GALKINA, O. S., KONDORSKIY, E. L., and CHERNIKOVA, L. A. (Moscow)

"The Galvanomagnetic Effects in Nickel and Nickel Alloys at the Low Temperature (2 ÷ 20° K)," a paper presented at the International Conference on Physics of Magnetic Phenomena, Sverdlovsk, 23-31 May 56.

137-58-6-13224

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 293 (USSR)

AUTHOR: Galkina, O.S.

TITLE: Temperature Dependence of Magnetoresistance in Nickel-copper and Nickel-silicon Alloys (Temperaturnaya zavisimost' gal'vanomagnitnogo effekta v splavakh nikel'-med' i nikel'-kremniy)

PERIODICAL: Vestn. Mosk. un-ta. Ser. matem., mekhan., astron., fiz., khimii, 1957, Nr 3, pp 111-116

ABSTRACT: The dependence of magnetoresistance (M) on temperature was studied on NiCu alloys with 4.6 - 25.1% Cu and Ni-Si alloys with 1.0 - 4.0% Si. After smelting the samples were annealed at 1000°C, drawn to 0.1-mm diameter, and again annealed for 1 hr at 900°, with a subsequent cooling at 100°/hr. Measurements were taken on a Wheatstone bridge with a M 21/4 galvanometer as indicator. Samples were heated under 10^{-2} - 10^{-3} mm Hg vacuum. The temperature was kept constant to within $\pm 10^{-2}$ degrees. The field strength attains 3300 oersted. The temperature varied from 77°K to the Curie point. It was established that the value of M at first increases with addition of Cu

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Temperature Dependence of (cont.)

and Si, attains a maximum, and then decreases. In case of magnetic saturation the values for M were noted to be in linear dependence to temperature within a 100° range from the Curie point. At constant temperature in this range, with the exception of weak fields, the value of M is linearly proportional to $H^{2/3}$, H being the intensity of the field.

P.S.

1. Copper-nickel alloys--Resistivity 2. Copper-nickel alloys--Magnetic factors 3. Nickel-silicon alloys--Resistivity 4. Nickel-silicon alloys--Magnetic factors 5. Magnetism--Temperature factors

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GALKINA O.S.

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A. 48-8-12/25

TITLE: The Electric Resistance and Its Modifications in the Magnetic Field and in Nickel Alloys at Low Temperatures (Elektricheskoye soprotivleniye i yego izmeneniye v magnitnom pole u splavov nikelya pri nizkikh temperaturakh)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 8, pp. 1123-1130 (USSR)

ABSTRACT: The task to be accomplished by this paper was to investigate the specific electric resistance and its deviations in the magnetic field in the case of nickel and its alloys with copper, chromium, and manganese at temperature of 2 to 4.2 and 14 to 20.4 K. The present work intends to re-examine the theories concerning anomalies of electric conductivity of ferromagnetic alloys, and the further development of knowledge of this field. Such scientific papers as deal with this subject are here described as unsatisfactory. Existing scientific treatises concerning this field by the scientists: Meisnet and Voygt, Smit, Kondorskiy and Ozhigov, Mazumoto and Shirakava are mentioned, but it is said in this connection that the problems raised by the present paper have hitherto not been dealt with. In the chapter dealing with Measuring Methods it is

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said that the measurements concerned were here carried out according to the potentiometrical method and by means of a potentiometer made by the Krasnodar works; The samples were annealed in form of thin wires of o,1-o,2 mm ∅ at a temperature of 900° during a time of 1-12 hours in the atmosphere of the neutral gas. Some samples were hardened at 900° in air or water. In the chapter.dealing with the Electric Resistance of Nickel and its Alloys with Copper it is said that the corresponding diagrams in the range of temperature of 2-2o.4°K showed step-like curvatures, which may be explained by the presence of an extremely small component of high conductivity. In the course of further research work they had to be taken into account when dealing with the range of hydrogen and helium temperatures. The result is here given in form of the empirical formula $\varrho_T = \varrho_o + \alpha T^n$. In the chapter dealing with the Modification of Electric Conductivity of Nickel and its Alloys with Copper in a Strong Magnetic Field it is said that in nickel and its alloys with copper and a proportion of 5.1o and 25%, resistance is only to very low degree dependent on temperature at 4.2÷2o,4°K, but that, in the case of alloys with 15 and 2o% copper content and at a temperature of 2÷3oo° the decrease of the resistance was determined according to

the increase of temperature. In the chapter dealing with Modifications of the electric resistance in Ni-Mn alloys becoming "ordered" it is said that the value R_T/R_T of the doma orientation in the longitudinal magnetic field diminishes in the case of the aforementioned Ni-Mn alloys. At the temperature of liquid helium this value increases to six times the value it has at a temperature of 283°K in the case of a hardened alloy. In the case of Ni_3Mn samples this value at first rises after cooling of longer duration with the rising of the field, but it then decreases again, and in the case of strong magnetic fields and temperatures of between 195 and 283°K it even becomes negative. The coefficient characterizing the inclination of the curves of this value from the field is reduced according to the extent of the decrease of the temperature, and therefore this value changes its sign at low temperatures and particularly strong fields. There are 11 figures, 1 table, and 11 references, 5 of which are Slavic.

ASSOCIATION: Dept. of Physics of Moscow State University imeni M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gos.universiteta imeni M.V.Lomonosova)

AVAILABLE: Library of Congress.

GALKINA, O.S., Cand Phys-Math Sci -- (diss) "Studies of electrical resistance and its changes in a magnetic field of ferromagnetic metals and alloys." Mos, 1958. 7 pp. (Mos State U im M.V. Lomonosov.) 100 copies.
(KL, 12-58, 95)

GALKINA O.S.

AUTHOR: None Given

SOV/129-58-9-16/16

TITLE: Dissertations (Dissertatsii)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 9, pp 63-64 (USSR)

ABSTRACT: The following dissertations were presented and approved:
For the degree of Doctor of Physico-Mathematical Sciences:
G. Ye. Zil'berman "On the Theory of Oscillation Effects in Metals in Magnetic Fields", Khar'kov, 1958, Khar'k. Gos. Un-t im. A. M. Gor'kogo (Kharkov State University imeni A. M. Gorkiy). V. S. Shpingel' "Investigations in β- and γ-spectroscopy", Moscow 1958, Mosk. Gos. Un-t im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov).
For the degree of Candidate of Physico-Mathematical Science:
O. S. Galkina "Investigation of the Electrical Resistance and its Changes Inside a Magnetic Field for Ferromagnetic Metals and Alloys", Moscow, 1958, Mosk. un-t im. M. V. Lomonosova (Moscow University imeni M.V.Lomosov).
Yu. D. Kozmanov "Investigation of the High Temperature Oxidation of Tungsten, Molybdenum and of Some Binary Alloys of Iron with Tungsten and Molybdenum", Sverdlovsk, 1958,

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Dissertations

SOV/129-58-9-16/16

Ural'skiy gos. un-t im. A. M. Gor'kogo (Ural State University imeni A. M. Gorkiy). M. K. Savchenko "Influence of Elastic Stresses on the Structure of the Domains of Transformer Steel", Krasnoyarsk, 1958, Krasnoyarsk. gos. ped.in-t (Krasnoyarsk State Pedagogic Institute).
P. N. Stetsenko "Investigation of the Magnetic Properties and the Structure During Phase Transformations in Iron-Vanadium Alloys", Moscow, 1958, Mosk. gos. un-t im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov).
For the degree of Candidate of Chemical Science:
A. Ya. Groskaufmanis "Basic Chlorides of Aluminium and Their Optical Properties", Riga, 1958, Latv. gos. un-t im. P. Stuchki (Latvia State University imeni P. Stuchka).
Yu. N. Kukushkin "Kinetic Investigation of the Substitution Reactions in Some Compounds of Bivalent Platinum", Leningrad, 1958, Leningr. tekhnol. in-t im. Lensoveta (Leningrad Technological Institute imeni Lensovet).
N. A. Parpiyev "X-ray Structural Investigation of Crystals of Complex Compounds of Ruthenium, Containing Hydroxonitrozo Groups", Moscow, 1958, Mosk. gos. un-t im.M.V.Lomonosova

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Dissertations

SOV/129-58-9-16/16

(Moscow State University imeni M. V. Lomonosov). I. S. Sazonova "Oxidation of Carbon Monoxide on Protoxides of Nickel and its Solid Solutions", Moscow, 1958, AN SSSR, In-t fizicheskoy khimii (Institute of Physical Chemistry, Ac.Sc. USSR). E. V. Sobotovich "Certain Problems of the Geochemistry of Lead Isotopes", Leningrad, 1958, Radiyevyy in-t im. V. G. Khlotina (Radium Institute imeni V. G. Khlotin). A. N. Goryaga "Magnetization of Ferromagnetics Near the Curie Point", Moscow, 1958, Mosk. gos. un-t im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). R. N. Gurzhi "Quantum Theory of Absorption of Electromagnetic Waves of Metals in the Infra-red Range of the Spectrum", Khar'kov, 1958, Khar'k. gos. un-t im. A. M. Gor'kogo (Kharkov State University imeni A. M. Gorkiy). I. M. Dmitrenko "Influence of Pressure from All Sides on the Magnetic Properties of Metals at Low Temperatures", Khar'kov, 1958, Khar'k. gos. un-t im. A. M. Gor'kogo (Kharkov State University imeni A. M. Gorkiy). M. Ya. Zakutner "Investigation of the Texture of Rolling and Recrystallisation in Low Alloy

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Dissertations

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(0.9% Si) Dynamo Steel", Sverdlovsk, 1958, Ural'skiy gos. un-t im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy). A. V. Cheremushkina "Investigation of the Hall Effect in Ferromagnetics", Moscow, 1958, Mosk. gos. un-t im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosova). A. V. Zakrzhevskaya "Over-voltage of Hydrogen and Oxygen on Nickel in Solutions of Caustic Soda Containing Alkali Earth Metals", Tashkent, 1958, In-t khimii AN Uzb.SSR (Institute of Chemistry, Ac.Sc., Uzbek SSR). N. N. Kozachek "Organosols of Alloys", Kiyev, 1958, AN Ukr.SSR, In-t obshchey i neorganicheskoy khimii (Ac. Sc. Ukraine SSR, Institute of General and Inorganic Chemistry). R. Payeda "Investigation of the Methods of Determining Cobalt", Vilno, 1958, Vil'nyusskiy gos.un-t (Vilno State University). Yu. D. Tret'yakov "Investigation of the Structural Transformations of Certain Magnetic Alloys by the Method of the Real Heat Capacity", Moscow, 1958, Mosk. gos. un-t im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov).

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Dissertations SOV/129-58-9-16/16

E. I. Yasinskene "Investigation of the Complex Compounds of Cr (III), Iron (III) and "tipazh" (III) with Urea, Vil'nyus, 1958, Vil'nyusskiy gos. un-t (Vilno State University).
For the degree of Doctor of Technical Science:
V. N. Sokolov "New Methods of Calculation of the Heating of Metal in Industrial Furnaces", Moscow, 1958, TsNIITMASh. I. I. Khoroshev "Theoretical Foundations of Accelerated Annealing of Malleable Iron", Moscow, 1958, In-t metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov). V. M. Zamoruyev "Tungsten in Steel", Moscow, 1958, AN SSSR, In-t metallurgii im. A. A. Baykova (Ac. Sc. USSR, Institute of Metallurgy imeni A.A.Baykov). A. M. Korol'kov "Dependence of the Properties, As-Cast, of Non-ferrous Alloys on Their Composition and the Type of the Diagram of State", Moscow, 1958, AN SSSR, In-t metallurgii im. A. A. Baykova (Ac. Sc. USSR, Institute of Metallurgy imeni A. A. Baykov). I. N. Fridlyander "Searching for High Strength Aluminium Alloys of the System Aluminium-Zinc-Magnesium-Copper", Moscow, 1958, Mosk.in-t tsvetn.metallov i zolota im. M. I. Kalinina

Card 5/11

Dissertations

(Moscow Institute of Non-ferrous Metals and Gold imeni M. I. Kalinin).
For the degree of Candidate of Technical Science:
Yu. M. Buravlev "Investigation of the Influence of the Structure of an Alloy on the Results of Spectral Analysis of Complex and Simple Alloyed Steels", Sverdlovsk, 1958, AN SSSR, Ural'skiy filial (Ural Branch of the Ac.Sc. USSR).
S. D. Vangeyngeym "X-ray Investigation of the Inter-Crystallite Internal Adsorption in Silver-base Alloys", Sverdlovsk, 1958, Ural'skiy gos. un-t im. A. M. Gor'kogo (Ural State University imeni A. M. Gorkiy).
S. I. German "Investigation of the Thermal Stability of the Cast Steel 20 KhM-L as a Material for Welded-Cast Assemblies of Steam Turbines", Khar'kov, 1958, Khar'kovsk. politekhn. in-t im. Lenina (Kharkov Polytechnical Institute imeni Lenin). V. I. Gorbunov "Utilisation of a Betatron in the Defectoscopy of Steel Components", Tomsk, 1958, Tomskiy politekhn. in-t im. S. M. Kirova (Tomsk Polytechnical Institute imeni S. M. Kirov).
A. A. Kasumov "Determination of the Range of Application of Work Hardened Steels in Curved Ferroconcrete Structures", Baku, 1958, Azerbaydzh. politekhn.in-t (Azerbaydzhan Polytechnical Institute).

Dissertations

SOV/129-58-9-16/16

N. S. Kuz'mina "Determination of the Plastic Properties of the Alloy MN5 and Establishment of the Technological Process of Manufacture of Tubes from this Alloy", Moscow, 1958, Mosk. in-t tsvet. metallov i zolota im. M. I. Kalinina (Moscow Institute of Non-ferrous Metals and Gold imeni M. I. Kalinin). I. I. Moroz "Investigation of the Influence of Various Factors in Electrolytic Zinc Coating on the Mechanical Properties of Steel", Moscow, 1958, Mosk. khim.-tekhnol. in-t im. D.I.Mendeleyeva (Moscow Chemical-Technological Institute imeni D. I. Mendeleyev). I. G. Rivkin "Investigation of the Strength of Cast and Rolled High Speed Steel", Leningrad, 1958, Leningr. politekhn. in-t im. M. I. Kalinina (Leningrad Polytechnical Institute imeni M.I. Kalinin). V. P. Rudometkin "Automation of the Inspection of Hardened Steel Components by the Method of Magnetic Permeability", L'vov, 1957, L'vovskiy politekhn. in-t (L'vov Polytechnical Institute). M. A. Studnits "Investigation of the Intergranular Fracture of Cast and Overheated Steel by Means of Radioactive Isotopes", Moscow,

Card 7/11 1958, TsNIITMASh.

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G. A. Tulyakov "Investigation of the Creep of Austenitic High Temperature Steel Under Conditions of Complex Stress State", Moscow, 1958, TsNIITMASh.

I. A. Useynov "Properties and Technique of Utilisation of Compressed Air in the Heat Treatment of Tube Ends", Baku, 1958, Gruz. politekhn. in-t im. S. M. Kirova (Georgia Polytechnical Institute imeni S. M. Kirov).

V. G. Chernyy "Study of the Processes of Hardening and Softening of Certain Nickel-base Alloys", Dnepropetrovsk, 1958, Dnepropetrovsk metallurgichesk. in-t im. I. V. Stalina (Dnepropetrovsk Metallurgical Institute imeni I.V.Stalin).

Chou Shih-ch'ang "Investigation of the Influence of Certain Transient Elements on the Structure and Properties of Copper-Beryllium Alloys", Moscow, 1958, Mosk. in-t tsvet. metallov i zolota im. Kalinina (Moscow Institute of Non-ferrous metals and Gold imeni Kalinin).

V. V. Averin "Solubility and Activity of Oxygen in Liquid Iron, Nickel, Cobalt and its Alloys", Moscow, 1958, AN SSSR In-t metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov, Ac. Sc. USSR).

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Dissertations

807/129-58-9-16/16

N. P. Barshteyn "Certain Problems of Ageing of Deformed Magnesium Alloys", Moscow, 1958, Mosk. in-t tsvetn. metallov i zolota (Moscow Institute of Non-ferrous Metals and Gold). B. D. Vasilenko "Study of the Reactions of Chlorinating of Zirconium Dioxide and Zirconium Carbide", Moscow, 1958, Mosk. in-t tsvetn. metallov i zolota im. M. I. Kalinina (Moscow Institute of Non-ferrous Metals and Gold imeni M. I. Kalinin).
A. M. Belikov "X-ray Determination of the Constants of the Quasi-elastic Force of Thermal Oscillations and of the Coefficients of Thermal Expansion of High Melting Point Metallic Phases", Moscow, 1958, Mosk. in-t stali im. I. V. Stalina (Moscow Steel Institute imeni I.V.Stalin).
M. S. Vendrikh "Influence of the Scattering of the Heat Capacity Data on the Equilibrium Constant and Determination of the Heat Capacity of the Borides of Certain Metals", Moscow, 1958, Mosk. in-t tsvetn. metallov i zolota im. M. I. Kalinina (Moscow Institute of Non-ferrous Metals and Gold imeni M. I. Kalinin). A. M. Volkov "Investigation of the Application of the Low Alloy Steel EI603 for Cutting Tools", Moscow, 1957, MVTU.

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Dissertations

SOV/129-58-9-16/16

F. Ya. Iokheles "Investigation of the Type II Stresses Caused by Structural Transformations and Wear in Hardened Steels as Applied to Over-Loaded Toothed Gears", Kiyev, 1958, AN Ukr.SSR, In-t stroit.mekhaniki (Ac.Sc. Ukr. SSR, Institute of Engineering Mechanics).
L. I. Kogan "On the Intermediate Transformation of Austenite", Moscow, 1958, Mosk. in-t stali im. I.V.Stalina (Moscow Institute of Steel imeni I.V. Stalin).
P. I. Mel'nichuk "Investigation of the Ageing of Alloys by the Method of Determining the Modulus of Elasticity", Kiev, 1958, Kiyevsk. politekhn. in-t (Kiyev Polytechnical Institute). I. A. Mikhaylov "Investigation of the Plastic Properties of the High Temperature Alloy EI617 and Development of a Technological Process of Accurate Stamping of the Blades of Turbo-jet Engines, Moscow, 1958, Mosk. aviats-tekhnolog. in-t (Moscow Aviation-Technology Institute). M. A. Tylkin "Influence of the Chemical Composition and of the Conditions of Heat Treatment of Steel on the Changes of the Mechanical Properties and the Coercive Force During Tempering", Dnepropetrovsk, 1958, Dnepropetrovsk. metallurg. zavod im. Dzerzhinskogo (Dnepropetrovk Metallurgical Works imeni Dzerzhinskiy)

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Dissertations

SOV/129-58-9-16/16

K. T. Chernousova"Investigation of the Crack Formation During Crystallisation of Aluminium Alloys", Moscow, 1958, Mosk. in-t tsvetn. metallov i zolota im. M. I. Kalinina (Moscow Institute of Non-ferrous Metals and Gold imeni M. I. Kalinin).

1. Scientific research--USSR

Card 11/11

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A. SOV/56-34-5-3/61

TITLE: The Electric Resistance of Iron, Nickel, and Nickel-Copper Alloys at Low Temperatures (Elektricheskoye soprotivleniye zheleza, nikelya i splavov nikelya s med'yu pri nizkikh temperaturakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1070 - 1076 (USSR)

ABSTRACT: This work investigates the temperature dependence of the electric resistance of the metals and alloys, in question in the temperature interval from 2 to 78° K. The electric resistance was measured potentiometrically. Wires, 150 to 160 mm long and 0,1 - 0,2 mm in diameter, which were wound upon a copper cylinder served as samples. The data concerning the composition of the samples are given in a table. All samples had been annealed for one hour at 900° in a vacuum. Afterwards they were slowly cooled. 3 other samples which also had been annealed at 900°C were quenched. In the experiments within the temperature intervals 2 - 4,2; 14 - 20,4 and 63,1 - 77,3° the temperature was determined

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by measuring the pressure. The curves of the temperature dependence of the specific electric resistance ϱ of iron, nickel, and nickel-copper alloys are illustrated in a diagram. Some curves of this kind contain steps in the temperature range from 3 to 10^0 K. These steps as a rule are smaller with the annealed samples than with the quenched ones. The specific resistance ϱ was represented as a power series: $\varrho(T)=\varrho_0+\alpha T+\beta T^2+ \ldots$. Two diagrams illustrate the functions of $(\varrho-\varrho_0)/T$ versus T and of $\ln(\varrho-\varrho_0)$ versus ln T. For the first function the deviations from the straight line begin at $T > 30^0$K. In the interval $4 < T < 18^0$K the temperature dependence of the electric resistance can be described by 3 terms of the above mentioned power series or by the formula $\varrho = \varrho_0 + aT^m$. For all samples the exponent is close to 3/2. At temperatures above 20 - 30^0K probably a law of the T^5 type is valid. In the interval $4 < T < 77^0$K the temperature dependence can be described by the formula $\varrho=\varrho_0+\alpha T+\beta T^2+\gamma T^\ell$ or $\varrho=\varrho_0+aT^m+bT^n$, where ℓ and n are close to 5. Another diagram illustrates the dependence of the remanent resistance ϱ_0 on the

copper concentration in the nickel-copper alloys for quenched and annealed samples. Upto 25% copper this dependence is linear. There are 7 figures, 1 table, and 14 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 6, 1957

1.Iron--Resistance 2.Nickel--Resistance 3.Copper-nickel alloys --Resistance 4.Metals--Temperature factors

GALKINA, O.S.; CHERNIKOVA, L.A.

Relation between the temperature dependence of the electric resistance at low temperatures and the galvanomagnetic effect in strong magnetic fields. Zhur. eksp. i teor. fiz. 38 no.1:3-6 Jan '60. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet.
(Electric resistance) (Magnetic fields)

GALKINA O. S.

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AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A.

TITLE: The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 646-648

TEXT: In a previous paper (Ref. 1) the authors have shown that in the case of nickel the ratio $\Delta\varrho/\Delta I$ ($\Delta\varrho$ - change in resistivity with a change of magnetization by ΔI due to a magnetic field in saturation range) is approximately equal to the ratio $(\varrho_T-\varrho_0)/(I_0-I_T)$. ϱ_T and I_T denote resistivity and/or saturation magnetization at $T < 20^\circ K$, ϱ_0 is the residual resistivity, and I_0 denotes saturation magnetization on extrapolation for the absolute zero. It was further assumed that $\varrho_T - \varrho_0 = aT^{3/2}$ (a - a proportionality factor) held for iron and nickel

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The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

at and below the temperature of liquid hydrogen and $\varrho_T - \varrho_0 - aT^{3/2} \sim T^5$ above the temperature of liquid hydrogen. The authors concluded that within the range of the temperatures of liquid hydrogen and helium the resistivity growth with rising temperature depends essentially on the resulting increase in non-homogeneity of the magnetic moments of the crystal lattice and, above the temperature of liquid hydrogen, on the amplification of thermal vibrations. Consequently, a maximum of resistivity may be expected in the range of Curie temperature where fluctuations of the magnetic order occur, especially if the Curie temperature is in the temperature range of liquid hydrogen. This possibility was first pointed out by M. A. Krivoglaz and S. A. Rybak. The existence of this maximum was experimentally proved by the writers of the present "Letter to the Editor". Samples of copper-nickel alloy (58 and 59.25% Cu) whose Curie points were below 20°K, were used for the purpose. The experimental technique is described in Ref. 1. The accompanying diagram shows resistivity as a function of temperature. The sample containing 59.25% of Cu, whose Curie point was near the temperature

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of liquid helium, had the most distinctly marked maximum. In the case of this alloy, the maximum of $\rho - \rho_0$ amounted to 0.7 per cent of ρ_0. These maxima are flattened when a magnetic field is applied. Thus, the assumptions made in the preceding paper were confirmed. There are 1 figure and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 27, 1959

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GALKINA, O.S.; CHERNIKOVA, L.A.; FONTON, S.S.

Magnetic anisotropy of ferronickel single crystals at temperatures of 4.2°, 78°, and 293°K. Vest. Mosk. un. Ser. 3: Fiz., astron. 16 no.5:48-51 S-O '61. (MIRA 14:10)

1. Kafedra magnetizma Moskovskogo gosudarstvennogo universiteta.
(Iron-nickel alloys--Magnetic properties)

247700 1136 1043 1144

31772
S/056/61/041/006/013/054
B113/B104

AUTHORS: Galkina, O. S., Chernikova, L. A., Chang K'ai-ta Kondorskiy, Ye. I.

TITLE: Electric properties of thin nickel films at low temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1763-1766

TEXT: The authors studied the electric and galvanomagnetic properties of highly pure nickel films of at least 30 Å thickness, and compared them with the corresponding properties of bulk specimens. The films were obtained by evaporation in vacuum (10^{-7} mm Hg) inside a balloon immersed in liquid helium. The temperature dependence of the electric resistivity was studied on films of 1300-30 Å thickness at temperatures of 2-300°K. It was shown that the resistivity ρ of films of 50 and 135 Å thickness was near the resistivity of bulk nickel. ρ sharply increases as the vacuum deteriorates. ρ of thick films grows to the 1.5-2 fold, that of thin films by about one order of magnitude. The temperature dependence of R_T/R_τ of annealed films of different thicknesses indicates the relative change

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Electric properties of thin ...

with a temperature increase: it is almost linear, and the faster, the thicker the film is. R_T is the resistivity at the temperature, T; R_τ the resistivity at helium temperature. Further studies showed that ϱ did not depend on the thickness in films of 1300 to 300-400 Å thickness, and increased slightly with decreasing thickness as from 300-30 Å thickness. When studying the Hall effect it was found that the Hall field corresponded to the bulk specimen for films of 1300-835 Å thickness at room temperature. In films of 50 Å thickness, the Hall field increased due to the increase in resistivity. A. I. Shal'nikov is thanked for advice and assistance, and Yu. Durasova for determining the thickness of films. There are 5 figures and 3 references: 1 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: C. A. Neugebauer, Structure and Properties of Thin Films, by C. A. Neugebauer, T. B. Newkirk, B. A. Vermilyea, N. Y., 1959, p. 358.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 1, 1961

Card 2/2

ACCESSION NR: AP4033639 S/0188/64/000/002/0082/0084

AUTHOR: Talalayeva, Ye. V.; Chernikova, L. A.; Galkina, O. S.

TITLE: Electrical resistance of gadolinium films and massive specimens in the temperature range 2-290K

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1964, 82-84

TOPIC TAGS: magnetic phase transition, Curie point, molecular physics, gadolinium, gadolinium electrical resistance, rare earth

ABSTRACT: The rare earth metals of the yttrium subgroup have two characteristic temperatures, Θ_1 and Θ_2, corresponding to two magnetic phase transitions. Below Θ_1 the temperatures these metals are in a ferromagnetic state, and above (to Θ_2) -- in an antiferromagnetic state with a helicoid or similar structure. The temperature Θ_2 is the Curie point. Until recently, however, it had not been established whether gadolinium (a member of the yttrium subgroup) has a Θ_1 transition. In this paper, the authors investigate the temperature dependence of the electrical resistance of massive gadolinium and its films for the purpose of determining the influence of the Θ_1 transition on these curves.

Card 1/2

ACCESSION NR: AP4033639

Electrical resistance was measured by the ordinary potentiometric method. Between 2 and 25K temperature was measured with a gas thermometer and above 25K with a copper-constantan thermocouple. The massive specimen of Gd (purity 99.8%) was 15.7 mm long and had a cross section of 0.47 mm^2. Figure 1 of the Enclosure shows the dependence R_T/R_{Θ_2} of the massive specimen of Gd on temperature (where R_T is resistance at a particular temperature, R_{Θ_2} is resistance at the Curie temperature). At a temperature Θ_1 = 210K there is a small knee, with another near the Curie point of 290.5K. Figure 2 of the Enclosure shows the temperature dependence of the electrical resistance of three fine films (thicknesses of 70, 100 and 180 A) during the heating of newly condensed films from 4.2 to 280K (curves 1, 2, 3) and during cooling to the initial temperature of 4.2K after being held at a temperature of 300K for 40 hours. Figure 3 of the Enclosure shows curves similar to those in Figure 2 for two thick films (380 and 500 A). "In conclusion the authors deeply thank Professor A. I. Shal'nikov for valuable advice and assistance in the work and Professors K. P. Belov and Ye. I. Kondorskiy for discussion of the results". Orig. art. has: 3 figures.

ASSOCIATION: Kafedra molekulyarnoy fiziki, Moskovskiy universitet (Department of Molecular Physics, Moscow University)

Card 2/2

GALKINA, P.

Galkina, P. - "On the session of the Scientific Research Institute of Regional Studies and Museum work," (Moscow, November 1948), Sov. etnografiya, 1949, No. 2, p. 179-83

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

GALKINA, P.M.

Prospects for Sverdlovsk Province public health development in the period 1959-1965. Zdrav.Ros.Fedr. 3 no.1:11-14 Ja '59. (MIRA 12:2)

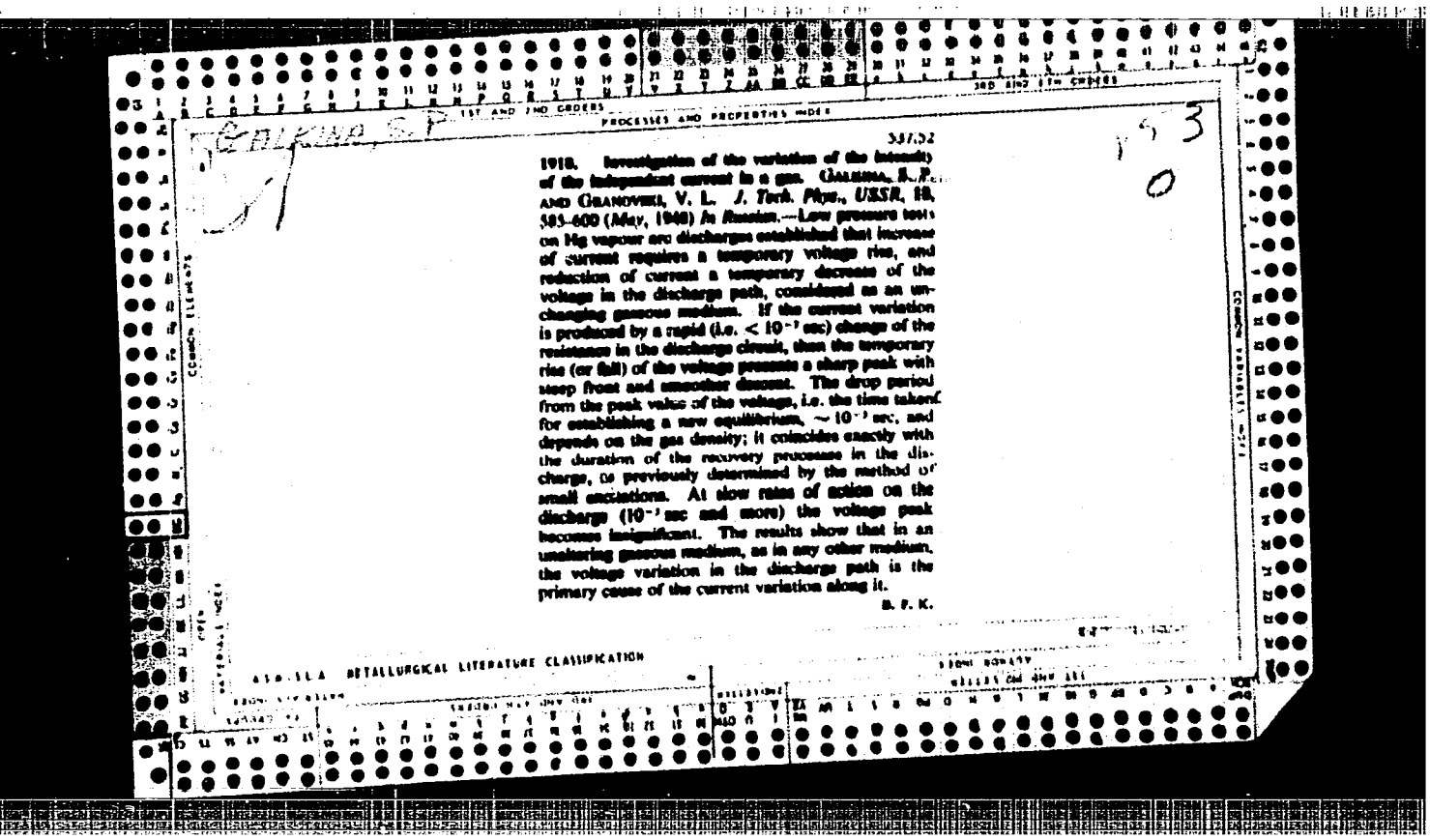
1. Iz Sverdlovskogo oblastnogo otdela zdravookhraneniya.
(SVERDLOVSK PROVINCE--PUBLIC HEALTH)

GALKINA, R. G.

Geology

Siderites from Carboniferous deposits of the Lvov trough
N. S. Vartanova, I. N. Artemenko, and R. G. Gal'kina
(Lvov Univ.). *Mineralog. Sbornik, L'vov. Geol. Obshch.*
chestvo 4, 291–302(1950).—Chem. analyses are given
Marie Siegrist

(2)



PROCESSES AND PROPERTIES INDEX

537.52

1918. **Investigation of the variation of the intensity of the independent current in a gas.** GALANIN, L. P., AND GRANOVSKI, V. L. *J. Tech. Phys., USSR*, 18, 585-600 (May, 1948) *In Russian.*—Low pressure tests on Hg vapour arc discharges established that increase of current requires a temporary voltage rise, and reduction of current a temporary decrease of the voltage in the discharge path, considered as an unchanging gaseous medium. If the current variation is produced by a rapid (i.e. $< 10^{-3}$ sec) change of the resistance in the discharge circuit, then the temporary rise (or fall) of the voltage presents a sharp peak with steep front and smoother descent. The drop period from the peak value of the voltage, i.e. the time taken for establishing a new equilibrium, $\sim 10^{-3}$ sec, and depends on the gas density; it coincides exactly with the duration of the recovery processes in the discharge, as previously determined by the method of small excitations. At slow rates of action on the discharge (10^{-3} sec and more) the voltage peak becomes insignificant. The results show that in an unalterable gaseous medium, as in any other medium, the voltage variation in the discharge path is the primary cause of the current variation along it.

B. P. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GALKINA, T. A.

USSR/Miscellaneous - Technology

Card 1/1 : Pub. 12 - 8/12

Authors : Karasev, N. A., and Galkina, T. A.

Title : Increase in strength of auto semi-axles by stamping and shot-hardening

Periodical : Avt. trakt. prom. 4, insert, Apr 1954

Abstract : Data and illustrations, showing that stamping and shot-hardening increase the fatigue resistance of auto semi-axles produced of low-alloyed steel, are presented.

Institution : The Stalin Auto Plant, Moscow

Submitted : .....

USSR

Changes in the nucleic acids of artificially induced variants of Escherichia coli. O. Ya. Rashba and T. O. Gaikina. *Mikrobiol. Zhur., Akad. Nauk Ukr. R.S.R.* 16, No. 1, 27–32(Russian summary, 32–3)(1954).—*E. coli* 163 and *Salmonella breslau* 353 were used. The nucleic acids of both original cultures were detd. *E. coli* variants were obtained by growing the original 163 strain in a culture medium contg. *S. breslau* autolyzate (cf. Vizir, *et al.*, *Ibid.* 15, No. 3 and 4 (1953)). Variants 125, 125M (obtained by passing 125 through a mouse), 38, 166, and 60 were almost identical with *S. breslau* in serological, immunological, sugar-fermenting, and pathogenic properties. Cells of these variants were washed and total N and nucleic acids were detd. by the method of Schmidt and Thannhauser (*C.A.* 40, 2181). Results are expressed in terms of γ of ribonucleic (I) and deoxyribonucleic (II) acid P per mg. of bacterial cells. *E. coli* 163 and *S. breslau* 353 contained about the same amount of I but II was higher in *S. breslau*. Variants 125 and 166 contained less of I and more of II than either *E. coli* 163 or *S. breslau* 353. Content of I and II in variants 125 M and 60 was about same as in *E. coli* 163. The content of nucleic acids in variant 38 was not const., but the amt. of II approximated that in *S. breslau*. Each expt. was repeated 10 times.

B. S. Levine

GALKINA, T. O.

3006. Alterations of nucleic acid content of colon bacillus on assimilation of Breslau bacillus complete antigen and nucleoprotide. O. Ia. Rasiiba and T. O. Galkina *Mikrobiol. Zh.*, 1955, 17, 14—17; *Referat. Zh. Biol.*, 1956, Abstr. No. 75648.—Regardless of the character and intensity of the changes of biochemical, serological, and pathological properties of variants obtained, their content of nucleic acid differed little from that of the original culture. Variants, obtained on media with complete antigen and nucleoprotide of Breslau bacillus, differed less from the original cultures and were less diverse in character, than variants obtained on media with autolysates of Breslau bacillus. (Ukrainian, Russian Summary)

C. [illegible]

GALKINA, T. O.

Changes in the activity of nuclease in Escherichia coli grown in the presence of the complete antigen and nucleoproteins of Salmonella typhimurium. T. O. Galkina. *Mikrobiol. Zhur., Akad. Nauk Ukr. S.S.R., Inst. Mikrobiol. im. D. K. Zabolotnogo* 18, No. 2, 38-9(Russian summary, 40)(1956).—A study was made of the changes in the activity of nuclease of ribonucleic and deoxyribonucleic acids in *E. coli* 163 and *S. typhimurium* 353 and in the variants of *E. coli* produced as a result of culturing them in media contg. the complete antigen and the nucleoproteins of *S. typhimurium* 353. The amt. of P split from the nucleic acids by the bacteria in suspension during 30-min. incubation at 37° compared with similar P in the controls was taken as the index of the enzyme activity. Variants of *E. coli* 163, −10a, 113, 137, 140, 191 varied only imperceptibly in their ribonuclease activity from the parent strains *E. coli* 163 and *S. typhimurium* 353. No deoxyribonuclease activity was detected at first in *E. coli* variants 10a, 105, 191. Subsequently this enzyme appeared in a much higher potency in variants 10a and 105 and in a somewhat lower potency in variant 191, than in either the original *E. coli* 163 of the *S. typhimurium* 353. In variants *E. coli* 113, 137, 140 deoxyribonuclease remained inactive under the conditions of the expts. B. S. Levine

Galkina, T.O.

Mechanism of denaturation of protein. VII. The effect of ions of salts on the denaturation of globular proteins. A. S. Tsiperovich and T. O. Galkina (Inst. Biochem., Acad. Sci. Ukr. S.S.R., Kiev). *Ukrain. Biokhim. Zhur.* 28, 127–40(1956); cf. *C.A.* 50, 4257*c*.—A study was made of the effect of NaCl, KCl, Na_2SO_4, $MgCl_2$, $CaCl_2$, $BaCl_2$, KCNS, and of a mixt. of NaH_2PO_4 and Na_2HPO_4 on the denaturation of proteins in the system egg albumin-urea. Observations were made of the amt. of protein rendered insol., change in the no. of free SH groups, and changes in optical rotation. By the addn. of the salts it is possible either to enhance or to reduce the rate of the protein denaturation. Results indicated that, depending upon the type of effect produced, the salts can be grouped as follows: (*a*) salts which activate the denaturation process by reducing the stability of the proteins; (*b*) salts which depress the process of denaturation by increasing the stability of the proteins; and (*c*) salts which exert a double, seemingly contradictory, influence upon the process of protein denaturation by urea. In low and medium concns. such salts enhance the degree of the protein denaturation, and in high concns. they inhibit it. The mechanism of action of salts on the progress of protein denaturation by urea is assumed to be as follows: activation is the result of complex formation between the salt ions and the protein mols.; inhibition of denaturation or stabilization of the protein globules is the result of an effect akin to salting out, but at concns. just high enough to keep the globules in suspension without their falling out of soln. This assumption was experimentally verified. Changes in the mol. structure of the proteins subjected to urea denaturation are of an intermittent nature. With the addn. of salts the magnitude of the predenaturation effect and the level of false denaturation reaction equil. can be altered. B. S. Levine

RASHBA, Ye.Ya.; GALKINA, T.A.; ZAKHAROVA, I.Ya.; KAGANSKAYA, M.B.

Biochemical changes observed in certain coli bacteria during variability. Trudy Inst. mikrobiol. no. 6:102-109 '59.
(MIRA 13:10)

1. Institut mikrobiologii AN USSR.
(SALMONELLA TYPHRIMURIUM) (ESCHERICHIA COLI)

GALKINA, T.A. [Halkina, T.O.]

Nuclease activity in B. Breslau and in secondary cultures regenerated from its filtrates. Mikrobiol. zhur. 22 no. 1:29-32 '60.
(MIRA 13:10)

1. Iz Instituta mikrobiologii AN USSR.
(SALMONELLA) (NUCLEASES)

GALKINA, T.A. [Halkina, T.O.]

Crystalline proteins in certain bacteria of the enteric group. Mikrobiol.zhur. 23 no.1:35-38 '61. (MIRA 14:5)

1. Institut mikrobiologii AN USSR.
(PROTEINS) (INTESTINES--BACTERIOLOGY)

GALKINA, T.A.

Electrophoretic study of protein fractions in Bacterium Breslau and Escherichia coli and in variants of Escherichia coli obtained by the assimilation of products of Bacterium Breslau. Biokhimiia 26 no. 1:155-159 Ja-F '61. (MIRA 14:2)

1. Institute of Microbiology, Academy of Sciences of the Ukrainian S.S.R., Kiyev.
(ESCHERICHIA COLI) (SALMONELLA) (PROTEINS)

GALKINA, T.A. [Halkina, T.O.]; YELSHINA, M.A. [IElshina, M.O.].

Electrophoretic characteristics of proteins of the paratyphoid A bacillus and yellow cultures isolated together with it. Mikrobiol. zhur. 24. no.4:7-12 '62. (MIRA 16:5)

1. Institut mikrobiologii AN UkrSSR.
(PROTEINS) (SALMONELLA PARATYPHI)
(PAPER ELECTROPHORESIS)

GALKINA, T.A. [Halkina, T.O.]

Amount of nucleic acids in Bacterium Breslau and its subcultures regenerated from its filtrates. Mikrobiol. shur. 20. no.4:9-12'58. (MIRA 16:8)

1. Institut mikrobiologii AN UkrSSR.
(NUCLEIC ACIDS) (SALMONELLA)

GALKINA, T.A. [Halkina, T.O.]; YELSHINA, M.A. [IElshyna, M.O.]

Chemical composition of the paratyphoid A bacillus and the yellow cultures isolated together with it. Mikrobiol. zhur. 25 no.6: 3-6 '63 (MIRA 17:7)

1. Institut mikrobiologii AN UkrSSR i Kiyevskiy nauchno-issledovatel'skiy institut mikrobiologii i epidemiologii.

YELSHINA, M.O. [Elshyna, M.O.]; GAIKINA, T.O. [Haikina, T.O.]

Immunochemical analysis of protein fractions of chromogenic (yellow) bacteria isolated from the blood of paratyphoid patients. Mikrobiol. zhur. 26 no.2:7-11 '64. (MIRA 18:8)

1. Kiyevskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii Ministerstva zdravookhraneniya i Institut mikrobiologii AN UkrSSR.

YELSHINA, M.A. [IElshyna, M.O.]; GALKINA, T.A. [Halkina, T.O.]

Study of the antigenic composition of protein fractions in Salmonella paratyphi A. Mikrobiol. zhur. 26 no.1:20-25 '64. (MIRA 18:11)

1. Kiyevskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii i Institut mikrobiologii AN UkrSSR.

AYZENMAN, B.Ye. [Aizenman, B.IU.]; SHVAYGER, M.G.; MANDRIK, T.P.; BREDIKHINA, A.N. [Bredikhina, A.M.]; ORISHCHUK, L.F. [Oryshchuk, L.F.]; KOLESOVA, E.A. [Kolesova O.A.]; MISHENKOVA, Ye.L. [Mishenkova, O.L.]; GALKINA, T.A. [Halkina, T.O.]; ZAKHAROVA, I.Ya.; RASHBA, Ye.Ya. [Rashba, O.IA.]; LAUSHNIK, G.M. [Laushnyk, H.M.]; PREOBRAZHENSKAYA, N.Ye. [Preobrazhens'ka, N.IU.]

Effect of substances of bacterial origin on Ehrlich's carcinoma. Mikrobiol. zhur. 27 no.6:61-67 '65. (MIRA 19:1)

1. Institut mikrobiologii i virusologii AN UkrSSR.

ACCESSION NR: AT4037712 S/2865/64/003/000/0428/0431

AUTHOR: Galkina, T. B.

TITLE: The repeated use of nutrient media for cultivation of Chlorella pyrenoidosa

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 428-431

TOPIC TAGS: air regeneration, closed ecological system, manned space flight, algae, Chlorella, Tamiya medium, plant growth

ABSTRACT: Experiments were performed with Chlorella pyrenoidosa to determine the effect of the re-use of nutrient media on the growth dynamics of continuous Chlorella cultures. Chlorella was cultured in Tamiya's medium. After the first run, the suspension was centrifuged and the clear part was re-used for successive experiments after salts and pH were adjusted so that they were very close to normal Tamiya medium. Media prepared on former culture liquid exerted both a stimulating and a depressing effect on the growth of algae, depending on the absolute increase in the number of cells per unit of medium during preliminary

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ACCESSION NR: AT4037712

culturing. In cases where the final density of cells in the preliminary culture was less than 500 million per cc, the effect of re-use of that medium was a stimulating one. If the final concentration of the preliminary culture was greater than 700 million per cc, the effect on successive cultivations was an inhibiting one. If the culture liquid from the previous experiment was diluted, the effect of stimulation or inhibition was less pronounced. In a number of cases dilution of the culture liquid of the preliminary culture resulted in a change from inhibition to stimulation during re-use.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PH, LS

NO REF SOV: 000 OTHER: 005

Card 2/2

GALKINA, T.I.

Use of the photogalvanomagnetic effect in measuring the rate of surface recombination. Fiz. tver. tela 1 no.2:216-217 F '59. (MIRA 12:5)

1.Fizicheskiy institut im. P.N. Lebedeva, Moskva.
(Semiconductors)

RZHANOV, A.V.; NOVOTOTSKIY-VLASOV, Yu.F.; NEIZVESTNYY, I.G.; POKROVSKAYA, S.V.; GALKINA, T.I.

Nature of surface recombination centers in germanium. Fiz. tver. tela 3 no. 3:822-831 Mr '61. (MIRA 14:5)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR, Moskva.
(Crystal lattices) (Germanium)

L 06432-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6026709 SOURCE CODE: UR/0181/66/008/008/2473/2475

AUTHOR: Galkina, T. I.; Kornilova, N. B.; Penin, N. A.

ORG: Physical Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Structure of the recombination emission spectrum of indium arsenide diffused diodes

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2473-2475

TOPIC TAGS: emission spectrum, indium compound, arsenide, semiconductor diode

ABSTRACT: The spontaneous recombination emission of indium arsenide upon injection of charge carriers through a p-n junction was studied at 78°K and below. The diodes were prepared by diffusing cadmium into n-type material with a donor concentration of 3.8×10^{17} cm^{-3}. The emission spectrum of a diode immersed in liquid nitrogen (78°K) with a current passing through the diode (2 A and above) was found to change considerably with changing injection current: as the latter increases, the intensity of the main peak increases linearly and shifts toward higher energies, whereas the intensity of well-resolved secondary peaks (0.350 and 0.360 eV) on the long-wave side of the main peak tends toward saturation, and the position of these peaks is independent of the current. As the temperature is lowered to 24°K, the resolution of the secondary structure does not improve. The main peak (0.380 eV) is attributed to radiative tran-

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ACC NR: AP6026709

sitions from the conduction band to the acceptor level of cadmium. The secondary peaks are thought to be formed in the forbidden band of InAs as a result of defects arising upon diffusion of Cd into InAs under conditions where there is a high excess prossure of arsenic (above 0.3 atm), which is usually placed in the ampoule during diffusion. Authors thank V. A. Rassushin for discussing the work. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 03Feb66/ ORIG REF: 001/ OTH REF: 001

Card 2/2

L 06439-67 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6026716 SOURCE CODE: UR/0181/66/008/008/2488/2490

AUTHOR: Galkina, T. I.; Penin, N. A.; Rassushin, V. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Determination of the energetic position of the acceptor level of cadmium in indium arsenide

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2488-2490

TOPIC TAGS: arsenide, indium compound, cadmium, ionization

ABSTRACT: The ionization energy of cadmium atoms in InAs was determined from the spectral position of the recombination radiation line of indium arsenide diffusion diodes. The observations were made by transillumination through the n-region of the material, which had an electron concentration $n_0 = 2 \times 10^{16}$ cm^{-3}. It is postulated that the radiation of the diodes arises in the p-region due to radiative capture of an electron from the conduction zone by a neutral cadmium atom. In this case, the spectral characteristic of radiation for direct transitions between the conduction band and the acceptor level is expressed by the formula

$$G(y) = y^{-1/2} e^{y},$$

where $y = \frac{\hbar\omega - \epsilon_d + \epsilon_a}{kT}$ and $\hbar\omega$ is the energy of a radiation quantum. It follows that the maximum of the radiation intensity lies at $y = 1/2$, i. e., at $\hbar\omega_{max} = \epsilon_d - \epsilon_a$

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L 06439-67

ACC NR: AP6026716

+ kT/2. It was found graphically that $\epsilon_d - \epsilon_a = 0.395$ eV. The forbidden gap width of InAs, necessary for the calculation of the ionization energy of cadmium ϵ_d, was obtained from the photoluminescence spectra of InAs at 78°K. At this temperature, the forbidden gap width of indium arsenide $\epsilon_d \approx 0.405$ eV, and the ionization energy of cadmium $\epsilon_a \simeq 0.010$ eV. Authors thank N. M. Ponomarev and D. A. Vlasov, on the staff of GIREDMET, for providing InAs samples of the highest degree of purity. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 14Feb66/ ORIG REF: 001/ OTH REF: 006

Card 2/2

S/712/62/028/000/002/020
E032/E114

AUTHORS: Galkina, T.S., and Kopylov, I.M.

TITLE: Quantitative analysis of the atmospheres of hot supergiants. III. A2-F2 supergiants

SOURCE: Akademiya nauk SSSR. Krymskaya astrofizicheskaya observatoriya. Izvestiya. v.28. 1962. 35-93

TEXT: 35 spectrograms of the following stars were analyzed: α Cyg (HD 197 345), ν Cep (HD 207 260), 9i Per (HD 14 489), 6 Cas A (HD 223 385), φ Cas (HD 7 927), ε Aur (HD 31 964), 89 Her (HD 163 506), ν Her (HD 164 136). They were obtained in 1958-1959 with a single-prism spectrograph (dispersion 23.4 Å/mm at H_γ) and the 122 cm reflector of the Krimskaya Observatoriya (Crimean Observatory). The equivalent widths were found for a large number of lines in the range λλ 3750 - 5020 Å. The Doppler velocities were determined from the curves of growth and were assumed to be equal to the velocities of turbulent motion since thermal velocities in the atmospheres of these stars are small (1 - 2 km/sec). The turbulent velocities were then investigated as functions of the excitation potential and it was

found that v_t decreases with increasing E.P. Moreover, it was found to increase with height in the atmospheres. This increase is more clearly defined in the more extended atmospheres of F0-F2 stars than in the atmospheres of A2-A3 stars. The dependence of v_t on height for atoms and ions was found to be different. Next, the excitation temperature was determined as a function of E.P. The variation was found to be more rapid for F0-F2 stars than for A2-A3 stars. The values of the electron density P_e and the quantity $\theta_i = 5040/T_i$ for metal lines, where T_i is the ionization temperature, were found to be as shown in Table 10. The values of $\log P_e$ for metal lines were found to be larger by an order of magnitude as compared with $\log P_e$ (hydrogen). These values were then used to estimate the chemical composition of the stars. Fig.14 shows the relative chemical composition of A2-A3 and F0-F2 stars (upper and lower curves, respectively). Further studies will require data with higher dispersion.
There are 14 figures and 12 tables.

December, 1961
Card 2/5

Quantitative analysis of the ... S/712/62/028/000/002/020
E032/E114

Table 10

	log P_e	θ_i
α Cyg	0.30	0.72
ν Cep	0.52	0.73
9i Per	0.44	0.72
6 Cas A	0.54	0.74
φ Cas	0.70	0.73
ε Aur	0.66	0.74
89 Her	0.76	0.76
ν Her	0.78	0.81

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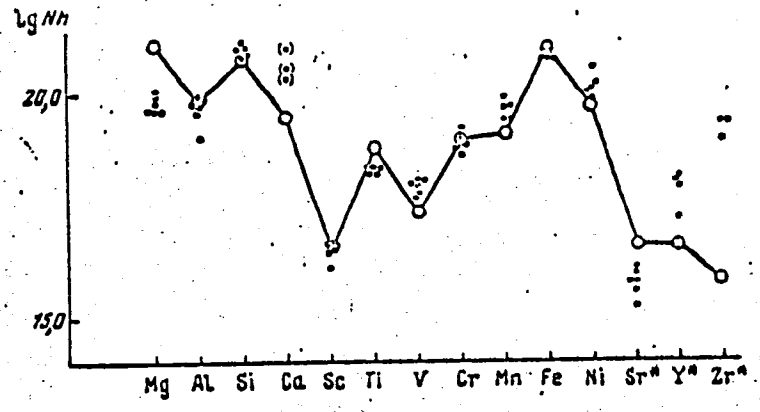
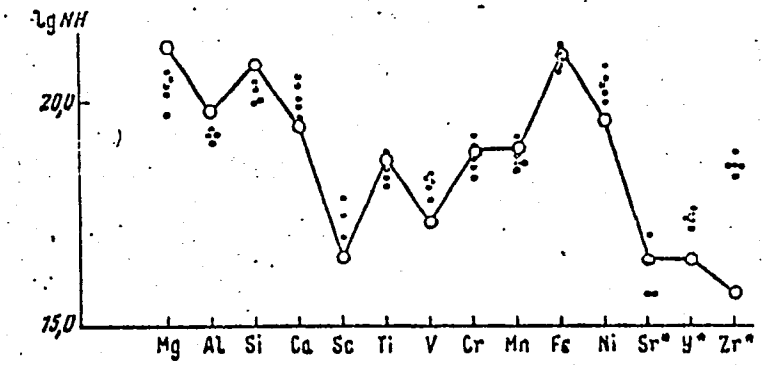
Fig. 14 . Relative chemical composition of A2-A3 stars



Card 4/5

Quantitative analysis of the ...

Fig.14. Relative chemical composition of F0-F2 stars



Card 5/5

KOPYLOV, I.M.; VITRICHENKO, E.A.; GALKINA, T.S.; GOLLANDSKIY, O.P.

Quantitative analysis of atmospheres of hot supergiants.
Part 4: Physical conditions in O-F supergiant atmospheres.
Izv. Krym. astrofiz. obser. 30:42-68 '63. (MIRA 17:1)

GELLER, Yu.A.; GALKINA, V.A.

Effect of tempering conditions on the quality of cutting tools made of high-speed steel. Stan.i instr. 33 no.12:31-33 D '62. (MIRA 16:1)

(Metal-cutting tools--Testing)

GUTNIK, M.A.; BORISOV, L.F.; NOVIKOV, I.K.; SPASSKIY, N.N.; OVCHINNIKOV, A.N.; STOLYAROV, A.B.; KLAVIR, A.V.; GALKINA, V.I.; SHALFEYEV, V.I.

Overall mechanization of decorative grinding and polishing operations. Prom. energ. 17 no.9:6-8 S '62. (MIRA 15:8)
(Grinding machines)

SOV/81-59-5-17542

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, pp 532 - 533 (USSR)

AUTHORS: Shchegol', Sh.S., Galkina, V.K.

TITLE: Polymetacryt (Polimetakrit) - a Material for Construction Purposes

PERIODICAL: Za. tekhn. progress (Sovnarkhoz Gor'kovsk. ekon. adm. r-na), 1958, Nr 5, pp 8 - 9

ABSTRACT: Polymetacryt (PM) was obtained by impregnating electrographite (EG) with methyl ether of methacrylic acid and 0.5% benzoyl peroxide and subsequent stepwise heating, having a compression resistance twice as high and tensile strength and bending resistance three times as high as EG; the heat- and electric conductivity of both materials are the same. Depolymeric ether obtained from the waste products of organic glass can be used as material. The consumption of methylmethacrylate to 1 ton of impregnated EG is ~90 - 100 kg. PM is suitable for the production of chemical heat-exchange apparatus, as well as

Card 1/2

Polymetacryt (Polimetakrit) - a Material for Construction Purposes

electrodes (e.g., for chloride baths). The wear of the PM anodes is by 20 - 25% less than those made of graphite, and their application decreases the consumption of electric power per 1 ton of caustic soda by ~ 100 kw hrs. The test results and the physico-mechanical properties of the initial EG and PM are given.

A. Vavilova

GORODINSKIY, G.M., kand. tekhn. nauk; GALKINA, V.N., inzh.

Photoelectric setup for the control of the degree of surface finish of plane polished glass. Stek. i ker. 20 no.7:17-19 Jl '63. (MIRA 17:2)

1. Leningradskiy institut tochnoy mekhaniki i optiki.

GALKINA, V.P.

20-4-51/51

AUTHORS: Korzhuyev, P. A. , and Galkina, V. P.

TITLE: The Amount of Blood and Hemoglobin in the Organism of Birds During the Period of Incubation (Kolichestvo krovi i gemoglobina v organizme ptits v period inkubatsii)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 4, pp. 710 - 712 (USSR)

ABSTRACT: One of the most important functions of the blood is its breathing function. Comparing-physiological knowledge concerning the blood of vertebrates says that the amount of blood and the supply of the organism with hemoglobin increases with the activity and movability of the animal. However, in this connection differ not only the great animal groups, but there are differences among some groups of the same species in various stages of ontogenesis. In the embryo of the sheep "Sovetskiy merinos" the amount of blood increases rapidly with the third month of embryonic life and reaches its maximum with the birth. This applies also for the human embryo . The blood of the newborn child contains more red blood corpuscles and hemoglobin than its mother's blood. This is according to the one standpoint the consequence of a chance partial transition of blood from the placenta to the vascular system of the embryo; the placen-

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ta is here considered to be an "extraembryonic tissue". The other standpoint considers the rich supply of blood and hemoglobin as a peculiar adaptation form to the specific development conditions of the intrauterine life to be in the first place an oxygen supply of the embryo. In this connection it is assumed that the blood forming organs of the embryo of the vertebrates, above all the bone marrow, are to have a maximum development. It can be expected that the development of these organs, e.g. of the bones containing the marrow of the mammalia and of the birds the fetal development of which takes place outside the mother organism must show striking differences. Table 1 gives the blood- and hemoglobin content of chickens, ducks, turkeys, and pigeons of different races at the moment of slipping out of the egg. It is obvious that the amount of blood in the latest stages of incubation does scarcely deviate from that of adult birds. In the case of pigeons it was even lower. Table 2 shows the relative weight of the skeleton of the heart and blood with the hemoglobin content in % of the body weight of newborn and adult horses, pigs, sheeps, guinea-pigs, as well as of chickens and pigeons. Themammalia have an obviously higher degree of supply of the organism with blood and hemoglobin, a considerably greater relative weight of the skeleton (the double or triple amount of that of the mother) and a heart index double as great as

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that of the mother. These differences cannot be found in the case of birds. However, the organs not connected with oxygen transport of birds and mammalia show scarcely any differences what regards their weight. The authors think it most expedient to explain these peculiarities of the organs of birds and mammalia by the dependence of the specific weight of these organs on the level of supply with oxygen of the organism. There are 2 tables, and 13 references, 6 of which are Slavic.

ASSOCIATION: Institute for Animal Morphology imeni A. N. Severtsov AN USSR (Institut morfologii zhivotnykh im. A. N. Severtsova Akademii nauk SSSR)

PRESENTED: December 24, 1956, by I. I. Shmal'gauzen, Academician

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AVAILABLE: Library of Congress

Card 3/3

GALKINA, V.S.

Scientific Session in Tula. Stomatologiia no.5:63 '53. (MLRA 7:1)
(Tula--Dentistry) (Dentistry--Tula)
(Tula--Stomatology) (Stomatology--Tula)

GAIKINA, V. S.

Immunology

Dissertation: "Barrier-Fixing Function of the Lymphatic Glands and Their Importance in Determining the Immunogenicity of Some Intestional Microbes." Cand Med Sci, Tashkent Medical Inst, 14 Apr 54. (Pravada Vostoka, Tashkent, 27 Mar 54).

SO: SUM 213, 20 Sep 54

GALKINA, V.S.

USSR/Microbiology - General Microbiology. F-1

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19343

Author : Grishin, S.I., Kalinina, E.F., Galkina, V.S.

Inst : -

Title : Proof of the Assimilation by one Bacterial Species of Decomposition Products of Another Species, Using Labeled Atoms (P^{32})

Orig Pub : Vopr. kraevoy patol. AN UzSSR, 1956, No 8, 66-75

Abstract : Cultures which served for preparing the extracts labeled with P^{32}, were developed on a medium with $Na_2HP^{32}O_4$. The extract of washed cells was prepared by treating it with toluene and shaking, and also by alternately freezing and thawing and subsequent filtration through a Seiss filter. The extract was spread either on the surface of a deficient (?) agar or used as a liquid nutrient medium. It was established that Bacterium coli, strain 499, assimilates decomposition products of extracted cells of Salmonella

Card 1/2

KALININA, Ye.F.; GALKINA, V.S.; ABIDOV, A.Z.; NESMEYANOVA, S.I.

Effect of Co^{60} gamma irradiation on the vaccinia virus and accompanying microflora. Med. zhur. Uzb. no.2:45-46 F '62. (MIRA 15:4)

1. Iz Tashkentskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok (direktor - A.B.Inogamov).
(VACCINIA) (COBALT--ISOTOPES)

BUZOV, B.A., kand. tekhn. nauk, dotsent; GALKINA, V.V., inzh.

Porosity of cold weather clothing. Nauch. trudy MTILP no.24: 128-132 '62. (MIRA 16:7)

1. Kafedra tekhnologii shveynogo proizvodstva Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Clothing, Cold weather)
(Textile fabrics—Testing)

USSR / Human and Animal Morphology - Digestive Tract. S

Abs Jour : Ref. Zhur. - Biol., No. 22, 1958, No. 101418

Author : Talyshinskiy, G., Galkina, Ye.
Inst : -
Title : The Relations of the Cystic, Hepatic, and Common Bile Ducts and the Connections of the Latter With the Pancreatic Duct.

Orig Pub : Azerb. tibb. ah., 1957, No. 6, 23-29.

Abstract : In 50 cadavers of patients aged 20-70 years not suffering with diseases of the bile ducts, methods of perfusion of the ducts and of the splanchnic artery revealed that the common bile duct and the pancreatic duct enter the descending portion of the duodenum both conjointly and separately through a series of orifices. In the hepato-duodenal ligament the hepatic artery (HA) forms

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USSR / Human and Animal Morphology - Digestive Tract. S

Abs Jour : Ref. Zhur. - Biol., No. 22, 1958, No. 101418

an angle of 45 to 60 degrees with the bile duct. With high fusion of the hepatic duct with the cystic duct, the right HA passes under the common bile duct, while with low fusion, the right HA passes under the hepatic duct. The HA only rarely comes off the superior mesenteric artery.

Card 2/2

GALKINA, E. A.

"Bogs of the Tunguda Region of the Karelian A.S.S.R." (Tipy Bolot Tungudskogo Raiona Avtonomnoi Karelskoi SSR)

Proceedings of the Botanical Institute of the Academy of Sciences of the USSR, Ser. III, FASC. 3, 1936, pp. 307 through 338 (Full translation available).

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21497 GALKINA, Ye. A.

Primeneniye aerosъyemki pri izuchenii volotnkh massivov.
Trudy Vtorogo Vsesoyuz. geogr. sъyezda. T. P.M., 1948, s. 443 - 49.

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

ГАЛКИНА, Ев.А.

ANDREYEV, V.N.; GALKINA, Ye.A.; IGOSHINA, K.N.; LAVRENKO, Ye.M.; RODIN, L.Ye., SAKHOKIA, M.Y.; SMIRNOVA-TYAN-SHANSKAYA, A.M.; SOCHAVA, V.B.; SHIFFERS, Ye.V.; PEVZNER, R.S., tekhnicheskiy redaktor

[Vegetation map of European U.S.S.R. on a scale of 1:2,500,000; explanatory text] Karta rastitel'nosti Evropeiskoi chasti SSSR, m. 1:2,500,000. Poiasnitel'nyi tekst. Sost. V.N.Andreev i dr. Pod red. E.M.Lavrenko i V.B.Sochavy. Moskva, 1950. 288 p. (MLRA 10:7)

1. Akademiya nauk SSSR. Botanicheskiy institut.
(Phytogeography)

GALKINA, Ye.A.

Ways of utilizing air photography in the study of marsh lands.
Bot.zhur. 38 no.6:893-901 N-D '53. (MLRA 7:1)

1. Karelo-Finnskiy filial Akademii nauk SSSR, Petrozavodsk.
(Swamps) (Photography, Aerial)

GALKINA, Ye.A.

Swamp landscapes in forest zones. Geog.sbor. no.7:75-84 '55.
(Swamps) (Photography, Aerial) (MIRA 9:1)

GALKINA, Ye.A.

Aerial photogrammetry in compiling interdepartmental geobotanical landscape maps of swamps. Trudy Lab.aeromet. 7: 284-292 '59. (MIRA 13:1)

1. Botanicheskiy institut im. V.L.Komarova AN SSSR.
(Aerial photogrammetry) (Swamps--Maps)

GALKINA, Ye.A.

Bog lands of Karelia and principles underlying their classification. Trudy Kar. fil. AN SSSR no.15:3-48 '59. (MIRA 12:10)
(Karelia--Peat bogs)

GALKINA, Ye.A.

Effect of natural characteristics of extensive swampy areas on the construction and use of logging roads. Trudy Inst. lesa 49:39-44 '59. (MIRA 13:2)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR.
(Forest roads)

GALKINA, Yu.A.

Methods of using aerial photographs in mapping and establishing the types of bogs. Uch. zap. Petrozav. gos. un. 12 no.2:5-24 '64.
(MIRA 18:7)

GALKINA, Ye.A.

Geomorphological classification of bogs. Uch. zap. Petrozav. gos. un. 12 no.2:106-113 '64. (MIRA 18:7)

SAMOYLOVICH, G.G., prof.; BELYAYEV, N.I., inzh.; KUDRITSKIY, D.M., dots.; GLAGOLEV, A.V., inzh.; NEFEDOV, P.M., inzh.; GALKINA, Ye.A., st. nauchn. sotr.; PLINK, L.I., inzh.; DONSKOY, I.P., prof., retsenzent; SAVEL'YEV, V.V., kand. tekhn. nauk, dots., retsenzent; ALYSHEV, I.F., kand. tekhn. nauk, dots., retsenzent; LOBANOV, A.N., prof., doktor tekhn. nauk, retsenzent; DOROKHOV, B.A., inzh., red.

[Use of aerial photographic surveying in forest engineering] Primenenie aerofotos"emki v lesoinzhenernom dele. Moskva, Lesnaia promyshlennost', 1965. 354 p. (MIRA 18:10)

1. Kafedra sukhoputnogo transporta lesa Lesotekhnicheskoy akademii im. S.M.Kirova (for Alyshev). 2. Zamestitel' glavnogo inzhenera Gosudarstvennogo instituta po proyektirovaniyu lesnogo transporta (for Dorokhov).

GALKINA, Ye.I.; ZAVGORODNIY, S.F.

Use of sodium tripolyphosphate for determining the calcium and magnesium content in river and mineral waters. Lab.delo 7 no.11:36-38 N '61. (MIRA 14:10)

1. Kafedra neorganicheskoy i analiticheskoy khimii Rostovskogo-na-Donu meditsinskogo instituta.
(SODIUM TRIPHOSPHATES) (WATER--ANALYSIS)

GALKINA, Ye.I.; ZAVGORODNIY, S.F.

Determination of calcium and magnesium in the blood serum using sodium tripolyphosphate. Vop. med. khim. 9 no.2:207-209 Mr-Ap '63. (MIRA 17:8)

1. Kafedra neorganicheskoy i analiticheskoy khimii Rostovskogo-na-Donu meditsinskogo instituta.

LOGVIN, Grigoriy Nikonovich; GALKINA, Ye.N., red.; SIDOROVA, A.A., tekhn.red.

Kiev. Moskva, Gos.izd-vo "Iskusstvo," 1960. 277 p. (MIRA 14:6)

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PAVLIN, A.V.; KAVKAZOV, Yu.L.; GALKINA, Ye.N.

System for evaluating shortcomings in standards for leather footwear. Standartizatsiia 29 no. 11:58-59 N '65 (MIRA 19:1)

GALKINA, Z.

Analysis of enterprise operations in our branch. Den. i kred. 21 no.12:53-56 D '63. (MIRA 17:1)

1. Upravlyayushchiy Novomoskovskim otdeleniyem Tul'skoy oblastnoy kontory Gosbanka.

IL'INA, V.N.; POLETAYEV, A.S.; USHAKOV, G.K.; KHOKHLOV, L.K.; GALKINA, Z.I.; SALYAYEV, V.N.; STOLYARCHUK, A.A.

Clinical aspects and psychopathology of Q fever. Zhur. nevr. i psikh 59 no.3:295-303 '59. (MIRA 12:4)

1. Kafedry psikhiatrii (zav. - dots. G.K. Ushakov), infektsionnykh bolezney (zav. - prof. A.I. Reznikov), farmakologii (ispolnyayushchiy obyazannosti zaveduyushchego - kand. med. nauk V.N. Salyayev) Yaroslavskogo meditsinskogo instituta i Gorodskaya klinicheskaya infektsionnaya bol'nitsa (glavnyy vrach A.S. Poletayev).

(Q FEVER, compl. ment.-disord. (Rus))
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GALKINA, Z.I.

Organization of the reference machinery for a reference and information collection. NTI no.2:14-18 '63.
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1. Nachal'nik Volgogradskoy karantinnoy inspektsii (for Galkina). 2. Uchebnoye khozyaystvo Leningradskogo sel'skokhozyaystvennogo instituta. obshchestvennyy inspektor Vserossiyskogo obchestva okhrany prirody (Pushkin, Leningradskoy oblasti) (for Shevshik.
(Plant Protection of

YERMILOV, P.I.; GALKINA, Z.V.; KISELEVA, T.A.; INDEYKIN, Ye.A.

Physiocochemical basis for the intensification of iron oxide dispersion in ball mills. Lakokras. mat. i ikh prim. no.5: 57-62 '63. (MIRA 16:11)

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SOVREMENNYY RUSSKIY YAZYK; LEKSIKOLOGIYA, FONETIKA, MORFOLOGIYA (MODERN RUSSIAN LANGUAGE, BY) YE. M. GALKINA-FEDORUK, K. V. GORSHKOVA I N. M. SHANSKIY. MOSKVA, UCHPEDGIZ, 1957. 407 p. TABLES. BIBLIOGRAPHY: p. 400-401.

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