsilon} = \varepsilon' + i\varepsilon'' Q\underline{b}^{x} + (\varepsilon'_{o} - \varepsilon')\underline{b}\cdot\underline{b}. \qquad (11)$$

where

$$\varepsilon' = \frac{1}{2}(\varepsilon'_{+} + \varepsilon'_{-}), \quad Q = \frac{\varepsilon'_{+} - \varepsilon'_{-}}{\varepsilon'_{+} + \varepsilon'_{-}} \qquad (10)$$

In the above relation

$$\varepsilon'_{o} = 1 - i\frac{\Omega^2}{\omega}\frac{1}{\gamma + i\omega}$$

$$\varepsilon'_{\pm} = 1 - i\frac{\Omega^2}{\omega}\frac{1}{\gamma + i(\omega \pm \omega_c)} \qquad (8)$$

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$\Omega^2 = \frac{4\pi e^2 N}{m}$ and $\omega_c = \frac{eH}{mc}$. The corresponding expression for the magnetic permeability tensor is shown to be

$$\hat{\mu} = \mu + i\mu \underline{M}\hat{b}^{\times} + (\mu_0 - \mu)\underline{b}\cdot\underline{b}. \qquad (23)$$

where

$$\mu = \frac{1}{2}(\mu_+ + \mu_-), \quad \underline{M} = \frac{\mu_+ - \mu_-}{\mu_+ + \mu_-} \qquad (22)$$

$$\mu_0 = 1 + 4\pi\chi_0 \frac{\gamma}{\gamma + i\omega}, \qquad (21)$$

$$\mu_{\pm} = 1 + 4\pi\chi_0 \frac{\gamma \pm i\omega_p}{\gamma - i(\omega \pm \omega_p)}$$

and ω_p is the ferromagnetic resonance frequency. There are 5 references: 4 Soviet and 1 non-Soviet. The English-language reference reads as follows: Ref.5: Wangsness R.K. Phys.Rev., 1955, 98, No.4, 927.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

BOLOTIN, G.A.; SOKOLOV, A.V.

Optical properties of gyroelectric media. Part 2: Propagation of plane waves in a gyroelectric medium. Fiz. met. i metalloved. 12 no.5:625-629 N '61. (MIRA 14:12)

1. Institut fiziki metallov AN SSSR.
(Light, Wave theory of)

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BOLOTIN, G.A.; SOKOLOV, A.V.

Optical properties of a gyroelectric medium. Part 3: Reflection problem for a gyroelectric medium. Fiz. met. i metalloved. 12 no.6:785-791 D '61. (MIRA 16:11)

1. Institut fiziki metallov AN SSSR.

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9.5370

AUTHORS: Bolotin, G.A., Voloshinskiy, A.N., Kirillova, M.M., Noskov, M.M., Sokolov, A.V., Charikov, B.A.

TITLE: Optical properties of titanium and vanadium in the infrared spectral region

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.6, 1962, 823-831

TEXT: Experimental data of the magnitude and frequency dependence of the real and imaginary components of the complex permittivity ε' for titanium, vanadium and gold were studied in the region of 2 to 10 μ, and room temperature. The changes in the state of polarization occurring during reflections from the surfaces of the metals were measured. Mirrors were prepared from 99.99% pure vanadium and titanium iodide by mechanical polishing in an acidic medium. Measurements of static electro-conductivity at room and liquid nitrogen temperatures confirmed the high purity of the samples used. Gold mirror was prepared by vacuum deposition and was used for comparison. Parallel beam of polarized infrared light was reflected in turn from four metallic

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Optical properties of ...

mirror surfaces and the ratio of the parallel and perpendicular intensities and phase differences of the polarized component were evaluated. Emerging from the analyser, the beam was focused on the slit of the infrared spectrometer type ИКС-12 (IKS-12). The ellipticity components were evaluated by the method of parallel polarizers. Almost complete data of n, k and the real ε_1 and imaginary ε_2, component dependency on frequency was tabulated at 0.5 μ intervals for Ti, Va and Au. Plots of reflectivity and dispersive power versus wavelength were also included. The above experimental data were used in a detailed theoretical analysis of relations existing between the dielectric permittivity and wavelength, using the elaborate method of approximating polynomials. Polynomials satisfying the experimental data gave the following values for the respective coefficients:

Titanium: $\varepsilon_1 = -624\lambda^{-4} + 548\lambda^{-2} - 57.2 + 4.62\lambda^2 - 0.0154\lambda^4$, (6)

$\varepsilon_2 = 43.94\lambda^{-1} + 11.16\lambda + 0.20\lambda^3$;

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S/181/63/005/001/012/064
B102/B186

AUTHORS: Men', A. N., and Sokolov, A. V.

TITLE: Application of the theory of representation to ordering binary systems

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 78-80

TEXT: The ordering problems are discussed on the example of the $AuCu_3$ molecule with the Fm3m symmetry by taking account of the symmetry of central - symmetric molecules (symmetry group O_h). This is done on the basis of a theorem and a lemma described in this paper. Theorem: A finite set M of multicolored points M_i is assumed to be given (cf. Kristallografiya, 7,490,1962; FMM,14,315,1962). Each symmetry element of this set of points will then be contained in a symmetry group constructed for the corresponding totality of M_i single-colored points i from M. g is assumed to be an arbitrary symmetry element of group G of set M. By definition it is assumed that $gM=M$ or $g\sum_i M_i \equiv \sum_i gM_i = \sum_i M_i$ from

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SOKOLOV, A.V.

Formation of bipolar and unipolar diversions in the electrocardiogram resulting from the differentiation of positive and negative monophase curves. Trudy TSIU 77:25-34 '65.
(MIRA 18:9)

1. Kafedra klinicheskoy i eksperimental'noy fiziologii (zav. dotsent Ye.F. Polezhayev) TSentral'nogo instituta usovershenstvovaniya vrachey.

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ACC NR: AP5025303 SOURCE CODE: UR/0051/65/019/004/0586/0596

AUTHOR: Men', A.N.; Sokolov, A.V.; Zvezdina, N.A.; Kurushin, Yu. N.; Nekoshnov, B.M.; Chudakov, V.S. 45 B

ORG: none

TITLE: Determination of the energy spectrum of an impurity ion with an unfilled d-shell in a crystal

SOURCE: Optika i spektroskopiya, v. 19, no. 4, 1965, 586-596

TOPIC TAGS: crystal impurity, EPR spectrum, line splitting

ABSTRACT: The interpretation of energy spectra and EPR spectra of ions in various crystals requires the solution of a secular equation which takes into account the configuration of the ion and the symmetry of the intracrystalline field. In this paper, tables of matrix elements have been compiled which make it possible to write a secular equation at once for any term of any configuration in the case of an impurity ion with an unfilled d shell. These tables can also be used in studying EPR spectra if the field of lower symmetry produces a splitting comparable in order of magnitude to other perturbations (spin-orbital and exchange perturbations, etc.). As an example, the splitting of the principal

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terms D and F in fields of variable symmetry was analyzed. Data on the optical spectra of Cr^{3+} in $MgAl_2O_4$ make it possible to determine local distortions caused by Cr^{3+} ion which replaces Al^{3+} ion at the octahedral sites of spinel. The data obtained are in good agreement with the experiment. Orig. art. has: 7 tables and 6 formulas.

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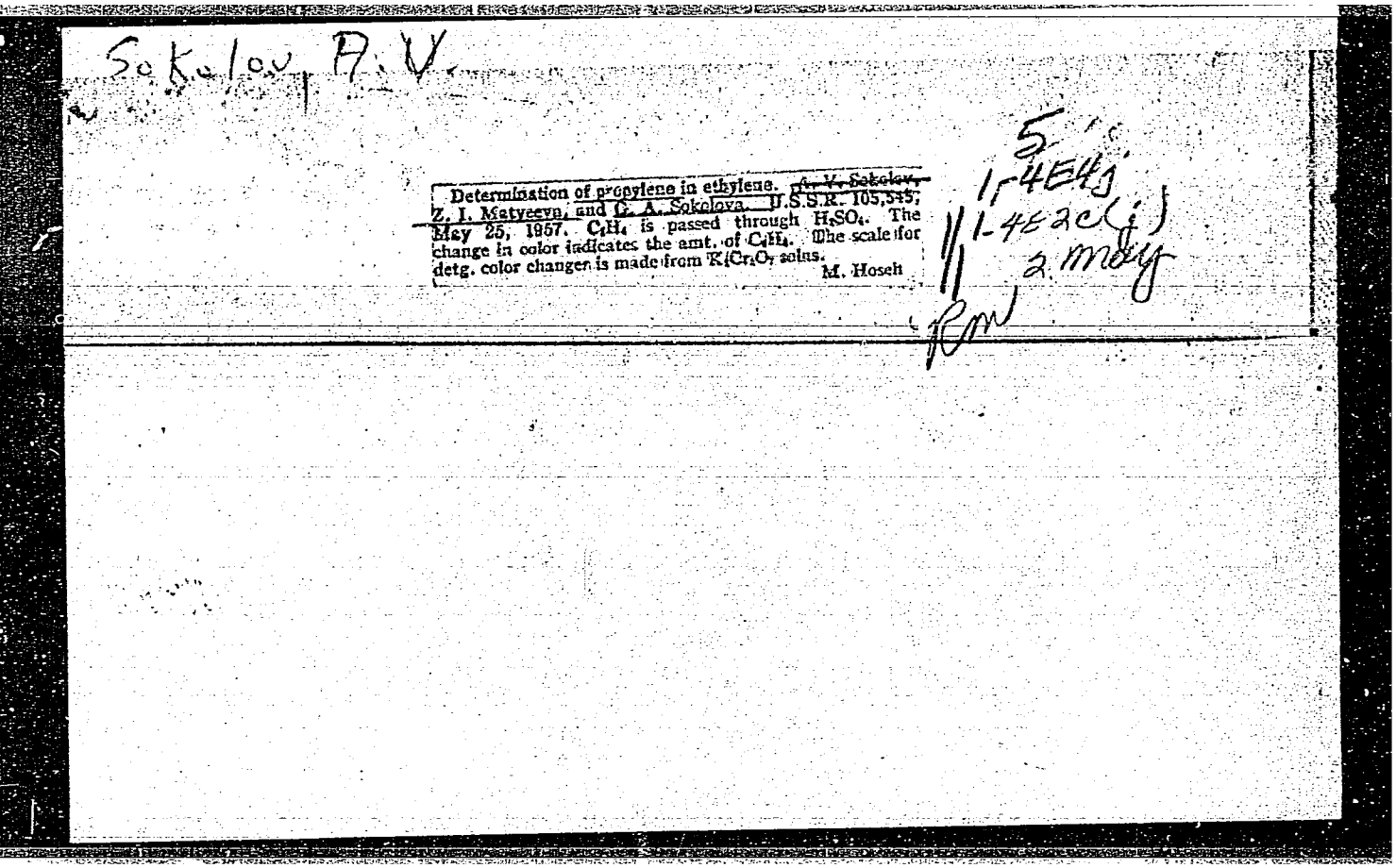

Sokolov, A. V.

Determination of propylene in ethylene. ~~A. V. Sokolov,~~ Z. I. Matyeeva, and G. A. Sokolova. U.S.S.R. 105,545; May 25, 1957. C_3H_6 is passed through H_2SO_4. The change in color indicates the amt. of C_3H_6. The scale for detg. color changes is made from $K_2Cr_2O_7$ solns.
M. Hoseh

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48-10-2/20

AUTHOR: None given

TITLE: Materials of the 2nd All-Union Conference on X-ray Spectroscopy; Moscow, January 31 to February 4, 1957 (Materialy II Vsesoyuznogo soveshchaniya po rentgenovskoy spektroskopii; Moskva, 31 yanvarya - 4 fevralya 1957 g.)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1957, Vol 21, Nr 10, pp 1341 - 1342 (USSR)

ABSTRACT: The Second All-Union Conference on X-ray Spectroscopy was held from January 31 to February 4, 1957. Thirty-three reports were given, 18 of which appear in this issue. The remaining are: Introductory Remarks by Ya. S. Umanskiy; Calculating the Structure of X-ray Emission Spectra of Self-Regulating Alloys by A. N. Orlov and A. V. Sokolov (UFAN SSSR); Contemporary Methods of X-ray Spectra Registration by M. A. Blokhin and A. I. Froyman (RGU and Khimfak MGU); High Stability lower Sources for X-ray Spectra Installations by A. I. Froyman; Prospective Applications of Electrostatic Photography (xerography) in X-ray Spectral and X-ray Structural Analysis by A. I. Froyman; Investigation of the Fine Structure of X-ray K-Spectra of Absorption and Emission of Some Elements of the Iron Group by I. B. Borovskiy, V. P. Bykov and

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AUTHORS: So[illegible]lov A.[illegible], [illegible]lyza [illegible], Konstan[illegible] [illegible] 32-7-[illegible]/[illegible]

TITLE: On the [illegible] of Determining L[illegible] Content of [illegible] ([illegible]etod opre[illegible] niya nebol'shikh kolichestv vlagi-[illegible])

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 7, pp 800-801 (U.S.S.R.)

ABSTRACT: Two methods are investigated and compared in this paper. The magnesium nitride method suggested by Gulyayeva A.I., Polikarpova L.F., and Remiz Z.K. and the titration method with Fischer's reagent. On the occasion of the test Fischer's reagent and the output component were taken in accordance with data provided by the book by Mitchel D. and Smith D. The experiments carried out according to the second-named method with Fischer's reagent were found to produce a moisture content that is 2,5 times as great as that found according to the first-named method. The test was carried out with dry benzene, to which a certain quantity of water was added. A comparison of the two methods showed that that carried out with Fischer's reagent was the correct one.
There are 3 tables.

ASSOCIATION: Scientific Research Institute for Synthetic Spirits and Organic Products. (Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov.)

AVAILABLE: Library of Congress.

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SOV-26-58-8-2/51

AUTHORS: Dolgopolov, K.V.; Sokolov, A.V.; Fedorova, Ye.F. (Moscow)

TITLE: The Utilization of Natural and By-Product Gases (Prirodnyye i poputnyye gazy - na sluzhbu narodnomu khozyaystvu)

PERIODICAL: Priroda, 1958, Nr 8, pp 13-20 (USSR)

ABSTRACT: In the USSR, the chemical industry still uses agricultural raw material on a big scale. Natural and by-product gases are used as raw materials only in small quantities. The components of natural gas, like methane, propane, butane, pentane, etc. are especially useful for many syntheses. The composition of the by-product gases depends on the composition of the crude oil and the method of processing. The content of methane in these gases varies from 30 - 40%, ethane from 9 - 18%, ethylene from 4 - 23%, etc. In the light cracking of 1 ton of oil, 40 kg of gas are produced, in thermal cracking 200 kg, etc. The hydrocarbons of the methane gases are especially useful for synthetic purposes. They are decomposed by pyrolysis, i.e. by the action of high temperatures, to form acetylene which is the raw material for synthetic rubber, or acetaldehyde for the production of acetic acid, etc. A gas mixture of hydrogen and carbon is used in the synthesis of

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ammonia, synthetic gasoline, methanol, etc. The oxidation of the mentioned hydrocarbons produces methyl alcohol which is the raw material for plastics, tannins, and other products. Carbon black is made by the incomplete burning of natural gases. It is used in the rubber industry for increasing the mechanical resistance of rubber products. From 1 m^3 of gas 95 g of black is obtained. Synthetic products now have mechanical properties which are better than those of natural products The prime cost is often lower than that of present products. Nitrogen fertilizer made from natural gas is 40% cheaper than that made by the coking of coal. Artificial silk threads have a resistance to breaking which is 4.2 times that of natural silk, whereas the resistance of steel threads is only 3.68 times that of natural silk. Chassis of motorcars, the hulls of small boats, etc are now made of plastics. Prospecting for natural gas in the USSR is being developed on a big scale. In the last 5 - 6 years 75% of the present reserves of gas were discovered. In the 5th Five-Year Plan, 1,200 km of prospecting holes were drilled. In the years 1959 - 1965 the drilling of 15,000 km is planned. The regions of the Northern Caucasus and the Ukraine are especially rich in natural gas. One of the richest gas regions of the

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USSR is Stavropol' from where the gas is delivered by pipeline to Moscow. In the Ukraine very productive regions are near Dashava, which supplies Kiyev, Moscow, etc, and Shebelinka, supplying Khar'kov, Dnepropetrovsk, etc. Rich deposits are also found in the Volga region. The gas of Azerbaydzhan is 94% methane. Last year, the deposits of Karadag and Kyanizadag were discovered. In the Komi ASSR, deposits have been discovered near Ukhta, Voy-Vozhsk, Dzhebol, etc. In Central Asia the rich deposit near Bukhara is being prospected. It will supply Tashkent and Samarkand by a pipeline. In Siberia deposits were discovered in the lowlands of the Ob' river near Berezovo, of the Lena-Vilyuy with one gusher having a daily output of 1 million m^3, in the Lena-Baykal region, etc. The production of by-product gases is especially high in the Volga region. Every ton of oil produced in Bashkiria and the Volga region contains 100 - 200 m^3 of by-product gas. In 1958, in the oil fields of the USSR alone, 9 billion m^3 of by-product gases will be produced. These gases are often burned or escape into the atmosphere. Gas reservoirs or devices for catching the gas are lacking. Many cities have no urban gas pipelines to use the natural gas. Voronezh was connected with a branch of the gas pipe-

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line Stavropol' - Moscow but could make use of the gas only half a year later because there were no pipelines within the city. A plant for the processing of these gases is being built near the Stalingrad refinery. The USSR is in the use of these gases and the products made from them, behind several other countries. In the production of artificial fibers, the USSR occupies 6th place, and in the production of plastics, 5th. By the end of 1965, it is planned to increase the production of synthetic fibers 4.6 times, plastics and synthetic resins 8 times, synthetic rubber 3.4 times, over 1957 figures. The network of gas pipelines is to be united and new pipelines are to be built.
There are 6 photos and 1 map.

1. Natural gas--Applications 2. Natural gas--Production 3. Gases --Sources 4. Gases--Applications 5. Waste gases--Disposal

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75-13-3-22/27

AUTHORS: Sokolov, A. V., Mikhaylyan, N. K., Korotayeva, G. F.

TITLE: A Method for the Quantitative Determination of Dimethylphenylcarbinol (Metod kolichestvennogo opredeleniya dimetilfenilkarbinola)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 3, pp 368-369 (USSR)

ABSTRACT: The determination of tertiary alcohols by the usual methods of esterification with acetic-acid-anhydride, phthalic acid anhydride or acetyl chlorids invariably furnishes results which are too low since tertiary alcohols often separate water under the conditions of esterificati n. Likewise the general method of determination by Mitchel and Smit (Ref 1) is not applicable in the case dealt with by the authors, as the dimethylphenylcarbinol was present in mixture with phenol and acetophenone and this compound under the acetylation and in the presence of boron trifluoride also reacts under the formation of water. Other known methods for the quantitative determination of dimethylphenylcarbinol are extremely cumbersome and for that reason hardly suitable for

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A Method for the Quantitative Determination of Dimethylphenylcarbinol

industrial application. In the article concerned a quantitative method of determination for dimethylphenylcarbinol was worked out by the authors which is reliable and easily accomplishable under conditions prevailing in industry. Two processes are used as basis: a) the dehydration of dimethylphenylcarbinol and b) the titration of separated water by means of the Karl Fischer reagent. The main attention was directed towards the discovery of conditions suitable for the dehydration of dimethylphenylcarbinol. Dehydration was carried out by means of various catalysts (copper-sulfate, boric-anhydride, sulfuric acid, sodium bisulfate) and in isopropylbenzene as solvents. It turned out that the separation of water in the presence of copper-sulfate does not exceed 28 % and in the presence of boric anhydride and sulfuric acid not 26 %. The highest degree of dehydration (92 %) was achieved by the use of 2 drops of concentrated H_2SO_4, the reaction mixture being heated to 85°. With increased heat, a resinification of the sample set in. The separation of water from dimethylphenylcarbinol yields much better results in the presence of sodiumsulfate and a resinification does not occur. It is therefore possible to raise the tem-

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75-13-3-22/27

A Method for the Quantitative Determination of Dimethylphenylcarbinol

perature to the boiling point of isopropylbenzene. In order to prevent the evaporation of water the heat was increased only to the point of boiling (152°) and the sample was kept at this temperature for 10 minutes. It appeared that under these conditions and in the presence of 0,2 g sodium bisulfate, dimethylphenylcarbinol was quantitatively dehydrated. The determination is not impeded by dimethylphenyl-paracresol, acetophenone and α-methylstyrene. The error limit of the method described is about 1 %, the determination takes at the utmost 25 minutes. There are 2 tables and 1 reference, 1 of which is Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov, Moskva
(Moscow Scientific Research Institute for Synthetic Alcohols and Organic Products)

1. Alcohols--Determination

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5(3)
AUTHORS: Znamenskaya, A. P., Sokolov, A. V. SOV/75-13-6-21/21

TITLE: Determination of Hydroperoxide Compounds in Resin of Pyrolisis (Opredeleniye gidroperekisnykh soyedineniy v smole piroliza)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 6, pp 719-720 (USSR)

ABSTRACT: Hydroperoxides can be determined by a number of methods (Refs 1-6) based on the reduction of peroxide and differing from one another by the type of reagent and solvent adopted. In this connection, considerable difficulties are caused by the presence of unsaturated compounds. In the case of large quantities of hydroperoxides to be determined in the presence of unsaturated hydrocarbons according to Wilson and Juli's method (Ref 3) with $FeSO_4$, the results obtained are too low, and in the case of small quantities to be determined, the method is not suitable at all. Neither did the determination of hydroperoxide content in pyrolytic resins succeed by following a version of the method by Panyushkin and Gindin (Ref 7), owing to the formation of resin clods (polymers of unsaturated compounds) and the precipitation of potassium sulfate. The arsenite method (Ref 8)

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allows to determine hydroperoxides in the presence of unsaturated hydrocarbons. It is based on the reduction of the hydroperoxide with sodium arsenite and on the subsequent iodometric determination of the surplus arsenite. The reduction takes place in an alkaline solution in the presence of 95 % ethanol by heating in CO_2 atmosphere. Thereupon the solution is acidified, cooled in CO_2 atmosphere and extracted with chloroform. The aqueous solution is then cooled with ice, treated with sodium carbonate and titrated with a solution of iodine with starch. At the same time a blank test is carried out. In the case of small amounts of hydroperoxides an organic solvent is used to increase the sensitivity of the determination. The reddish-violet color of the solution of iodine in carbon tetrachloride or chloroform is still noticeable even with so small quantities of iodine, where the reaction with starch does no more occur. The hydroperoxide number (milliequivalents at active oxygen per liter of sampling) is calculated according to formula:

$$\frac{100.N.(a-b)}{c}$$

Card 2/4 where a is the blank test iodine consumption in ml,

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b the iodine consumption in ml for the sample titration, c the volume of the sample under analysis, and N the normality of the iodine solution. By the aid of this method, hydroperoxides can be determined with the greatest accuracy in the presence of unsaturated hydrocarbons. As the arsenite surplus is determined only after extraction of the organic impurities from the reaction mixture, the sample weighed portion can be very large. It is therefore possible by this method to determine traces of hydroperoxides, which are not traceable by the direct iodometric method. A very accurate description is given of how this determination method is realized. There are 1 table and 8 references, 2 of which are Soviet.

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ASSOCIATION: Nauchno- issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov, Moskva
(Scientific Research Institute of Synthetic Alcohols and Organic Products, Moscow)

SUBMITTED: October 2, 1956

USCOMM-DC-60885

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SOKOLOV, A.V.; BERGER, I.I.; GUROVICH, R.E.; KLIMENKO, M.Ya.; ZAYTSEVA, S.S.; MOTINA, G.L.

Method of refining synthetic ethyl alcohol. Khim.prom. no.5:327-330 My '62. (MIRA 15:7)
(Ethyl alcohol)

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Determination of moisture in acetone. Zav. lab. 29 no.9:1058 '63. (MIRA 17:1)

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SOKOLOV, A. V.

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SOKOLOV, A.V.

Survey of the activity of the Department of the History of Geography and of Historical Geography (May, 1950-January, 1953). Vop.geog. 31: 274-285 '53. (MLRA 7:6)
(Geography)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

USSR/ Scientists - Geography

Card 1/1 Pub. 45 - 16/16

Authors : Sokolov, A. V.

Title : Session devoted to the memory of M. S. Bondarskiy

Periodical : Izv. AN SSSR. ser. geog. 1, page 96, Jan-Feb 1954

Abstract : An account is given of the special session of the Department of History of Geographical Sciences and Historical Geography of the Moscow branch of the Geographic Society of the Soviet Union, held on the 30 November 1953, in memory of the outstanding geographer, M. S. Bondarskiy. Speeches were made by persons who knew Bondarskiy personally and a resolution was passed to dedicate the next issue of "Voprosov Geografii" (Problems in Geography) to him.

Institution : ...

Submitted : ...

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Sokolov, A.V.

ALEKSANDROVA-ZAORSKAYA, V.V.; ARNOL'D, V.S.; ADAMCHUK, V.A.; BARANSKIY, N.N.; BARDIN, I.P.; VASYUTIN, V.F.; VITYAZEVA, V.A.; GORDONOV, L.Sh.; DOLGOPOLOV, K.V.; ZENKOVA, Z.A.; NEMCHINOV, V.S.; OBRUCHEV, V.V.; RYAZANTSEV, S.N.; SOKOLOV, A.V.; STEPANOV, P.N.; CHERDANTSEV, G.N.

A.M.Volkov; obituary. Izv. AN SSSR Ser.geog. no.6:106-107 N-D '54.
(Volkov, Aleksandr Mikhailovich, 1890-1954) (MLRA 8:3)

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SOKOLOV, A.V., dotn., kand. ekon. nauk.

Statistical and economic analysis of operating expenses of grain storage points. Trudy MTIPP no.7:142-162 '57. (MIRA 10:12)
(Grain--Storage--Costs)

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Revision of norms for natural losses of hay during storage. Trudy MTIPP no.7:333-350 '57. (MIRA 10:12)
(Hay--Storage)

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SOKOLOV, A.V.

Russian economic geographers of the 18th and 19th centuries.
Izv.Vses.geog.ob-va 89 no.3:291-292 My-Je '57. (MIRA 10:11)
(Geographers)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

AUTHOR: Sokolov, A.V.

10-58-2-23/30

TITLE: A Map of the Forests of the USSR (Karta lesov SSSR)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1958, Nr 2, pp 144-145 (USSR)

ABSTRACT: In 1956, a new map of Soviet forests compiled in a scale of 1:2,500,000 was published. The preliminary studies were carried out by the Byuro lesnoy kartografii (Office of Forest Cartography) of the former Ministry of Forests. The author's original of the map was compiled by A.F. Kruchinin, Engineer, O.S. Vorovenkova, B.S. Krotkov and others under the supervision of P.I. Malev, in consultation with **M.A. Tsvetkov**, senior scientific co-worker of the Institut lesa (Institute of Forestry) of the USSR Academy of Sciences. The editor's original was prepared under the direction of F.M. Kozlov and V.P. Tseplyayev.

1. Mapping—USSR 2. Forestry—Applications

Card 1/1

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

26-58-4-42/45

AUTHOR: Sokolov, A.V., Candidate of Economic Sciences (Moscow)

TITLE: Original Work on the History of the Landscape (Original'nyy trud po istorii landshafta)

PERIODICAL: Priroda, 1958, Nr 4, pp 119-120 (USSR)

ABSTRACT: This is a critical review of the book "The Change in the Distribution of Forests in European Russia from the End of the 17th Century Until 1914", by M.V. Tsvetkov, which was published in 1957 by the Academy of Sciences, USSR. The book deals with the development of forestry in Russia before the Revolution, giving a detailed account of the distribution of forests.

AVAILABLE: Library of Congress

Card 1/1 1. Forestry-Development-USSR

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001651930012-3

SOKOLOV, A.V.

Survey of the work of the Department of the History of Geography and Historical Geography from February 1953 to May 1958. Vop. geog. no.50:238-252 '60. (MIRA 13:8)
(Geography)

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