NAUMOV, G.K., kandidat ekonomicheskikh nauk (Khar'kov); SILAYEV, N.I., kandidat ekonomicheskikh nauk (Khar'kov); TUCHKEVICH, T.M., kandidat ekonomicheskikh nauk (Khar'kov); YELISEYEVA, T.V., inzhener (Khar'kov); KRIMNUS, G.Kh., inzhener (Khar'kov).

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(Bibliography--Railroad engineering)

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Necessary textbooks for the teaching of economics to personnel. Zhel. dor. transp. 40 no.6:91-94 Je '58. (MIRA 11:6)
(Railroads--Finance)

KRIMNUS, G.Kh., kand. ekon. nauk; NAUMOV, G.K., kand. ekon. nauk; SILAYEV, N.I., kand. ekon. nauk (Khar'kov)

"Rolling stock economics" by V.I. Dmitriev. Reviewed by G.Kh. Krimnus, G.K. Naumov, N.I. Silaev. Zhel. dor. transp. 41 no.10: 94-96 O '59. (MIRA 13:2)
(Railroads--Rolling stock)
(Dmitriev, V.I.)

MINKIN, I.B. [deceased]; SILAYEV, N.I.; KRIMNUS, G.Kh.; NAUMOV, G.K.; GENESIN, A.M.; GRINENKO, Ya.F.; POPOV, A.V., inzh., red.; KHITROV, P.A., tekhn.red.

[Costs of transportation on industrial railroads] Voprosy sebestoimosti perevozok na promyshlennom zheleznodorozhnom transporte. Moskva, Gos.transp.zhel-dor.izd-vo, 1960. 175 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut zheleznodorozhnogo transporta. Trudy, no.185). (MIRA 13:11)
(Railroads, Industrial--Cost of operation)

ORLOV, V.N., prof; SILAYEV, N.I., kand.ekon.nauk; KRIMNUS, G.Kh., kand.ekon. nauk; MAUMOV, G.K., kand.ekon.nauk; TUCHKEVICH, T.M., kand.ekon.nauk; KARASIK, V.Ya., kand.tekhn.nauk; GORDON, Ye.G., starshiy prepodavatel' (Khar'kov).

"Transportation economics" by T.S.Khachaturov. Reviewed by V.N.Orlov and others. Zhel.dor.transp. 42 no.10:91-95 O '60. (MIRA 13:10)
(Railroads--Freight) (Transportation)
(Khachaturov, T.S.)

KEVIN, D.F., inzh. (g.Khar'kov); STEFANOV, N.Ya., kand.[illegible]
KHI[illegible], G.Kh., kand.ekonom.nauk (g.Khar'kov).

Study of the traffic flow is the basis for an improvement in the planning of passenger transportation. Zhel.dor.transp. 43 no.4:44-47 Ap '61. (MIRA 14:3)

1. Nachal'nik passazhirskoy sluzhby Yuzhnoy dorogi (for Kevin).
(Railroads--Passenger traffic)

KON'KOV, P.S., , kand. tekhn.nauk, dots.; DONTSOV, A.Ya., inzh.;
YURCHENKO, I.F., inzh.; ANGELEYKO, V.I., retsenzent;
BABENKO, V.I., retsenzent; ZAPREVSKIY, G.S., retsenzent;
KRIMNUS, G.Kh., retsenzent; MANIN, I.I., retsenzent;
NAUMOV, G.K., retsenzent; TOLSTOSHEY, A.N., retsenzent;
TUCHKEVICH, T.M., retsenzent; FEDORETS, V.M., retsenzent;
FEL'DMAN, M.F., retsenzent; FRANKOV, N.Ya., retsenzent;
USENKO, L.A., tekhn. red.

[Establishing work norms in railroad transportation] Tekhnicheskoe normirovanie truda na zheleznodorozhnom transporte. Moskva, Transzheldorizdat, 1963. 366 p. (MIRA 16:9)
(Railroads—Production standards)

IVLIYEV, I.V.; PETRUKHNOVSKIY, I.V. retsenzent ; KRIMNUS, G.Kh. retsenzent ; NAUMOV, G.I. retsenzent ; ORLOV, V.N. retsenzent ; TUCHKEVICH, T.M. retsenzent ; USHAKOV,P.S. retsenzent ; CHERNUKHA, N.T. retsenzent ; EDEL'SHTEYN, P.G. retsenzent ; KRISHTAL', L.I., red.; VINNICHENKO, N.G., kand. ekon. nauk, red.; USENKO, L.A., tekhn.red.

[Finance and the financing of railroad transportation]Finansy i finansirovanie zheleznodorozhnogo transporta. Moskva, Transzheldorizdat, 1963. 439 p. (MIRA 17:2)

NAUMOV, Georgiy Karpovich, kand. ekon. nauk; KONAREV, Nikolay Semenovich, inzh.; SILAYEV, Nikolay Ivanovich, kand. ekon. nauk dots.; FERAPONTOV, Gennadiy Viktorovich, inzh.; CHERNUKHA, Nikolay Timofeyevich, inzh.; GOLITSIN, Boris Vasil'yevich, inzh.; KRIMNUS, Grigoriy Kharitonovich, kand. ekon. nauk, dots.; KOLTUNOVA, M.P., red.

[Economics of railroad freight transportation] Ekonomika gruzovogo khoziaistva zheleznykh dorog. Moskva, Transport, 1965. 238 p. (MIRA 18:12)

The investigation of the specific heat C_v of 95% ethanol in the critical range. Kh. I. Amirkhanov and A. M. Rumyantsev (Dagestan Branch Acad. Sci. U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 110 [illegible]. crit. temp. of 95% EtOH was investigated [illegible] designed high-temp. a diathermic calorimeter [illegible]. The relation of C_v and the temp. in the crit. range depends on the sp. vol., and the Van der Waals equation [illegible] neither quantitatively nor qualitatively the C_v changes near the crit. point, which Tisdsch and Tanneberger, (*C.A.* 48, 7001*d*) attribute to the formation of addnl. degrees of freedom and mol. assocns. near the crit. point.

W. M. Sternberg

[redacted], G. E.

Cellulose; Polymers and Polymerization

Oxyethylallyl ethers of cellulose and their copolymerization with sulfur dioxide. Zhur. prikl. khm. 25 no. 1 (1952)

Monthly List of Russian Accessions, Library of Congress, August, 1952 UNCLASSIFIED

BA KRIMOVSKIY, D. N.

Amylolytic enzymes in *Aspergillus*. D. N. Krimovskiy and V. I. Rodzevich (*Mikrobiologiia*, 1950, 19, 60–64). Investigation of amylolytic activity of 21 species of *Aspergillus* showed that there is great variation in regard to rate of disappearance of starch, rate of formation and disappearance of dextrins, and rate of formation of maltose, and even in different strains of one species variations occur. Breakdown of starch occurs in two ways (1) by amylase action as seen typically in *Aspergillus oryzæ*, and (2) by phosphorylase action as seen typically in *Aspergillus niger*.

D. H. Stowe

KRIMSHTEYN, A.E., podpolkovnik meditsinskoy sluzhby

Changes in the electrocardiogram of flying personnel under the influence of flying stress. Voen.-med. zhur. no.5:83-84 My '60.
(MIRA 13:7)

(ELECTROCARDIOGRAPHY) (AVIATION MEDICINE)

22031

27.6330

S/177/61/000/001/007/010
D211/D306

AUTHOR: Krimshteyn, A.E., Guards Lieutenant Colonel of Medical Services

TITLE: A method of studying the professional proficiency and individual attributes of pilots based on their ability to determine altitude

PERIODICAL: Voyenno-meditsinskiy zhurnal, no. 1, 1961, 73 - 74

TEXT: The proposed test is carried out as follows: The pilot undergoing the examination sits in a specially constructed ground cabin fitted with screens: Onto one of these screens films of an instrument panel are projected. Onto the other, silhouettes of flying "enemy planes". The projections are controlled by the examiner. The pilot must determine the precise altitude of his "plane" as given by data on the "projected" instrument panel as well as by the direction of the "enemy plane" in relation to his own, and communi-

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cates orally the results of his observations to the examiner. The duration of each series of projections varies from 0.5 to 6 secs. and is automatically recorded with a precision of up to 0.05 secs. The oral answers are recorded on a tape. Before the test, the pilot's eyesight may be examined either by means of the AM adaptometer or by the Sivtsev-Golovin reduction tables [Abstractor's note: No description given]. The test begins with the longest projection duration which is gradually reduced until the shortest time is reached, in which the pilot is able to give correct answers. This time defines the pilot's perception and attentive abilities and the same time is used in projecting further problems. The whole test lasts 22-26 minutes, during which the pilot has to solve 18-22 problems [Abstractor's note: These not presented]. A scheme of the electrical installation is given diagrammatically. The main components consist of 3 filmoscopes and a contact electric clock MCh-62 switched on from the examiner's control panel. Instead of a second hand, it has a 75 mm long brush made from copper sheeting and a

A method of studying ...

plexiglass cover, on which contacts are fixed, their respective lengths corresponding to different projection durations. When the brush reaches a chosen pair of contacts the filmoscope, lamps are switched on, the lamps being fed by a direct current of 26 volts through a resistance formed by 12W 6V lamps. The contact time and the duration of the oral answers are automatically recorded. There is 1 diagram.

SUBMITTED: July, 1960

Card 3/3

KREYSHTY, G.F., SHAFER, G.V., SHAFER, YU.G., VERNOV, S.N., KUZ'MIN, A.I.,

"Cosmic Ray Outbursts on November 12-15, 1960,"

report presented at the Intl. Conference on Cosmic Rays and Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

2697. KRIMSKIY L. D. * The connective tissue skeleton of the heart in compensatory hypertrophy and decompensation (Russian text) ARKH. PATOL. (Moscow) 1955, 4 (72-79) Illus. 5

Investigations were carried out on 74 hearts of which 22 were from cases of hypertension; 10-16 blocks were taken from each one and stained by different methods. Hypertrophy of the myocardium was followed by an increased growth of the cross and longitudinal intramural fibres, and actually their hyperplasia is proportional to the hypertrophy of the muscle fibres, therefore also different in places. In cardiac decompensation a diffuse collagenization of these connective-tissue fibres occurs in the functionally handicapped part of the myocardium. Two kinds of myofibrosis of the hypertrophic heart were defined: one diffuse, and the other focal. The hyperplasia of the fibres is not related either to congestion nor to proliferation of mesenchymal cells. The argyrophil stroma of the heart is fairly resistant to myomalacia and fatty degeneration of the myocardium.

Brandt - Berlin

1177. KRIMSKI L. D. USSR Acad. of Med. Sciences, Inst. of Surg., Moscow.
*Adenoma of the suprarenal cortex with a cortico-genital syndrome (Russian text) PROBL. ENDOKRINOL. GORMONOTERAPII 1956, 2/2 (117-120) Illus. 3

The case of a girl aged 3 yr. 10 months, noteworthy on account of considerable changes observed in the endocrine organs, especially in the anterior pituitary, thyroid and ovaries. Increased number of eosinophil cells in the anterior pituitary is considered directly responsible for the extraordinary growth. The child had the

appearance of a child of 10 - 12. Changes in the endocrine glands depended on the hormonal activity of the right suprarenal tumour, which produced up to 158.8 mg. of 17-ketosteroids in 24 hr. Precocious sexual and body development, as well as the appearance of heterosexual characteristics are the result of a complex disturbance of the co-ordinated activity of the anterior pituitary, thyroid, suprarenal and ovary. 10 references. Krimski - Moscow (VII, 3, 5, 18)

KRIMSKY, L.D.

EXCERPTA MEDICA Sec.2 Vol.10/3 Physiology March 57

1082. KRIMSKI L.D. USSR Acad. of Med. Scis, Food Inst., Moscow. *Morphological changes in various organs due to alimentary pro-

105 CONT

tein insufficiency and their reversibility (Russian text)
VOPROSY PITANYA 1956,1 (28-32)

109 male white rats were used in the experiment, and the following organs were examined: liver, kidneys, heart, spleen, lungs, pituitary, suprarenal glands, thyroid, testicles, prostate, seminal vesicles, pancreas, parathyroids, skin, diaphragm, and the striped muscles of leg, neck and abdomen. When the protein content of the diet was reduced to 3.7%(of caloric value) significant changes were observed in ductless glands, parenchymatous organs, and various tissues. A large quantity of fat and glycogen was deposited in liver cells. In the majority of animals kidneys have shown dystrophic changes, mainly in the epithelium of the convoluted tubules, the structure of which became disorganized; also granular and hyaline casts were evident. In all cases sudden decrease of malpighian bodies was found in the spleen, and also reduction in the number of cells in the lymphatic sinuses was noted. The number of animals showing fatty and brown degeneration of heart muscle increased with the duration of the experiment. Atrophy of hair follicles in the skin caused sometimes partial baldness. Keratinization of surface layers of the epithelium was arrested, and the subcutaneous fat tissue became atrophied. The connective tissue layer of the skin became thin and its elasticity was lost. Some rats show extravasation of blood in the connective tissue forming the matrix of the skin fat tissue, now atrophied. The bones of the animals on low protein diet do not grow. The anterior lobe of the pituitary does not produce eosinophil cells. The colloid disappears from the fissure dividing the 2 lobes of the gland. The arrest of growth is caused by the suppression of the eosinophil cells in the anterior lobe of the pituitary, which cells produce the growth hormone. In testicles spermatogenesis is arrested. Prostate and seminal vesicles do not produce the fluid. The suprarenal cortex does not show typical differentiation into layers. References 7. (II,5)

2442. KRIMSKY L. D. and MAJSSUK A. I. All-Union Inst. of Exp. Endocrinol. and Inst. of Surg., Acad. of Med. Sci., Moscow. "Contribution to the pathological anatomy and the pathogenesis of Simmonds' disease (Russian text) PROBL. ENDOKR. 1956, 2/4 (82-87) Illus. 7

A case of Simmonds' disease is described, caused by invasion of the hypophysis by Cysticercus with consequent formation of a parasitic cyst, leading to atrophy and sclerosis of the pars anterior. It was thus proved that Simmonds' disease can be caused by cysticercosis affecting the pars anterior of the hypophysis. (III, 5, 17)

EXCERPTA MEDICA Sec.13 Vol.1/1 Cardiovascular Jan 57

5. KRIMSKI L. D. Lab. of I. V. Davidovski, Soviet Acad. of Med., Moscow *Problems of microscopical anatomy of the connective tissue skeleton of a normal heart (Russian text)* Arkh. Anat. Gistol. Embriol. 1956, 33/2 (53—59) Illus. 7

Reticular and collagen fibres are widely distributed throughout all the layers and chambers of the heart. Their combined volume is not less than that of muscular elements proper. Two varieties of reticular fibres are found in the myocardium, transverse (perimysial) and longitudinal (interfascicular). The transverse argyrophil fibres provide a continuous sheath for each muscle fibre and have a slightly wavy appearance. The longitudinal fibres are thicker, tortuous and show anastomoses with transverse fibres. Between longitudinal fibres one finds isolated collagen bundles. A network of argyrophil fibres is found in the walls of all arteries. In the walls of the veins this network is less dense. In the adventitia of large and medium size arteries collagen fibres predominate. In the endocardium one finds long, coiled collagen and argyrophil fibres. In the epicardium collagen fibres predominate. Insignificant variations in the structure of the connective tissue stroma are found in the papillary muscles and in the atria, particularly the right one. Perimysial argyrophil fibres were not found to penetrate into the substance of muscle fibres. The changes in the heart stroma during the growth of the individual are insignificant. Bibliography of 15 titles.

Fediai – Leningrad (I, 18)

1A

277 UCRL-Trans-243

RATIO OF POSITIVE AND NEGATIVE HIGH-ENERGY π-MESONS, PRODUCED BY SPLIT NUCLEI. A. V. Krimian. Translated by Theodore Kowalski from Doklady Akad. Nauk S.S.S.R. 103, 229-32(1955). 6p.

Data are reported on the ratio of positive and negative high-energy mesons produced by the neutral components of cosmic radiation in lead. Results indicate that approximately identical numbers of π^- and π^+ mesons are produced in stars generated by neutrons in lead. The ratio appears to be independent of the moments of the secondary particles for moments greater than 125 Mev/c. (M.P.G.)

62

KRINAL, V., red.; NÕU, M., tekhn. red.

[Tartu; guide and handbook] Tartu; juht ja teatmik. Tartu, 1963. 180 p. (MIRA 17:1)

1. Tartu. Kultuuriosakond.

AID P - 1350

Subject : USSR/Mining

Card 1/1 Pub. 78 - 13/30

Author : Krinari, A. I.

Title : Experimental determination of porosity of rocks from electric core sampling data.

Periodical : Neft. khoz., v.32, #12, 44-49, D 1954

Abstract : The method determination of rock porosity is outlined on the basis of the experimental work of V. N. Dakhnov and V. N. Kobranova in Promyslovaya geofizika (Gostoptekhizdat, 1952). Porosity in electric core sampling data is fixed by changes in the electric field along the well. Coefficient of layer capacity, coefficient of concentration, etc. are computed on the basis of potential curves. 8 tables, 1 chart and 6 Russian references. (1948-52)

Institution: None

Submitted : No date

SOV/124-57-7-8111

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 101 (USSR)

AUTHOR: Krinari, A. I.

TITLE: On Methods for the Determination of the Gas Permeability of Rocks (K metodam opredeleniya gazopronitsayemosti gornykh porod)

PERIODICAL: Izv. Kazansk. fil. AN SSSR, ser. geol. n., 1955, Nr 3, pp 131-137

ABSTRACT: The gas-permeability coefficient, as usual, is determined from Darcy's law for a one-dimensional flow of an ideal gas. The paper is supplemented with three charts prepared for the purpose of speeding up the calculations. These charts, however are not universally applicable. The coefficient K_T introduced by the author depends on the viscosity of the gas, but the viscosity for which the chart for this coefficient is calculated is not indicated in the text of the paper. Furthermore, the viscosity of the gas depends not only on the temperature, but also on the pressure. The basic idea of the arrangement of chart No. 2 and the selection of the dimensions are incomprehensible. The author identifies the concepts of the permeability coefficient and the seepage coefficient as one, whereas usually these are determined distinctly. There is a number of typographic errors in the paper.

Card 1/1

G. L. Govorova

New data on the structure and collecting characteristics of rocks in terrigenous formation of the Devonian in southeast Tatar. A. I. Kripnel. *Trudy Soveshchaniya po Razrab. Neftegazonosnosti Uralo-Volzh. Oblasti, Trudy Soveshchaniya 10-15 Maya 1954*, 1956 [illegible] ... structure and [illegible] phys. properties of terrigenous Devonian [illegible] presented. [illegible] B. Wekian

2

KHINARI, A.I.

Granulometric analysis of Devonian terrigenous deposits in the Tatar A.S.S.R. Izv. Kazan. fil. AN SSSR. Ser. geol. nauk no.5: 159-177 '56. (MLRA 10:4)
(Tatar A.S.S.R.--Geology, Stratigraphic)

KRINARI, A.I.

Some improvement in the method for determining open porosity of rocks. Izv. Kazan. fil. AN SSSR. Ser. geol. nauk no.5:185-188 '56. (MLRA 10:4)

(Porosity)

KRINARI, A.I.; SALIKHOV, A.G.

Density and magnetic susceptibility of Paleozoic strata in the eastern part of the Tatar A.S.S.R. and their influence on gravitational and magnetic anomalies. Izv.AN SSSR.Ser.geofiz. no.8:940-947 Ag '56. (MLRA 10:1)

1. Kazanskiy filial Akademii nauk SSSR, Geologicheskiy institut.
(Tatar A.S.S.R.—Geology, Stratigraphic) (Rocks—Magnetic properties)

KRINARI, A.I.; BUSYGIN, Ye.P.; SOLGANIK, G.Ya., redaktor; NEDEL'KO, G.N., tekhnicheskiy redaktor

[The Greater Volga in Tatarstan] Bol'shaia Volga v Tatarii. Kazan', Tatknigoizdat, 1957. 35 p. (MLRA 10:7)
(Volga River)

KRINARI, A.I.

Structure and collecting properties of terrigenous Devonian rocks in the southeastern Tatar A.S.S.R. Izv. Kazan. fil. AN SSSR. Ser. geol. nauk no.4:122-132 '57. (MIRA 11:2)
(Tatar A.S.S.R.--Geology, Stratigraphic)
(Tatar A.S.S.R.--Petroleum geology)

AUTHORS: Krinari, A. I. and Zubkov, V. L. 49-6-15/21

TITLE: On the characteristic of elastic properties of paleozoic rocks of Tataria. (K kharakteristike uprugikh svoystv gornykh porod paleozoya Tatarii).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.6, pp. 813-817 (U.S.S.R.)

ABSTRACT: Extensive seismic prospecting is being carried out in Tataria. Reliable geological interpretation of the results cannot be obtained without knowing the elastic properties of the rocks of which the investigated region consists. Therefore, the Geological Institute of the Kazan Branch of the Ac.Sc. (Geologicheskiy Institut Kazanskogo Filiala AN SSSR), in cooperation with the Kazan team of the Tatneftegeofizika Trust, carried out laboratory investigations of the elasticity of rock specimens taken from drilling cores of wells and from natural formations in Eastern Tataria. About 600 specimens encompassing the entire paleozoic section and all the lithological components of its rocks have been investigated. Ozerskaya, M.L. (1) and Tarkhov, A.G. (2) established that the rebounce coefficient and the Young modulus are closely inter-related

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On the characteristic of elastic properties of paleozoic rocks of Tataria. (Cont.)

with the speed of propagation of elastic (ultrasonic) waves. Their data are summarised in the graph, Fig.1, p.813, and these show that the rebounce coefficient can be considered as a reference value for determining the elasticity of rocks; according to Ozerskaya the coefficient of rebounce differentiates the individual sections of wells from the point of view of their elastic properties considerably better than seismic logging. Owing to non-availability of special apparatus, the authors of this paper could not make similar comparisons in their measurements and they restricted themselves to the characterisation of the elastic properties of the rocks which compose the paleozoic section of Tataria for the purpose of detecting reflecting and refracting surfaces in these rocks. The results are given in graphs, whereby Fig.2 gives a diagrammatic section of the paleozoic formations and the change of the average value of the equivalent elasticity values with depth and Fig.3 shows the changes of the elastic properties with increasing depth of the rock formations and Tables 1 and 2 contain numerical data. The effected investigations permit obtaining the relative characteristic of the elastic rock properties, to follow the

On the characteristic of elastic properties of paleozoic rocks of Tataria. (Cont.)

changes along the section of the region and to reveal certain general relations between the equivalent elasticity, the composition, the growth formation and certain features of the sediments. The obtained data will help to interpret correctly the results of seismic measurements.
There are 3 figures and 2 tables and 2 Slavic references.

SUBMITTED: November 9, 1956.

ASSOCIATION: Kazan Branch of the Ac.Sc. Geological Institute. (Kazanskiy Filial Akademii Nauk SSSR Geologicheskiy Institut).

AVAILABLE: Library of Congress
Card 3/3

KRINARI, A.I.

Relation between specific resistance and collecting properties of water-bearing terrigenous rocks. Geol. nefti 2 no.7:52-56 Jl '58. (MIRA 11:8)

1. Kazanskiy filial AN SSSR.
(Petroleum geology)

3(5)

SOV/9-59-7-5/15

AUTHOR: Krinari, A.I.

TITLE: On the Unified Classification System of Gas and Oil Collectors

PERIODICAL: Geologiya nefti i gaza, 1959, Nr 7, pp 20 - 25 (USSR)

ABSTRACT: Estimation of gas and oil bearing properties of new fields and the selection of an efficient system of exploitation depends in a high degree on the collecting properties of the rocks. As there does not yet exist a general system of estimating oil bearing properties and of classifying collecting properties, the author points to the necessity of developing a unified classification system of properties of collecting rocks. For this purpose it is necessary to define their basic properties, such as permeability and porosity. The former can be physical, effective, phase and relative, and the latter can be general or full, open, effective and dynamic. Actually, several classification systems have been suggested, which, however, were unsatisfactory, including classifications proposed by P.P. Avdusin, and M.A. Tsvetkova, A.A. Khanin and F.A. Trebin. The author points out that a unified classification system should be based on the following parameters of collectors: character and nature of the porous space, physical permeability and open

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On the Unified Classification System of Gas and Oil Collectors

porosity. The suggested classification system is shown in Figure 1. Gas and oil collectors are divided into three types, i.e. porous, cavernous and fissile collectors. Some scientist, as e.g. M.K. Kalinko [Ref 3], distinguish pores and caverns only by the dimensions. Each type is subdivided into classes, according to the factor of physical permeability and into sub-classes, according to the factor of open porosity. It is also suggested to set up a universal marking system for collectors, based on the proposed classification. The organization of a special meeting of experts on this subject is requested.
There are: 1 diagram, 1 graph and 8 Soviet references.

KRINARI, A.I.; SALIKHOV, A.G.

Materials on the study of the density of Paleozoic rocks in the Tatar A.S.S.R. and nature of gravity anomalies. Izv. Kazan. fil. AN SSSR. Ser. geol. nauk no. 7:423-432 '59. (MIRA 14:4)
(Tatar A.S.S.R.—Rocks) (Gravity)

KRINARI, A.I.; SALIKHOV, A.G.

Magnetic susceptibility of Paleozoic rocks in the Tatar A.S.S.R. and new data on the nature of magnetic anomalies. Izv. Kazan. fil. AN SSSR. Ser. geol. nauk no. 7:433-439 '59. (MIRA 14:4)
(Tatar A.S.S.R.—Magnetism, Terrestrial)

C

KRINARI, A.I.

Some results achieved in the search of efficient methods for determining reservoir parameters and oil and gas saturation of rocks by electric well measurements in the Tater A.S.S.R. Trudy VNII no.29: 91-102 '60. (MIRA 13:10)

1. Kazanskiy filial AN SSSR.
(Tatar A.S.S.R.--Oil well logging, Electric)

KRINARI, A.I.

Some results of the study of the physical properties of rocks. Izv.Kazan.fil. AN SSSR. Ser.geol.nauk no.9:61-72 '60.
(MIRA 15:12)

(Tatar A.S.S.R.—Rocks)

KRINARI, A.I.; PETROV, Ye.I.

Some results of the improvement of the apparatus used in studying the physical properties of rocks. Izv.Kazak.fil. AN SSSR. Ser. geol.nauk no.9:73-82 '60. (MIRA 15:12)
(Rocks—Testing)

ZNAMENSKIY, Ye.B.; KONUSOVA, V.V.; KRINBERG, I.A.; POPOLITOV, E.I.; FLEROVA, K.V.; TSYKHANSKIY, V.D.

Distribution of titanium, niobium, and tantalum in granitoids containing sphenes. Geokhimiia no.9:800-805 '62. (MIRA 15:11)

1. Institute of Geochemistry, Siberian Branch of the Academy of U.S.S.R., Irkutsk.
(Geochemistry)

S/075/62/017/004/005/006
I017/I242

AUTHORS: Krinberg, I.A., and Tsykhanskiy, V.D.

TITLE: Spectrochemical determination of small amounts of niobium and tantalum in rocks

PERIODICAL: Zhurnal analiticheskoy khimii, v.17, no.4, 1962, 466-470

TEXT: A method is proposed for the determination of niobium and tantalum in granite. The rock is at first enriched chemically by treatment with phenylarsonic acid to precipitate selectively niobium, tantalum and titanium. The enriched products are then analysed spectroscopically. Tantalum is determined by

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S/075/62/017/004/005/006
I017/I242

Spectrochemical determination...

the spectral line Ta 2714.674 and niobium by Nb 2950,878. The determination of niobium and tantalum by this method is possible only if the content of these elements in the rock exceeds 5×10^{-5}%. The error is 7% for niobium and 9% for tantalum. There are 2 figures and 5 tables.

ASSOCIATION: Institut geokhimii Sibirskogo otdeleniya AN SSSR, Irkutsk (Institute of Geochemistry, Siberian Section AS USSR, Irkutsk)

SUBMITTED: June 12, 1961

Card 2/2

KRINBERG, I.A.

Possibility for a mathematical description of a positive column of free arcing. Izv. SO AN SSSR no.3 Ser. khim. nauk no.1:106-114 '63. (MIRA 16:8)

1. Institut geokhimii Sibirskogo otdeleniya AN SSSR, Irkutsk.
(Electric arc)

ACCESSION NR: AP4015150 S/0289/63/000/003/0125/0127

AUTHORS: Tsy*khanskiy, V. D.; Krinberg, I. A.

TITLE: Spectrochemical determination of small amounts of zirconium, niobium, tantalum and hafnium in rock from one batch.

SOURCE: AN SSSR. Sib. otd. Izv., no. 11. Ser. khim. nauk, no. 3, 1963, 125-127

TOPIC TAGS: zirconium, niobium, tantalum, hafnium, analysis, spectral analysis, spectrochemical determination, phenylarsonic acid precipitation, rare earth concentration

ABSTRACT: The Zr, Nb, Ta, and Hf content of ore must be concentrated prior to spectral analysis. The following method gives a 100-300 fold enrichment: the ore is dissolved and the aforementioned metal values and Ti are precipitated with phenylarsonic acid. The precipitate is calcined at 900-1000C. This product containing TiO_2, ZrO_2, Nb_2O_5, Ta_2O_5 and HfO_2 is mixed with powdered carbon (1:4), and consumed in the anode of an electric arc (25 amp). The following lines are used for analytic purposes: Nb--2950.878, Ta--2714.674, Zr--2722.610 and Hf--2866.373 Å. If the concentration of Zr and Nb

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ACCESSION NR: AP4015150

exceeds that of Ta and Hf, less sensitive lines are suggested: Nb--2716.624 and Zr--2699.605 Å. Concentrations in the range of 0.007-0.3% of all four of these elements can be determined by this method within 10-15%. Orig. art. has: 1 Table.

ASSOCIATION: Institut geokhimii, Sibirskogo otdeleniya AN SSSR, Irkutsk (Geochemical Institute, Sibirsk Branch AN SSSR, Irkutsk)

SUBMITTED: 27Jul62 DATE ACQ: 13Mar64 ENCL: 00

SUB CODE: CH NR REF SOV: 008 OTHER: 000

Card 2/2

ACCESSION NR: AP4035702 S/0057/64/034/005/0888/0895

AUTHOR: Krinberg, I.A.

TITLE: Contribution to the theory of the column of an electric arc burning under conditions of natural convection

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.5, 1964, 888-895

TOPIC TAGS: electric arc, electric discharge, arc column, arc temperature distribution, arc current distribution

ABSTRACT: A theory of an electri arc column is developed on the assumption that the relevant properties of the plasma are known functions of the temperature. The basic equations for such a theory are the heat transfer equation, including terms describing heat conduction, convection, radiation, and production of heat by the current, and the hydrodynamic equation of motion. Radiation is neglected; the validity of this approximation is discussed briefly. The arc column is divided into three zones, and convection is neglected in the two inner zones and production of heat (plasma conductivity) is neglected in the two outer zones. The treatment of the second of these three zones presents no problems, since the only process involved is heat con-

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ACCESSION NR: AP4035702

ductivity. For the discussion of the inner zone, the temperature is replaced as independent variable by the indefinite integral with respect to temperature of the heat conductivity. The electric conductivity of the plasma, assumed to be a known function of temperature, becomes a function of the new independent variable; this function is assumed to be linear above a certain temperature, below which it is assumed to vanish. With the aid of these approximations the heat transfer equation for the inner zone is solved. In the outer zone the only processes are heat conductivity and convection. For this zone a semi-empirical formula is employed which was originally developed to describe the turbulent convection of heat from a material cylinder (I.A.Krinberg,Izv.SO AN SSSR,Ser.khim.No.3,106,1963). By fitting the solutions thus obtained to each other at the boundaries of the regions, a system of equations is obtained from which the temperature can be calculated at any point in the arc column. A relation is derived between a reduced radius and a reduced resistivity which is valid for all arc columns for which the present theory is adequate. This is compared with experimental data of H.Maecker (Zs.Phys.136,119,1953) for a carbon arc in air, and with data of V.N.Kolesnikov and N.N.Sobolev (ZhTF 32,1090, 1962) on arc discharges in hydrogen argon mixtures, and reasonable agreement is found. Further comparison of the present theory with experimental data is promised

Card 2/3

ACCESSION NR: AP4035702

for the future. "The author is grateful to V.N.Kolesnikov and Ya.D.Raykhbaum for consultations during the course of this work." Orig.art.has: 35 formulas and 2 figures.

ASSOCIATION: Institut geokhimii SO AN SSSR Laboratoriya spektral'nogo analiza, Irkutsk (Geochemical Institute, SO AN SSSR, Spectrum Analysis Laboratory)

SUBMITTED: 05Jun63 DATE ACQ: 20May64 ENCL: 00

SUB CODE: EM,EE NR REF SOV: 005 OTHER: 019

Card 3/3

L 46166-65 EWT(1)/EPF(n)-2/EWG(m)/EPA(w)-2 Po-4/Pz-6 /Pab-10/Pi-4 IJP(c)
AT/WW

ACCESSION NR: AP5009546 S/0207/65/000/001/0076/0082

AUTHOR: Krinberg, I. A. (Irkutsk)

TITLE: Electric conductivity of air in the presence of impurities 55 21 6

SOURCE: Prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1965, 76-82

TOPIC TAGS: air, electric conductivity, plasma, impurity effect

ABSTRACT: A method is proposed for calculating the electric conductivity of air in the temperature interval 1,000--10,000K in the presence of extraneous impurities in the air. The air is regarded in this case as a plasma constituting a mixture of air with an extraneous element. The velocity distribution of the electrons is assumed Maxwellian, and local thermal equilibrium is assumed to exist in the plasma. The electric conductivity is then obtained from an approximate solution of the Boltzmann kinetic equation. Data are obtained on the cross sections for electric conductivity of the main components of the air. If the impurity concentration does not exceed 1%, the composition of the plasma can be calculated approximately by a simple procedure. The air with the impurities is regarded as a mixture of molecules N_2, O_2, and NO, of atoms N, O, X (the impurity element),

Card 1/2

L 46166-65

ACCESSION NR: AP5009546 C)

ions NO^+, N^+, O^+, and X^+, and electrons. The conductivity cross sections are calculated for the individual components. The conductivity at atmospheric pressure is obtained, and the correctness of the calculations is checked against experimental data on the parameters of arc discharges in air. Orig. art. has: 3 figures, 21 formulas, and 2 tables.

ASSOCIATION: None

SUBMITTED: 20Jun64 ENCL: 00 SUB CODE: ME, EM

NR REF SOV: 012 OTHER: 012

Card 2/2

L 54813-65

ACCESSION NR: AP5013381 UR/0207/65/000/002/0105/0110

27
B

AUTHOR: Krinberg, I. A. (Irkutsk)

TITLE: Application of the theory of thermal similarity to the study of an electric arc

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1965, 105-110

TOPIC TAGS: electric arc, plasma temperature measurement, similarity theory, thermal analysis, natural convection

ABSTRACT: The suitability of the theory of thermal similarity for studying electric arcs cooled by natural convection was analyzed. Previous investigations in this field gave inconclusive or negative results due to the nature of the assumptions taken. This paper shows that, with a more exact approach, this method is valid. The arc is divided into an inner and outer zone separated by an isothermal surface of temperature T^*. There is no convective heat loss in the inner zone as the gas flows parallel to the arc axis, and the energy balance equation involves only the conduction and radiation losses and the energy of the electric field. In solving this equation, two boundary conditions are used: $dT/dr = 0$ at $r = 0$

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L 54813-65

ACCESSION NR: AP5013381

(r is the distance from the arc axis), and $\chi \cdot dT/dr = -q$ at $T = T^*$, where χ is the thermal conductivity. Factor q involves the acceleration of gravity (g), the coefficient of volume expansion (β), the specific heat capacity at constant pressure (c_p), the density (ρ), the dynamic viscosity of the gas (η), and the heat transfer coefficient (α) found from the thermal similarity theory, between the Nusselt number (N), the Grashof number (G), and the Prandtl number (P). The previous assumption that $T^* = 3000K$ for various currents (I) results in constant values for χ, q, dT/dr, and IE/R (R is the radius of the isothermal surface), which was experimentally shown to be true only for a limited value of I. By studying data for carbon arcs in air with I of 10 amp and 200 amp, the general relationship $T^* = \frac{1}{2}T_0$ (T_0 is the axis temperature) was indicated. This relationship was verified for various conditions of the arc plasma by an indirect method (with the radiation losses considered negligible). While the principle of the thermal similarity theory can be adopted in full from the technique used in studying turbulent convection from a solid surface, the constants cannot, but must be separately determined. Using information from other sources the justification of this approach was confirmed. The relationship of T_0 to I in various media was studied, and it was found that for argon, $T_0 = 8000 + 1800 \log I$ (T_0 in degrees K, I in amp). For nitrogen the relationship is more complex, with a sharp

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L 54813-65

ACCESSION NR: AP5013381

increase in the range 10 000-11 000K. It is concluded that the use of the thermal similarity theory in calculating the heat transfer from arcs with natural convection gives sufficiently accurate values for various arc plasma conditions and for currents 1 - 300 amp. Orig. art. has: 4 figures and 13 formulas.

ASSOCIATION: none

SUBMITTED: 20Jun64 ENCL: 00 SUB CODE: EE, TD

NO REF SOV: 014 OTHER: 022

Card 3/3

L 64457-65 EWT(1)

ACCESSION NR: AP5020571 UR/0294/65/003/004/0654/0657
536.23:546.17+546.21+546.293+546.11

AUTHOR: Krinberg, I. A.

TITLE: Calculation of the heat conductivity of certain gases at temperatures of 1000-20,000 K and atmospheric pressures

SOURCE: Teplofizika vysokikh temperatur, v. 3, no. 4, 1965, 654-657

TOPIC TAGS: heat conductivity, calculation, argon, nitrogen, oxygen, hydrogen

ABSTRACT: The heat conductivities λ of A, N, O and H were calculated, taking into account the heat transfer effects of dissociation λ_D and ionization λ_I reactions: $\lambda = \lambda_0 + \lambda_D + \lambda_I$ (λ_0 = heat transfer by contact and diffusion.

$$\lambda_D = \frac{pD_{am}}{RT}\frac{\Delta H_D^2}{RT^2}\frac{x_a x_m}{(1+x_m)^2}, \quad (2)$$

$$\lambda_I = \frac{pD_{ia}}{RT}\frac{\Delta H_I^2}{RT^2}\frac{x_a x_i}{(x_a+x_i)^2}, \quad (3)$$

where ΔH_D and ΔH_I are the heat effects of dissociation and ionization reactions; x_m, x_a and x_i are molar portions of molecules, atoms and ions; D_{am} and D_{ia}

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L 64457-65

ACCESSION NR: AP5020571

are coefficients of binary diffusion for atoms and molecules, and for ions and atoms; p and T are pressure and temperature and R is the universal gas constant. Values for λ_o for the 1000-8000 K range (< 0.1% ionization) were taken from literature. For the 15,000-20,000 K range (> 50% ionization), the Spittser formula was used, and values for λ_o were extrapolated for the intermediate 8000-15,000 K range. The data is summarized in enclosure 01. Results were compared with data of numerous authors and the reasons for differences were discussed. Orig. art. has: 1 table, 1 figure and 3 equations

ASSOCIATION: Institut geokhimii Sibirskogo otdeleniya AN SSSR (Geochemical Institute, Siberian Department, AN SSSR)

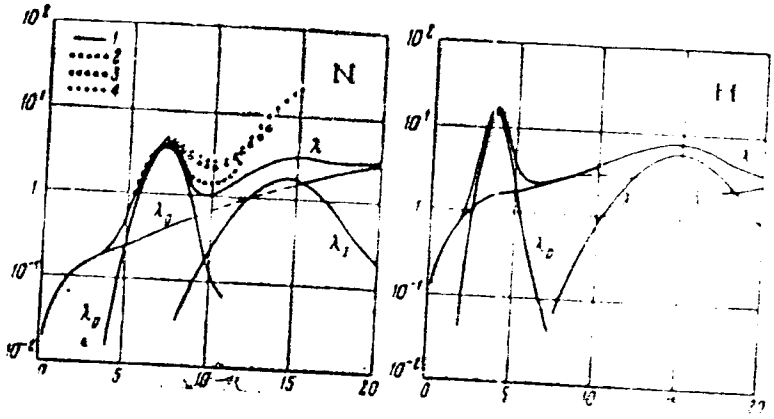
SUBMITTED: 15Oct64 ENCL: 02 SUB CODE: TD

NR REF SOV: 011 OTHER: 018

Card 2/4

L 64457-65
ACCESSION NR: AP5020571

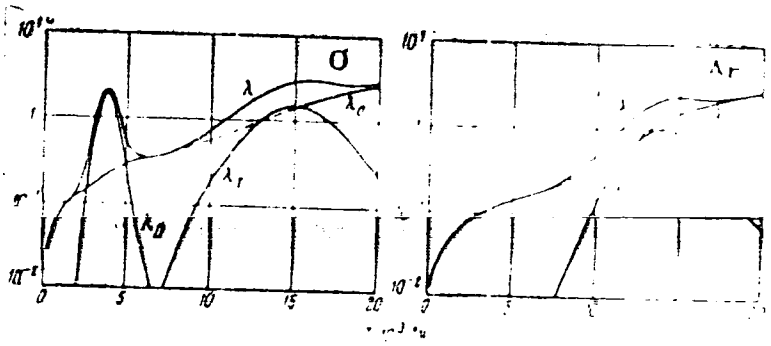
ENCLOSURE: 01



Card 3/4

ACCESSION NR: AP5020571

ENCLOSURE: 02



Heat conductivity of nitrogen, hydrogen, oxygen and argon at atmospheric pressure. 1 - calculated; 2-4 - experimental at 10-30, 100 and 200 amps.

Card 4/4

L 11905-66 EWT(l)/ETC(F)/EPF(n)-2/EWG(m)/ETC(m)/EWA(l) IJP(c) WW/AT
ACC NR: AP6001906 UR/0294/65/003/006/0838/0844

AUTHOR: Krinberg, I.A.

ORG: Institute of Geochemistry, Siberian Branch of the AN SSSR (Institut geokhimii, Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Effect of an ionization reaction on the heat conductivity of a plasma

SOURCE: Teplofizika vysokikh temperatur, v.3, no.6, 1965, 838-844

TOPIC TAGS: heat conductivity, high temperature plasma, chemical reaction

ABSTRACT: In the temperature interval in which an ionization reaction can take place, the composition of the plasma depends strongly on temperature; the presence of a temperature gradient in the plasma leads to the appearance of concentration gradients of the components of the plasma. Under the effect of these gradients, neutral atoms diffuse into the hot zone of the plasma where, breaking up into ions and electrons, they absorb energy; at the same time, the ions and electrons diffuse into colder zones where, re-combining they evolve energy. The heat flux which results from these processes promotes an increase in the heat

Card 1/2

UDC: 533.932.15

L 11905-66

ACC NR: AP6001906

21,44,55

6

conductivity of the plasma and can be formally taken into account by adding a supplementary term, lambda$_R$, to the usual heat conductivity coefficient. After an extended mathematical development, the article arrives at a formula for calculating lambda$_R$ for several particular cases of practical interest. Orig. art. has: 27 formulas and 1 figure.

SUB CODE: 20/ SUBM DATE: 15Oct64/ ORIG REF: 008/ OTH REF: 011

Card 2/2

L 13437-66 EWT(1)/EWA(m)-2

ACC NR: AP6002457 SOURCE CODE: UR/0057/65/035/012/2251/2252

AUTHOR: Krinberg, I.A.

ORG: none

TITLE: Letter of V.S.Kolomoytsev entitled "On the theory of the electric arc column"

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 12, 1965, 2251-2252

TOPIC TAGS: electric arc, approximation, mathematic method,

ABSTRACT: The author replies to the criticism by V.S.Kolomoytsev (ZhTF, 35, 2249, 1965/Abstract AP6002456) of his earlier paper (I.A.Krinberg, ZhTF, 34, 888, 1964) on the theory of the column of an electric arc burning in conditions of natural convection. The approximation to which Kolomoytsev objects was not employed in the paper under discussion. Kolomoytsev's misconception arose from his assumption that a certain quantity denoted the earlier paper by K was treated as a constant, whereas actually, as was specifically mentioned in the paper, it was regarded as a function of another parameter. The method given by Kolomoytsev for avoiding the supposed approximation is essentially that employed in the paper itself; one of Kolomoytsev's equations follows immediately from an equation in the paper under discussion. Kolomoytsev's extension of the theory to the case of an arc burning in a cooling blast

Card 1/2

L 13437-66
ACC NR: AP6002457

is not valid. It is not possible to extend the theory in the absence of knowledge concerning the relations among certain papameters.

SUB CODE: 20 SUBM DATE: 10Aug65 ORIG. REF: 003 OTH REF: 000

Card 2/2

ACC NR: AP7004631 (A) SOURCE CODE: UR/0288/66/000/003/0022/0026

AUTHOR: Krinberg, I. A.

ORG: Institute of Geochemistry, Siberian Branch, AN SSSR, Irkutsk (Institut Geokhimii Sibirskogo otdeleniya AN SSSR)

TITLE: Calculating the parameters of an arc column in the atmospheres of hydrogen and air

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 22-26

TOPIC TAGS: plasma arc, plasma research, differential equation solution, heat transfer

ABSTRACT: The basic parameters of a plasma arc column in hydrogen, in air, and in air containing 0.1% Na were calculated for currents ranging from 1 to 300 amp and a pressure of 1 atm. The calculations, which were made on the assumption that a state of local thermal equilibrium exists in the plasma arc and that the energy transfer can be neglected, were reduced to the solution of a differential equation describing the energy balance in the inner cylindrically symmetrical zone of the plasma arc in which the convective heat transfer is negligible. Electric conductivity, thermal conductivity, and the function of heat transfer were used as the initial data in calculating the plasma arc parameters, in particular the E(I) and T(I) curves. The shapes of

Card 1/2 UDC: 537.523+537.525.5

ACC NR: AP7004631

these curves were found to be in satisfactory agreement with those obtained experimentally. Orig. art. has: 3 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 012

Card 2/2

KRINCHEV, Khristo

Methods for measuring the dynamics of the labor productivity. Trud tseni 3 no.8:64-72 '61.

(Labor productivity)

KRINCHEV, Khristo

Material conditions of the workers in Bulgaria. Trud tseni 4 no.7:28-36 '62.

KRINCHEV, Iv.

Theory and practice in strengthening torrent beds.
Selskostop nauka 3 no. 2:75-82 '64.

KRINCHEV, Khr.; DABIZHEV, L.

Causes which influence negatively the reality of labor norms.
Trud tseni 3 no.10:58-63 '61.

KRINCHIK, G. S.

USSR/Physics - Ferromagnetic Materials Nov 51
Domains

"Concerning Eddy Microcurrents Arising in the Displacement of the Boundaries Between Domains," N. S. Akulov, Act Mem, Acad Sci Belorussian SSR, G. S. Krinchik

"Dok Ak Nauk SSSR" Vol LXXXI, No 2, pp 171-175

By analysis of the displacement of the boundaries between domains, derives formulas for skin effect at low and high frequencies. These formulas explain the drop in magnetic permeability at high,

197102

USSR/Physics - Ferromagnetic Materials Nov 51
(Contd)

frequencies, and also establish the existence of anomalous eddy currents caused by special orientations of the shifting domain boundaries. Submitted 25 Jul 51.

197102

AKULOV, N. S., KAINCHIK, G. S.

Electromagnetism

Properties of ferromagnetic materials in a dynamic system. Izv. AN SSSR. Ser. fiz. 16 No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

KRINCHIK, G.S.

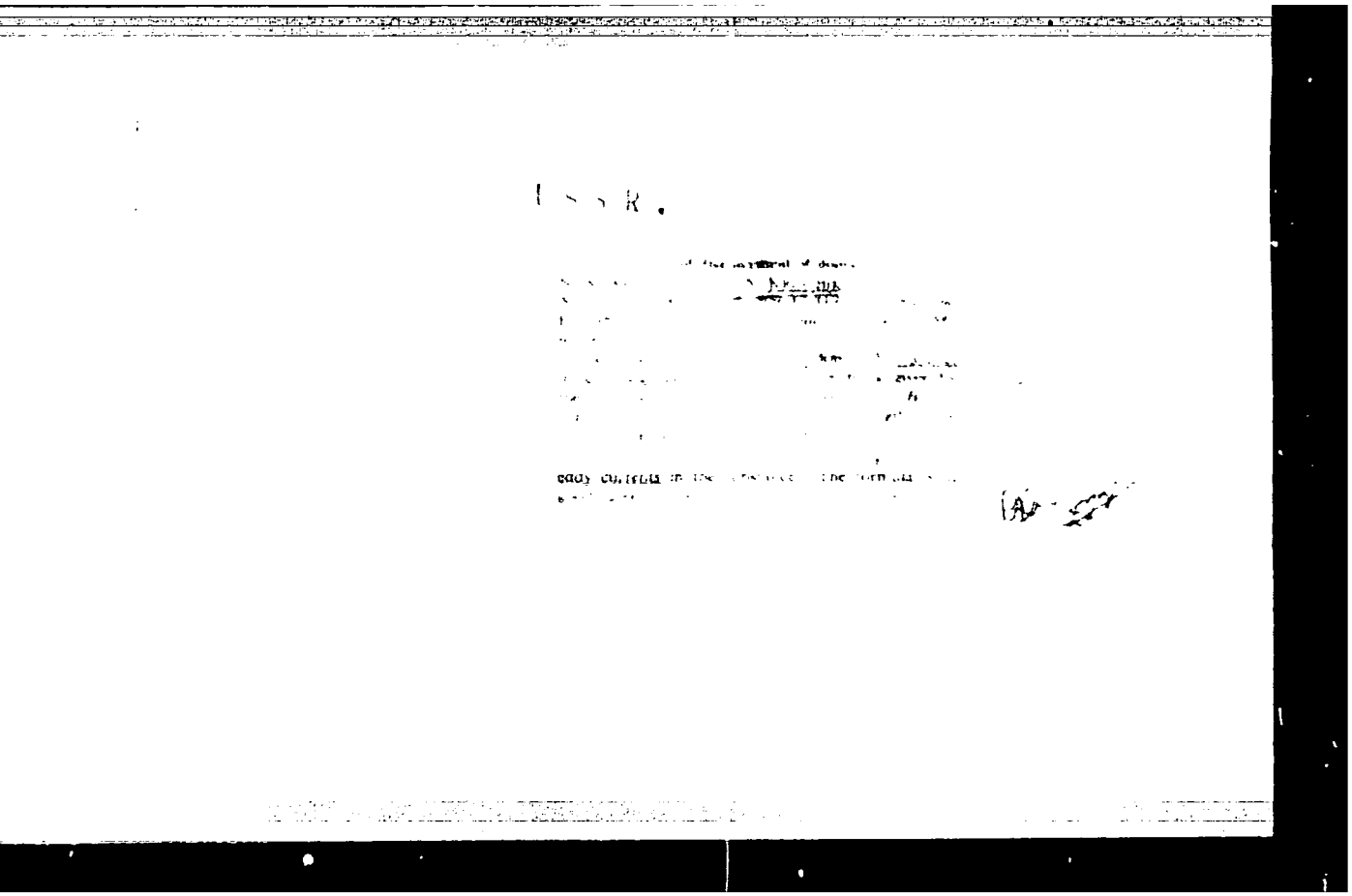
YEREMIN, N.I.; KRINCHIK, G.S.

Effect of elastic stresses on the longitudinal and transverse inversion. Uch. zap. Mosk. un. no.162:131-137 '52.
(Ferromagnetism) (MLRA 8:7)

KRINCHIK, G. S. Engr. and AKULOV, N. S. Prof.

"The Theory of Ferromagnetic Phenomena in Dynamic Systems," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Translation U-7895, 1 Mar 56



USSR/Radiophysics - Superhigh Frequencies, I-11

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35435

Author: Krinchik, G. S.

Institution: Moscow State University, USSR

Title: Magneto-Optic Phenomena in Ferromagnetics

Original Periodical: Vestn. Mosk. un-ta., 1955, No 12, 61-67

Abstract: The propagation of a plane electromagnetic wave in a gyrotropic medium was analyzed. With this, an investigation was made of the Faraday effect and of the magneto-optical Kerr effect -- the reflection from a magnetized ferromagnetic. Expanding the diagonal components of the permeability tensor $\mu_{xx} = \mu_{yy}$ into a series in powers of the gyrotropic component $\mu_{yx} : \mu_{xx} = \mu_{zz} \left[1 - \left(\frac{\mu_{yx}}{\mu_{xx}}\right)^2 b\right]$,

the author separates in the case of the weakly-magnetic medium the "isotropic part" (usual Fresnel equations for nonmagnetized

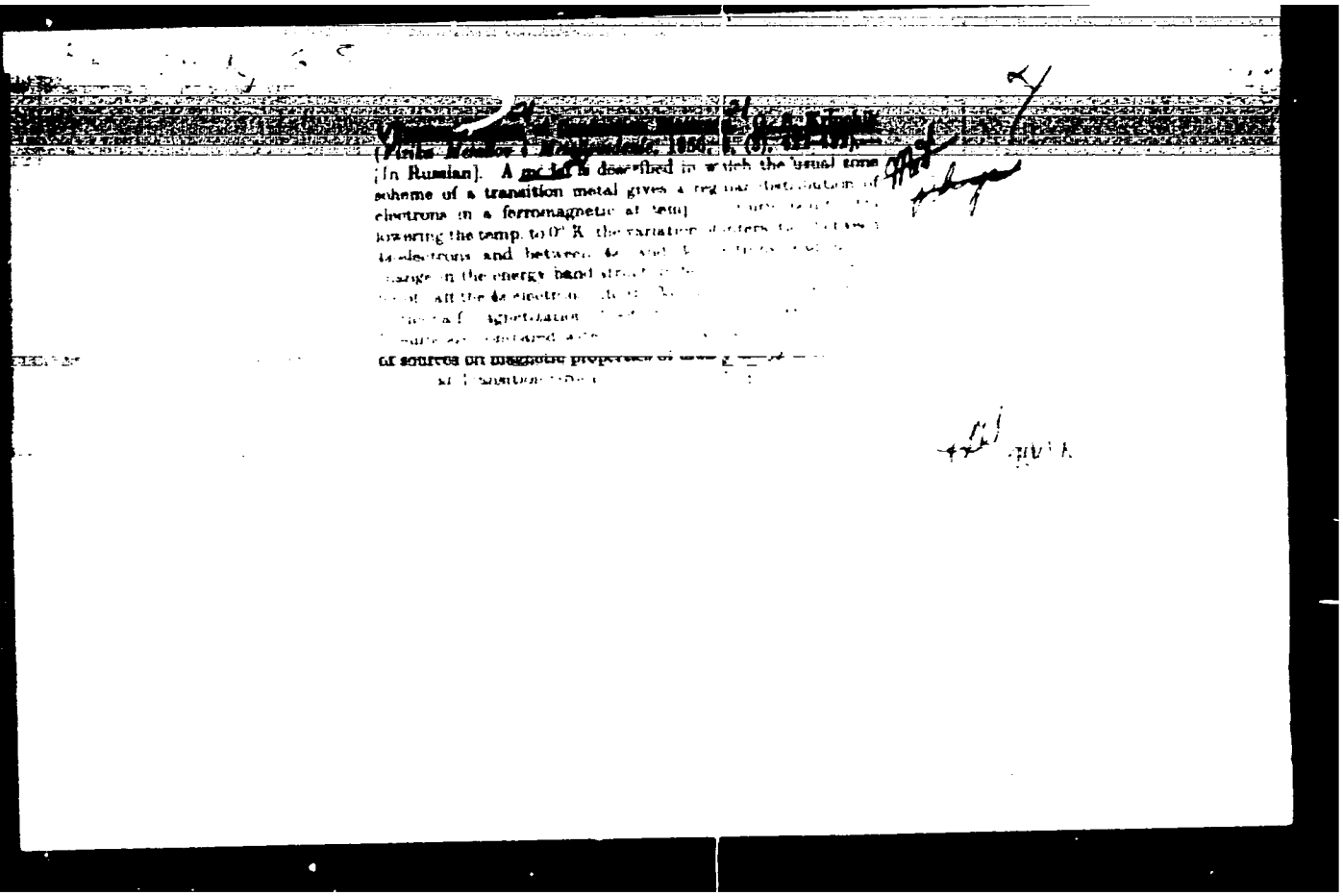
Card 1/2

USSR/Radiophysics - Superhigh Frequencies, I-11

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35435

Abstract: substances) in the Kerr effect equations from the components due to the gyrotropic effects of reflection from the magnetized medium. In the optical region, the rotation of the plane of polarization in the Kerr effect hardly amounts to several minutes, and in the centimeter region it may be on the order of tens of degrees.

Card 2/2



(In Russian). A model is described in which the usual zone scheme of a transition metal gives a regular distribution of electrons in a ferromagnetic at temp. lowering the temp. to 0° K. the variation

of sources on magnetic properties of

KRINCHIK, G.S.

Method for the experimental investigation of magnetic domain boundaries in ferromagnetic materials. Fiz.met. i metalloved. 3 no.3:549-550 '56. (MLRA 10:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Ferromagnetism)

51-4-21/25

AUTHORS: Krinchik, G.S. and Ryabchenko, V.I.

TITLE: A resonance amplifier of very low frequency (used together with a photomultiplier) FEOU-15 to measure signals of 10^{-8} - 10^{-9} V. (Rezonansnyy usilitel' infranizkoy chastoty s FEOU-15 dlya izmereniya signalov 10^{-8} - 10^{-9} V.)

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.2, No.4, pp.537-538 (U.S.S.R.)

ABSTRACT: This note describes an amplifying assembly which works at a resonance frequency of 1 c/s and whose intrinsic noise is below 10^{-9}V. This assembly is intended for use with an infra-red spectrograph or other instruments in which a photo-electric multiplier FEOU-15 is used. A light signal from a thermo-element magnified by the multiplier FEOU-15, is mod-ulated by causing periodic oscillations of a mirror galvano-meter G_3. The light reflected by G_3 falls through a rectan-gular slit on to a photo-resistance FS-K1. Displacement of the light-darkness boundary on FS-K1 causes changes in re-sistance of FS-K1 and of current via a load resistance. By using FS-K1 a high-resistance input into a voltage amplifier (one pentode, three double triodes, one diode) is achieved. This amplifier is of the high-stability, narrow-band reson-ance type with a double T-bridge tuned to 1 c/s. This low frequency was chosen because of inertia of the thermo-element,

Card 1/2

A resonance amplifier of very low frequency (used together with a photomultiplier) FEOU-15 to measure signals of 10^{-8} - 10^{-9} V. (Cont.)

the multiplier FEOU-15 and the photo-resistance FS-K1. The apparatus was used to measure the effect of direction of magnetization of a ferro-electric (iron), with respect to the plane of incidence of light, on the reflection and absorption of light by the specimen. Reliable results were obtained in contrast to a "static" method (no modulation) when noise effects very seriously disturbed the measurements. Still better results might possibly be obtained by mechanical interruption of the light-beam. There are 2 figures (including a circuit diagram of the amplifying assembly) and 3 references, all Slavic.

ASSOCIATION: Physics Department, Moscow State University. (Moskovskiy Gosudarstvennyy Universitet, Fizicheskiy Fakultet).

SUBMITTED: October 22, 1956.
AVAILABLE: Library of Congress

Krinchik, G.S

AUTHOR: Krinchik, G.S.

TITLE: Electron structure of nickel and its alloys. (Elektronnaya struktura nikelya i yego splavov.)

PERIODICAL: "Fizika Metallov i Metallovedenie" (Physics of Metals and Metallurgy), 1957, Vol.IV, No.1 (10), pp. 36-40; (U.S.S.R.)

ABSTRACT: In an earlier paper (same journal, 1956, Vol.III, No.3), the author considered a model in which the s-electrons contribute considerably to the spontaneous magnetisation of ferromagnetic metals. For the purpose of simplification it was assumed in all cases that at the absolute zero the s-bands contain only electrons with right spins, i.e. that the s-electrons are magnetised to saturation. It is, however, evident that in the case of large concentrations of s- and d-electrons, c , when the small d-band is nearly filled up, this condition is not valid. Above certain values of c there are plenty of vacancies in the d-band for the distribution of all the electrons with left spins from the s-band. Also, due to the small value of the total spin of the d-electrons, the energy contribution of the positive s-d exchange interaction may be inadequate for bringing about saturation magnetisation of the s-electrons. Therefore, the s-band will only be partly magnetised and an increase in the value of c will have the same effect as an increase in the temperature, namely, the magnetisation will gradually drop to zero. Fig. 1a shows the distribution of the

electrons for nickel at elevated temperatures; Fig. 1b gives the distribution of nickel at absolute zero; Fig. 1B shows the distribution for an alloy with an average electron concentration $c \approx 10.6$. The distribution of the electrons for the magnetic state of the nickel has been empirically so chosen as to obtain the best agreement with experimental data for nickel and its alloys. Increasing the accuracy of the model of ferromagnetism of s-electrons for nickel carried out in this paper permits the explanation of experimental data for the saturation magnetisation, paramagnetic susceptibility and the factor of spectroscopic splitting of various nickel base alloys. It is shown that it is possible to verify experimentally the basic assumptions of the theory by measuring the spectroscopic splitting factor and the paramagnetic susceptibility in a Ni_3Mn alloy. C. Roberts (Phys. Rev. 1955, 100, 1667) calculated the concentrations of d-electrons of some transition element metals; according to his calculations the number of vacancies in the 3 d-zone for nickel equalled 0.47, which is in agreement with values calculated by the author of this paper. 3 figures, 11 references, 3 of which are Russian.

Moscow State University imeni M.V. Lomonosov. Recd.Jan.30,1956.

KRINCHIK, G.S.

Magnetooptic resonance in ferromagnetics. Vest. Mosk. un. Ser. mat., mekh., astron. fiz., khim. 12 no. 6:87-98 '57. (MIRA 11:10)

1. Kafedra magnetizma Moskovskogo gosudarstvennogo universiteta.
(Magnetooptics)
(Magnets)

48-6-17/23

SUBJECT: USSR/Physics of Magnetic Phenomena

AUTHOR: Krinchik, G.S.

TITLE: Ferromagnetism of Conduction Electrons (Ferromagnetizm elektronov provodimosti)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21 #6, pp 869-878 (USSR)

ABSTRACT: The author advances a new model of ferromagnetism of s-electrons within the fframe of the zonal theory. The model proposed has the following characteristic peculiarities:

1. A peculiar mechanism for magnetization of s-electrons, which leads to the transition of s-electrons into the d-band, to a dependence of the number of s-electrons and holes in the d-band on temperature, etc, and
2. The negative sign of the exchange integral for d-electrons.

A number of experimental facts are considered and found to be in agreement with this model.

Moreover, some new experiments are suggested in order to check the correctness of the basic foundations of the model proposed:

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48-6-17/23

TITLE: Ferromagnetism of Conduction Electrons (Ferromagnetizm elektronov provodimosti)

1. The measurement of the g-value for cobalt and nickel by the ferromagnetic resonance method below the Curie-point and by the paramagnetic resonance method above the Curie-point,
2. The measurement of the g-value for Ni-Mn alloys with an increase of Mn content
3. The investigation of the temperature-dependence of the paramagnetic susceptibility for Ni_3Mn,
4. The preparation of a gamma-modification of iron-cobalt alloys with an iron content of 30-80%, which would be stable at low temperatures.

Card 2/2 The article contains 1 figure, 2 graphs and 2 tables. There are 25 references, 4 of which are Russian.

ASSOCIATION: Physical Department of the Moskva State University imeni Lomonosov

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

KRINCHIK, G.S.

48-9-18/26

AUTHOR: Krinchik, G. S.

TITLE: Note on the Magneto-Optical Properties of Ferromagnetic Substances in the Range of Infrared Light (Magnitoopticheskiye svoystva ferromagnetikov v infrakrasnoy oblasti).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 9, pp. 1293-1296 (USSR)

ABSTRACT: In this paper the investigation of the influence of magnetization of the reflexion of light at a ferromagnetical substance was conducted in a wider range of wavelengths than were employed up to now. An advance into the infrared range is connected with a number of experimental difficulties. These were diminished by the fact that only such effects were studied which are connected with a magnetization of the samples parallel to the surface and secondly by the circumstance that the effect of the influence of the magnetization on the absorption of natural light by the ferromagnetic substance was determined. It was succeeded to conduct the investigation in the wide range of wave lengths from 0,75 + 9 μ. It was established that the meridional Kerr effect inverses its sign in the same range of wave-lengths at an incident angle of 45°. The effect of the influence of magnetization on the

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absorption of light was determined, which quite probably results from the equatorial Kerr effect. The assumption that this effect does not equal zero in the case of natural light has been proved by the examination. The equatorial Kerr effect is proportional to the magneto-optical parameter, just as are the polar and meridional Kerr effect and the Faraday effect. The dispersion curve for the magneto-optical effect has the shape of an indistinct resonance curve. Its character is obviously determined by the frequency dependence of the magneto-optical parameter. It can be assumed that in this case a peculiar phenomenon has been observed, which can be denoted as a magneto-optical resonance. There are 2 figures and 4 references, 3 of which are Slavic.

ASSOCIATION:
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AVAILABLE: Library of Congress

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VOLKOV, D. I., KONDORSKIY, E. I. , KRINCHIK, G. S, MIRYASOV, NA. A., PARSANOV, A. P., RODE, V. E., CHECHERNIKOV, V. I. and GOFMAN, U. (Moscow)

"Results of Studies of Certain Magnetic and Magneto-Optical Properties of Fero-Magnetics:"

I. "Saturation Magnetization of CuNi Alloys at Low Temperatures."
II "Magnetic Properties of MnB System."
III "Temperature Dependence of Paramagnetic Susceptibility of Ferrites."
IV "Magneto-Optical Resonance in Ferromagnetics." (Krinchik)

report presented at Colloquim on Magnetism, Grenable, France, 2-5 Jul 58.

Eval: B - 3,111,755 3 Sep 58.

24(3), 24(4)

AUTHORS: Krinchik, G.S. and Chetkin, M.V.

SOV/51-6-5-27/34

TITLE: On the Theory of Propagation of Electromagnetic Waves in Gyrotropic Me[illegible] (K teorii rasprostraneniya elektromagnitnykh voln v g[illegible]opnykh sredakh)

PERIODICAL: Opt. i Spektroskopiya, 1959, Vol 6, Nr 5, pp 703-705 (USSR).

ABSTRACT: Gyrotropic media are defined as those in which the permittivity and permeability tensors ε and μ have the following components

$$\varepsilon_{xx} = \varepsilon_{yy} = \varepsilon; \quad \varepsilon_{xy} = -\varepsilon_{yx} = -i\varepsilon M; \quad \varepsilon_{zz} = \varepsilon_0; \quad \varepsilon_{xz} = \varepsilon_{yz} = \varepsilon_{zx} = \varepsilon_{zy} = 0;$$

$$\mu_{xx} = \mu_{yy} = \mu; \quad \mu_{xy} = -\mu_{yx} = -i\mu M'; \quad \mu_{zz} = \mu_0; \quad \mu_{xz} = \mu_{yz} = \mu_{zx} = \mu_{zy} = 0.$$

The same substance may be both gyroelectric and gyromagnetic at v.h.f. (Refs 1, 2). The present note shows how it is possible to determine experimentally whether, at a given frequency, a medium is gyroelectric, gyromagnetic or possesses these two properties at the same time (bigyrotropic). For this purpose it is necessary to find the refractive index n^* by solving Maxwell's equations for plane waves,

$$\underline{H} = \underline{H}_0 \exp\left\{i\omega\left[t - n^*(\alpha^* x + \beta^* y + \gamma^* z)/c\right]\right\}.$$

When a plane wave is reflected from a gyrotropic medium in such a way

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On the Theory of Propagation of Electromagnetic Waves in Gyrotropic Media

that the magnetization vector along the z-axis is parallel to the reflecting plane (u, z) and perpendicular to the plane of incidence of the wave (equatorial magnetization) we have the following relationships

$$n_1^{*2} = \varepsilon\mu_0(1 - M^2), \quad n_2^{*2} = \varepsilon_0\mu(1 - M'^2). \tag{3}$$

The value of n_1^* refers to the wave whose electric vector is parallel to the plane of incidence (the p-wave) and n_1^* refers to the wave whose electric vector is perpendicular to the plane of incidence (the s-wave). The conditions of continuity of tangential components of the electric and magnetic fields on the surface of separation between the gyrotropic medium and an ambient medium, together with the condition div $\underline{B} = 0$, lead to reflection coefficients given by Eq (4a) for the p-wave and Eq (4б) for the s-wave. In Eqs (4a) and (4б) symbols R and A represent the amplitudes of the reflected and incident waves and $\alpha = \cos\varphi$, where φ is the angle of incidence. If the medium is gyroelectric the reflection

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coefficient is given by Eq 4a and if it is gyromagnetic - by Eq 4b . If the medium is bigyrotropic then Eqs 4a and 4b give the relative contributions of the gyromagnetic and gyroelectric effects. The paper is entirely theoretical. There are 3 references, 2 of which are Soviet and 1 translation from German into Russian.

SUBMITTED: December 29, 1958

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24(3), 24(4)

AUTHOR: Krinchik, G. S.

SOV/126-7-2-4/39

TITLE: Magneto-Optical Resonance in Ferromagnetics
1. The Visible Region (Magnitoopticheskiy rezonans v ferromagnetikakh 1. Vidimaya oblast')

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 181-185 (USSR)

ABSTRACT: A complete phenomenological description of magneto-optical properties of a medium may be obtained from Maxwell's equations, if it is assumed that the medium is gyrotropic, i.e. its permittivity or permeability is an antisymmetric tensor of the second rank. For example, permeability of a gyromagnetic medium has the form given by Eq (1) where $M = M_1 - iM_2$ is the complex magneto-optical constant. Experiments show that M_1 and M_2 are directly proportional to magnetization of the substance. The author has shown (Ref 1) that the equatorial magnetization of a sample (magnetization vector parallel to the plane of the sample and perpendicular to the plane of incidence of light) does not affect the component of the incident light beam polarized perpendicularly to the plane of incidence.

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The equatorial magnetization affects only the amplitude and phase of the light component polarized in the plane of incidence. The ratio of reflected and incident wave amplitudes is given by Eq (2) for the case when $\mu \sim 1$. The following symbols are used in Eq (2): $n = n - i\varkappa$ which is the complex refractive index, φ and ϕ are the angles of incidence and refraction. The effect of magnetization on the intensity of reflected light given by Eq (2) was discovered and measured in iron in the infrared region (Ref 2). The experimental procedure consists of measurement of the change of intensity of reflected light on reversal of magnetization of a sample; this change is given by:

$$\delta = (I - I_0)/I_0 ,$$

where I and I_0 are the intensities of light reflected from a sample magnetized to saturation and demagnetized respectively. The values of M_1 and M_2 are deduced from

 the experimental value of δ, using:

Magneto-Optical Resonance in Ferromagnetics 1.The Visible Region

$$\delta = 2 \sin 2\varphi \frac{M_1 A - M_2 B}{A^2 + B^2} \qquad (5)$$

where A and B are functions of n, κ and φ. The value of δ is obtained for two angles of incidence φ_1 and φ_2 and, provided the optical constants of the metal are known, the values of M_1 and M_2 are easily deduced. The author uses a compensation apparatus with photo-resistances FSK-1 to measure the value of δ. Monochromatic light from the exit slit of a spectrograph ISP-22 passes through a polyvinyl polarizer P (Fig 1) and falls on a mirror O, made from the ferromagnetic which is studied. The light beam is split by the mirror O: some of it is reflected and reaches one of the photo-resistances F and the other passes directly to the second photo-resistance F'. The incident-light intensity is adjusted until the currents (from a battery B) passing through both arms of the bridge are equal. Resistances R are chosen to satisfy the condition $R_i \ll R \ll R_g$, where

Card 3/6 R_i is the internal resistance of a galvanometer M-21/1

(G_1 in Fig 1) and R is the resistance of FSK-1 during measurements. The value of δ is then given by $\delta=i_1/i_2$, where i_1 is the deflection of the galvanometer G_1 on commutation of current in the electromagnet circuit (the sample O is placed between the poles of an electromagnet and i_2 is the current passing through a galvanometer G_2, from which the dark current of the photo-resistance F is subtracted. Errors in measurements are mainly due to variations of the intensity of emission of the light source (a projector lamp K-12). The values of δ were found by averaging 20 independent readings and the final error did not exceed $\pm 10\%$. The mirrors O were made from electrolytic nickel, electrolytic cobalt or Armco iron. Measurements were made when the current in the electromagnet winding was 0.3-0.4 A; under these conditions saturation magnetization was reached. Light of 0.4-0.7 μ wavelength was polarized in the plane of incidence. A table on p 184 gives the values of δ for two angles of incidence (45° and 70° or 80°) and the values of M_1 and M_2, calculated using Eq (5). The optical

constants were taken from the papers of Tool (Ref 3), Minor (Ref 4) and Ingersoll (Ref 5). The values of the magneto-optical constants M_1 and M_2 agreed well with the values reported by Dziewulski (Ref 6) and Foote (Ref 7), who studied the polar Kerr effect. For example, Dziewulski obtained for nickel at $\lambda = 0.44\ \mu$ the following values: $M_1 = 9 \times 10^{-3}$, $M_2 = -1.3 \times 10^{-3}$, while Foote's values for nickel at $\lambda = 0.42\ \mu$ were $M_1 = 5.9 \times 10^{-3}$, $M_2 = -0.9 \times 10^{-3}$; the corresponding values for nickel at $\lambda = 0.43\ \mu$, obtained by the author, were $M_1 = 6.6 \times 10^{-3}$ and $M_2 = -1.5 \times 10^{-3}$. The experimental technique described in the present paper may be also used to verify the effect of meridional magnetization of a sample on its reflection coefficient of circularly polarized light and the absence of this effect for linearly polarized light. This was done for $\lambda = 0.5\ \mu$. The vector of spontaneous magnetization was oriented parallel to the plane of the mirror and the plane of incidence of light. It was found that the

 intensity of reflected linearly polarized light was not