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L 08737-67

ACC NR: AP7001643

in periods of rather strong geomagnetic disturbances, leading to the formation of diffusion waves. The intensity of the hard electrons in the outer radiation belt therefore is subject to long-period variations associated with the cycles of solar activity. The authors thank B. A. Tverskoy for discussions of the work, and N. N. Rachetkina for taking part in the processing the experimental materials. Orig. art. has: 2 tables. [JPRS: 38,230]

SUB CODE: 03,20 / SUBM DATE: 04Feb66 / ORIG REF: 007 / OTH REF: 007

Card 2/2

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

L 42150-66 FSS-2/EWT(1)/FCC TT/GW

ACC NR: AP6028350 SOURCE CODE: UR/0203/66/006/004/0661/0663

AUTHOR: Vernov, S. N.; Savenko, I. A.; Tel'tsov, M. V.; Shavrin, P. I.

ORG: Moscow State University. Institute of Nuclear Physics (Moskovskiy gosudarstvennyy universitet. Institut yadernoy fiziki)

TITLE: Observations of a diffuse wave of relativistic electrons in the outer radiation belt

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 4, 1966, 661-663

TOPIC TAGS: relativistic electron, radiation belt, [redacted], geomagnetic storm, [redacted], electron flux, [redacted], geomagnetic latitude

ABSTRACT: The generation of relativistic electrons in the outer radiation belt can be attributed to the transfer of charged particles across the drift shells. The propagation of diffuse waves of relativistic electrons, first recorded by Explorer XIV, was also recorded by Kosmos 41 when it passed the outer radiation belt. At the high geomagnetic latitudes, the propagation of the diffuse wave may be distorted by changes in the pitch-angle distribution. However, in the present case, the diffuse wave exhibited characteristics peculiar to the dynamics of a diffusion wave of hard electrons. The intensity of relativistic electrons decreased somewhat at the beginning of geomagnetic perturbation. It increased at distant L shells (> 5) of the magnetosphere several days after geomagnetic perturbation. Further shift of the intensity maximum toward

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L 41150-66

ACC NR: AP6028350

the region of smaller L occurred in the absence of geomagnetic disturbances. This was followed by a decrease in intensity and a shift in the intensity maximum to its initial position. During the magnetic storm on 1 September 1964, recorded by Kosmos 41, the intensity of electron flux with energies greater than 2 Mev at L = 5 was 3.5 x $10^2/cm^2sec$. A peak of hard electrons with an intensity of $10^3/cm^2sec$ was recorded on September 3—4 at L = 6—7. This peak was shifted to smaller L shells until it reached a maximum intensity of $10^4/cm^2sec$. Variations in the protonosphere were of smaller amplitude. The diffuse wave of relativistic electrons was thus first observed in the outer radiation belt at high geomagnetic latitudes. This wave was not accompanied by low-energy protons. Orig. art. has: 2 figures. [EG]

SUB CODE: 04/ SUBM DATE: 18Feb66/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS: 5062

Card 2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V., kand. tekhn. nauk, red.; [illegible], [illegible], kand. tekhn. nauk, red.; [illegible], G.S., kand. tekhn. nauk, red.

[Transactions of the First Sverdlovsk Scientific and Technical Conference of Young Scientists] Trudy Sverdlovskoi nauchno-tekhnicheskoi konferentsii molodykh uchenykh. [illegible] p. [illegible] 1812)

1. Sverdlovskaya nauchno-tekhnicheskaya konferentsiya molodykh uchenykh, 1st, Sverdlovsk, [illegible].

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.

18(0); 5(2) PHASE I BOOK EXPLOITATION SOV/3100

Akademiya nauk SSSR. Ural'skiy filial. Institut metallurgii

Trudy, Vyp. 4 (Transactions of the Institute of Metallurgy, Ural Branch, Academy of Sciences, USSR; No. 4) Sverdlovsk, 1958. 157 p. Errata slip inserted. 1,000 copies printed.

Editorial Board: N.A. Vatolin (Resp. Ed.), Candidate of Technical Sciences; A.S. Mikulinskiy, Professor, Doctor; V.Ya. Miller, Professor; P.A. Pazdnikov, Candidate of Technical Sciences; and S.S. Lisnyak, Candidate of Technical Sciences; Ed.: M.S. Baranovskaya.

PURPOSE: This book is intended for ferrous and nonferrous metallurgists.

COVERAGE: The book presents results of investigations of theoretical problems in metallurgy and chemistry and gives information on the efficient use of raw materials in ferrous and nonferrous metallurgy and on the development of new production processes in the metallurgical and chemical industries. The articles were written by junior members and experienced specialists of the scientific staff of the Institutes of Metallurgy, Chemistry, and Electrochemistry, Ural Branch, Academy of Sciences, USSR.

Card 1/5

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

Starkov, L.N., and M.I. Kochnev. On the Reduction of the Lower Sulfides of Nickel and Cobalt 35

Starkov, L.N., and M.I. Kochnev. Oxidation of the Lower Sulfides of Nickel and Cobalt 39

Chukreyev, N.Ya., and M.V. Smirnov. Polarization of Beryllium-Oxide-Carbon Anodes in Fused Chlorides 45

Zhuravlev, M.M., L.K. Gavrilov, and P.A. Pazdnikov. Investigation of the Conditions for Electrodeposition of Copper From Sulfate Solutions in the Presence of Iron, Zinc, and Cadmium Cations and the Nitrate Anion 51

Frishberg, I.V., P.A. Pazdnikov, and L.K. Gavrilov. Some Prerequisites for the Electrolytic Production of Lead Sponge From Alkaline Chloride Solutions and Selection of Insoluble Anodes for Electrolysis 59

Kozhevnikov, G.N. Some Peculiarities of the Reaction of Halenite With Soda and Lime During the Sintering Process 65

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

Kozhevnikov, G.N., and S.I. Kuznetsov. Optimum Conditions for Leaching Soda-Helenite Sinter Cakes 71

Mikulinskiy, A.S., and G.N. Kozhevnikov. Production of Metallic Sodium by Carbon Reduction of the Sulfate or Carbonate (Exploratory Tests) 77

Balakirev, V.F., Ye.A. Vetrenko, A.A. Tishchenko, and A.A. Babadzhan. On the Problem of Passage of Zinc From [Copper] Matte to the Gaseous Phase During Air Blast 81

Deyev, V.I., S.A. Vermenichev, and N.P. Diyev (Deceased). Comparative Data on the Carrying of Liquid Into the Gas-exhaust Holes in an Experimental Converter 87

Mikhaylov, V.V., B.Z. Kudinov, and V.I. Zhuchkov. On the Behavior of Oxides of Boron During the Metallurgical Treatment of Boronic Ores 97

Kaybichov, A.V., and V.P. Chernobrovkin. On the Melting and Overheating of Pig Iron in the Cupola 101

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

MIKHAYLOV, V.V.; SHAVRIN, S.V.; CHENTSOV, A.V.; KUSAKIN, P.S.; SAPOZHNIKOVA, T.V.; OSINOVSKIKH, L.I.

Continuous process of separating titanium slags from iron-titanium concentrates. Trudy Inst. met. UFAN SSSR no.2:47-54 '58. (MIRA 12:4)

(Titanium ores) (Ore dressing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; SAPOZHNIKOVA, T.V. ; LEPINSKIKH, B.M.

Electric resistance and phase constitution of briquetted ilmenite in the process of reduction roasting. Trudy Inst. met. UFAN SSSR no.4:15-18 '58. (MIRA 12:10)
(Ilmenite) (Phase rule and equilibrium)
(Ore dressing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SOV/133-59-6-3/41

AUTHORS: Chentsov, A.V., Fel'dman, B.A. and Shayrin, S.V.

TITLE: On the Problem of Drop in Blast Temperature in the Blow Pipes of Blast Furnaces (K voprosu o poteryakh temperatury dut'ya v soplakh domennykh pechey)

PERIODICAL: Stal', 1959, Nr 6, pp 495-496 (USSR)

ABSTRACT: In view of the lack of agreement in the published literature on the temperature drop of blast in insulated and non-insulated blow pipes, thermal calculations (Fig 1) and experimental determination of the actual temperature drop in non-insulated blow pipes were carried out It is pointed out that the differences in the temperature drop obtained by various authors may be due to using unscreened thermocouples. As a confirmation of the above supposition, a comparison of temperature drop of blast along the length of a blow pipe measured with unscreened and screened (Fig 2) thermocouples was carried out (Fig 3). It was found that the temperature drop of blast measured with screened thermocouples, was 11-12°C as against 20-24°C when measured with

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SOV/133-59-6-3/41

On the Problem of Drop in Blast Temperature in the Blow Pipes of Blast Furnaces

unscreened thermocouples. There are 3 figures and 7 Soviet references.

ASSOCIATION: Institut metallurgii UFAN i Alapayevskiy metallurgicheskiy kombinat (Institute of Metallurgy of the UFAN and the Alapayevsk Metallurgical Combine)

Card 2/2

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; SAPOZHNIKOVA, T.V.; LEPINSKIKH, B.M.

Electric resistance and phase constitution of briquetted ilmenite in the process of reduction roasting. Titan i ego splavy no.4:28-31 '60. (MIRA 13:11)
(Ilmenite--Electric properties) (Ore dressing)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; CHENTSOV, A.V.

Heat exchange in shaft furnaces. Izv.vys.ucheb.zav.; chern. met. no.5:172-176 '60. (MIRA 13:6)

1. Institut metallurgii Ural'skogo filiala Akademii nauk SSSR.
(Metallurgical furnaces) (Heat--Transmission)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; CHENTSOV, A.V.

Calculating the height of heat exchange stages in shaft furnaces. Izv. vys. ucheb. zav.; chern. met. no. 11:27-31 '60. (MIRA 13:12)

1. Institut metallurgii Ural'skogo filiala AN SSSR.
(Blast furnaces) (Heat--Transmission)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

MIKHAYLOV, V.V.; SHAVRIN, S.V.; CHENTSOV, A.V.

Testing a metallurgical flowsheet for the treatment of disseminated ores. Titan i ego splavy no.5:65-68 '61. (MIRA 15:2)
(Ore dressing--Testing)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; ZAKHAROV, I.N.; IPATOV, B.V.

Outflow of slag through the regenerator into a counterflow.
Izv. vys. ucheb. zav.; chern met. 5 no.9:54-65 '62. (MIRA 15:10)

1. Institut metallurgii Ural'skogo filiala AN SSSR.
(Blast furnaces--Design and construction) (Heat--Transmission)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V. (Sverdlovsk); ZAKHAROV, I.I. (Sverdlovsk); KULIKOV, G.S. (Sverdlovsk)

Reduction of an iron oxide melt by carbon. Izv. AN SSSR. Met. i gor. delo no.1:26-31 Ja-F '64. (MIRA 17:4)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; ZAKHAROV, I.N.; IPATOV, B.V.

Slag outflow through coke spouts. Izv. vys. ucheb. zav.; chern. met. 7 no.1:33-37 '64. (MIRA 17:2)

1. Institut metallurgii Ural'skogo filiala AN SSSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S. V.; ZAKHAROV, I. N.

Kinetics of the reduction of molten iron oxides by carbon. Izv. vys.ucheb.zav.; chern.met.7 no. 5:7-11 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut metallurgii Ural'skogo filiala AN SSSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

ZAKHAROV, I.N. (Sverdlovsk); SHAVROV, S.V. (Sverdlovsk)

Mechanism of the reduction of an iron-slag melt by carbon.
Izv. AN SSSR Met. i gor. dela no.2:31-37 Mr-Ap'64 (MIRA 17:8)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V. (Sverdlovsk); [illegible], [illegible] (Sverdlovsk); IPATOV, B.V. (Sverdlovsk)

Kinetic regularities of the reduction of slag by [illegible] AN SSSR Met. i gor. delo no.3[illegible] My-Je'64 (MIRA 17:7)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, S.V.; CHENTSOV, A.V.; ZAKHAROV, I.N.; PASHKEYEV, G.G.; USHAKOV, D.I.; BANNYKH, S.S.; LEKONTSEV, Yu.A.

Blast furnace smelting of high basicity sinter. Stal' 24 no.8:680-684 Ag '64. (MIRA 17:9)

1. Institut metallurgiii v g. Sverdlovske i Chusovskoy metallurgicheskiy zavod.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

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[illegible]

(Sverd[illegible])

[illegible] of the [illegible] of iron slag on graphite [illegible], [illegible], [illegible], Met. i gor. delo no.4:29-39 [illegible] (MIRA [illegible])

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

IVANITSKIY, Pavel Mefodiyevich; SHAVRIN, V., red.; LEBEDEV, A., tekhn. red.

[Principals of financial estimates] Osnovy smetnogo finansirovaniia. Moskva, Gosfinizdat, 1961. 87 p. (MIRA 14:9)
(Public institutions—Finance)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

LITOVKO, Semen Fedorovich; MAKSIMENKO, Georgiy Dmitriyevich; TRUNINA, Mariya Vasil'yevna; SHAVRIN, V., red.; MEDVEDEVA, R., red.; LEBEDEV, A., tekhn. red.

[Reviewing and auditing the economic activity of industrial enterprises]Reviziia khoziaistvennoi deiatel'nosti predpriiatiia. Moskva, Gosfinizdat, 1962. 149 p. (MIRA 15:6)
(Industrial management) (Auditing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRIN, V.A.

[Local budgets in the U.S.S.R.] Mestnye biudzhety SSSR. Izd. 2-e. perer. i dop. Moskva, Gosfinizdat, 1946. 140 p. (MIRA 11:4)
(Budget) (Local finance)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

KUTUZOV, Grigoriy Aleksandrovich; KUTYREV, S., red.; SHAVRIN, V., red.; TELEGINA, T., tekhn.red.

[Inspection in financial organs] Revizionnaia rabota v finansovykh organakh. Moskva, Gosfinizdat, 1958. 194 p. (MIRA 12:2)
(Auditing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

25 (1) SOV/145-58-7/8-23/24

AUTHORS: Pluzhnikov, A.I., Candidate of Technical Sciences, Semenikhin, A.I., and Shavrin, Yu.T., Engineers

TITLE: Cutting Multiturn Non-Round Toothed Wheels with Chasing Tool by the Method of Rolling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Mashinostroyeniye, 1958, Nr 7-8, pp 202-206 (USSR)

ABSTRACT: Non-round toothed wheels find application in certain branches of precision machine building. Up to the present, manufacturing of such wheels was performed by the method of copying with the application of slotting tool. This method possesses a number of shortcomings; reference F.L. Litvin and N.S. Yablonskiy, "Designing and Cutting Teeth on Multiturn Non-Round Wheels", "Priborostroyeniye", Nr 6, 1957 [1]. The cutting by the method of rolling was firstly introduced by the firms "Fellow" and "Bopp and Reyter". Later on, this method was developed in the USSR. Reference: F.L. Litvin, "Non-Round Toothed Wheels".

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SOV/145-58-7/8-23/24

Cutting Multiturn Non-Round Toothed Wheels with Chasing Tool by the Method of Rolling

Mashgiz, 1956 [2]; F.L. Litvin, "Non-Round Toothed Wheels", "Stanki i instrument", Nr 9, 1956 [3]. The present article deals with the multiturn toothed wheel cutting by the method of rolling offered by the authors. The general outlay of the cutting machine is illustrated in Fig 1. The main components of this machine are a toothed calibrating pair consisting of a rack 3 and wheel 4, and a cam calibrating pair comprising the smooth rack 5 and cam 6. These two pairs represent the rolling mechanism; it ensures both the reception of the required pitch on the wheel surface and the obtaining of given dividing radii. The kinematic outlay of the cutting machine is given in Fig 2; its cross section in Fig 3. The installation is intended for a large serial production. It is expected that after the introduction of this method of cutting, the labor efficiency will be increased by, approximately, 15 times as compared to what it was

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

1. DONDOBE, TS. - SHAVRINA, K. N.

2. USSR (600)

4. Water, Underground - Talanguy Valley

7. Report of the Etyka hydrogeological party of the East Siberian Geological Administration on the work for 1942-1943. (Abstract.) Izv.Glav.upr.geol.fon. no. 2, 1947

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

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

NIKITIN, [illegible], [illegible]

[Open-pit mine [illegible]; [illegible] of the Scientific Council [illegible] [illegible] Skochinskii on the occasion of the [illegible] anniversary of his birth [illegible] [illegible] botok; doklad na [illegible] sviashchennom pamiati akademika [illegible] 90-letiem so dnia [illegible]. [illegible], [illegible] 196[illegible]. [illegible] p.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

KURNOSOV, A.M., kand. tekhn. nauk; SHAVRINA, N.F., red.

[Characteristics of technical and economic methods of solving the main problems of coal mining, applicable to the conditions in flat seams in the Donets Basin; report at the All-Union Conference of Coal Industry Planners] Kharakteristika tekhniko-ekonomicheskikh metodov resheniia osnovnykh zadach proektirovaniia gornogo khoziaistva ugol'nykh shakht (primenitel'no k usloviiam razrabotki pologikh plastov v Donbasse); doklad na Vsesoiuznom soveshchanii proektirovshchikov ugol'noi promyshlennosti. Moskva, In-t gornogo dela im. A.A.Skochinskogo, 1964. 27 p. (MIRA 18:9)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

PANOV, Andrey Dmitriyevich, kand. tekhn. nauk,; TISHCHENKO, Nikolay Andreyevich,; ZAMYATNIN, Ivan Stepanovich,; SHAVRINA, Raisa Fedorovna,; PAVLYUCHENKO, Dmitriy Nikolayevich,; GRIGOR'YEV, Vladimir Leonidovich,; pri uchastii: Adamidze, D.I.; Krasnikova, Yu. D.; Cherkasheninova, V.I.; Chukayevoy, Ye. V. ; SOSNOV, V.D., otv. red.; RATNIKOVA, A.P., red. izd-va,; PROZOROVSKAYA, V.L., tekhn. red.

[Narrow-gauge mining of coal in thin and medium seams] Uzkozakhvatnaia vyemka uglia na plastakh tonkikh i srednei moshchnosti. Moskva, Uglatekhizdat, 1958. 321 p. (MIRA 11:12)
(Coal mines and mining)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

MEN'KOVA, N.N.; SHAVRINA, R.F., red.; GERASIMOV, V.F., tekhn. red.

[Some types of centrifugal, starting, and safety clutches]Nekotorye vidy tsentrobezhnykh puskovykh i predokhranitel'nykh muft. Moskva, In-t gornogo dela im. A.A.Skochinskogo, 1961. 30 p. (MIRA 15:9)

(Clutches (Machinery))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

PETROSYAN, A.E., kand. tekhn. nauk; SERGEYEV, I.V., kand. tekhn. nauk; SHAVRINA, R.F.; GERASIMOV, V.F.

[Methodology of determining the gas concentration of workings in mining coal without men in the pits]Metodika opredeleniia gazoobil'nosti vyrabotok pri bezliudnoi vyemke uglia. Moskva, In-t gornogo dela im. A.A.Skochinskogo, 1962. 36 p. (MIRA 16:1)

(Mine gases)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

DOKUKIN, A.V., prof., doktor tekhn. nauk; IGNAT'YEV, L.D., kand. tekhn. nauk; SHAMSHA, A.F., red.

Results of scientific research insuring the technical progress of the coal industry in the current seven year plan; report at the meeting of the Technical and Economic Council of the Lugansk Economic Council [Rezul'taty nauchnykh issledovanii, obespechivaiushchie tekhnicheskii progress v ugol'noi promyshlennosti v tekushchem semiletii; doklad na zasedanii tekhniko-ekonomicheskogo soveta Luganskogo sovnarkhoza. Moskva, In-t gornogo dela im. A.A. Skochinskogo, 1962. 42 p. (MIRA 1 :7)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

LEMON, A. I., kand. tekhn. nauk; POZIN, Ye.Z., kand. tekhn. nauk; KAZANSKIY, A.S., kand. tekhn. nauk; SHAVRINA, P.F., red.

[Improving coal breaking methods and the actuating mechanisms of mining machinery to better the fractional composition of coal output; short scientific report] Sovershenstvovanie metodov razrusheniia uglia i ispolnitel'nykh organov vyemochnykh mashin s tsel'iu uluchsheniia fraktsionnogo sostava uglia; kratkii nauchnyi otchet. Moskva, 1962. 50 p. (MIRA 18:4)

1. Moscow. Institut gornogo dela im. A.A.Skochinskogo. Laboratoriya mekhanicheskikh sposobov razrusheniya gornykh porod.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

ZVYAGIN, F.Z., doktor tekhn. nauk; SHAVRINA, R.F., red.

[Optimum solutions of mining problems; report at the Scientific Council on May 8, 1963] Ob odnom aspekte resheniia gornykh zadach na optimum; doklad na Uchenom sovete 8 maia 1963 g. Moskva, In-t gornogo dela im. A.A.Skochinskogo, 1963. 11 p. (MIRA 18:3)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

CHESNOKOV, Mitrofan Mitrofanovich; SHAVRINA, R.F., red.; GERASIMOV, V.F., tekhn. red.

[Hydraulic cutting of natural stone with high speed thin water jets] Gidravlicheskoe rezanie prirodnogo kamnia tonkimi struiami vody vysokoi skorosti; kratkii nauchnyy otchet. Moskva, 1963. 50 p. (MIRA 16:10)

1. Moscow. Institut gornogo dela imeni A.A.Skochinskogo.
(Stonecutting)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

BORISENKO, L.D., kand. tekhn.nauk; SHAVRINA, R.F., red.

[Flow sheets and units of equipment for the hydraulic hoisting and transportation of coal and rock with the use of feeders; report at the All-Union Conference of Coal Industry Planners] Tekhnologicheskie skhemy i kompleksy oborudovaniia dlia gidravlicheskogo pod"ema i transporta uglia i porody s primeneniem pitatelei; doklad na Vsesoiuznom soveshchanii proektirovshchikov ugol'noi promyshlennosti. Moskva, Institut gornogo dela im. A.A.Skochinskogo, 1964. 17 p. (MIRA 18:3)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

REZNICHENKO, V.A.; SIDORENKO, G.D.; SOLOV'YEV, V.I.; KARYAZIN, I.A.; DMITROVSKIY, Ye.B.; AFANAS'YEV, T.V.; Prinimali uchastiye: MIKHAYLOV, V.V.; SHAVRINA, S.V.; CHENTSOV, A.V.

Developing a procedure for the electric smelting of perovskite and titanium-magnetite sinter. Titan i ego splavy no.5:54-59 '61. (MIRA 15:2)

(Titanium--Electrometallurgy)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

USSR/Engineering - Refractories, Equipment Jul 52

"Electromagnetic Sieve," M.A. Shavrinov, Sukhoy Log Chamotte Plant

"Ogneupory" No 7, pp 330-333

Describes new device for sepn of metallic admixts out of refractory powders. Electromagnetic sieve represents 410 x 890 mm plate with numerous round and slot openings and 90 electromagnetic poles under plate. In plastic process of fabricating refractory products this sieve is installed between dry and wet mixers, retaining particles of metal and burnt pyrite when powders move through its holes. It has automatic control, diagram of which is given.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

1. DMITRICHENKO, N.S.; SHAVRINOV, M.A.

2. USSR (600)

4. Clay Industries

7. Electric heating of sieves for screening ground clay. Ogneupory 17 no.9 1952

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

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVRONSKAYA, A. G.

USSR /Microbiology. Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35644

Author : Timakov, V.D.; Kudlai, D.G.; Shavronskala, A.G.; Spirin, A.S.

Title : An Immunological Study of the Protein Fractions of Directly Altered Bacteria of the Intestinal Group

Orig Pub: Zh. mikrobiol., epidemiol., i immunobiologii, 1955, No. 8, 20-30

Abstract: The antigen structure of intestinal bacilli, Breslau paratyphous bacteria, alkali-formers obtained by the cultivation of intestinal bacilli in a culture of Breslau bacteria killed by heating, and paratyphoid obtained by the cultivation

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

USSR /Microbiology. Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35644

a carbohydrate nature. The extracts received were subjected to a fractional precipitation successively with acetic acid, alcohol and acetone. In alkali-formers the fractions of nucleoproteids and neutral proteins precipitated by acetic acid and which are characteristic for three other strains were completely absent. The alcohol soluble protein precipitated by acetone from the salt extract of 0.14 M NaCl, in intestinal bacilli is not at all apparent, in alkali-formers is weakly represented, becomes more apparent in paratyphoids, and is evident much more in the control Breslau culture. Rabbits were immunized with the nucleoproteid and protein preparations received by fractionization and their serum

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

USSR /Microbiology. Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35644

extracts of paratyphoid contains a group antigen, common to intestinal bacilli, paratyphoid bacilli and paratyphoid; an antigen, common only to alkali-formers and paratyphoid; and an antigen common to intestinal bacilli and paratyphoid. The chemical composition and antigen structure of paratyphoid is extremely close but not identical to that of the Breslau bacteria. The appearance of identical antigens in different fractions of various microbes is evidence of the biochemical reorganization of their nucleoproteids.

Card 5/5

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

AKSENOV, M. A.

EWT(d)/EWT(m)/EEC(k)-2/EWP(i)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EED-2/

EWP(b)/EWP(l)/EWA(c) Pg-4/Pf-4/Pad/Pg-4/Pk-4 IJP(c) BB/JD/HW/JG/GG

ACCESSION NR: AP5013852 UR/0103/65/026/005/0938/0942
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58
B

AUTHOR: Boyarchenkov, M. A.

TITLE: All-Union Conference on magnetic elements of automation and computer technique

SOURCE: Avtomatika i telemekhanika, v. 26, no. 5, 1965, 938-942

TOPIC TAGS: electric engineering conference, magnetism conference, computer component, automation equipment, automation, electronic data processing

ABSTRACT: The Ninth All-Union Conference on Magnetic Elements of Automation and Computer Technology, held in Kaunas from 7 to 10 September 1964, was organized by the National Committee of the USSR on Automatic Control, the Institute of Power and Electrical Engineering of the Academy of Sciences, Lithuanian SSR, the Lithuanian Scientific and Technical Society of the Instrument Building Industry, and the Institute of Automation and Telemechanics of the Main Committee on Instrument Building, Means of Automation, and Control Systems under Gosplan and the Academy of Sciences USSR. Over 450 participants discussed some 90 reports concerning the theory, design,

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ACCESSION NR: AP5013852

production, and application of magnetic and magnetic-semiconductor elements. Reports were presented for seven areas: digital and analog elements, memory devices, magnetic power devices, magnetic amplifiers and converters, parametrons, and power sources.

At the opening plenary session, M. A. Rozenblat presented a survey of the present state of contactless magnetic elements, which he considers to be one of the most efficient and promising technical means of automation and computer technology. Problems of designing logic elements to provide stable operation for various types of circuits were discussed in a series of reports. B. A. Yefimov and G. N. Chizhukhin reported on the development of modules of ferrite-transistor elements (FTE) which can be used for various types of computers and also for discrete automation for general and special purposes. This system provides reliable operation at a 200-kc clock frequency in the -10 to +50° C temperature range.

The same authors together with M. A. Aksenov reported on the development of a general-purpose heavy-duty FTE which can be used as a cell of a clock-frequency pulse generator or as an independent heavy-duty control

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element. It is capable of performing command recording or readout of information reaching it in large quantities from a low-power FTE. I. A. Tyumin, B. A. Yefimov, and A. A. Shavrov reported on the development and testing of biax-type logic circuits operating at 1 Mc and performing several logic operations. Advantages cited are: high s/n ratio, about 20; high switching rate, about 2 Mc; and high reliability due to the simplicity of the circuit. Such circuits may also be used in complex logic devices. Additional reports discussed logic circuits using biax-type elements in a working storage device with a nondestructive readout cycle of 10^{-7} sec and a recording time for new information of several microseconds.

L. P. Afinogenov et al. reported on discrete and discrete-analog computer units based on the use of the area of an emf pulse originating in the winding during magnetization reversal in the ferrite. Development of ferrite matrixes which release a voltage pulse at the output with an area proportional to the code supplied at the matrix input was also discussed.

Problems connected with the development of single-wire memory elements with multiaperture ferrite plates were presented by R. A. Lashev-

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ACCESSION NR: AP5013852

skiy et al. A. S. Sverdlov and others presented results of developing working storage units using miniature memory cubes made with multiaperture ferrite plates.

Thin-film technology was discussed in several reports. A paper by Ye. F. Berezhnyy et al. dealt with the development of a super storage device built on thin-film matrices with conductive substrates with a capacity of 64 56-bit words and a cycle of 400 nsec. Experiments with magnetic-film storage devices produced by electrochemical deposition on glass and metal cylindrical substrates were discussed, and a method of using an element of cylindrical magnetic film in a matrix storage device was also reported.

A. Tutauskas and R. Litvinaytis reported on a stable storage device with a short access time, a capacity of 512 x 32 bits, an access rate of 500 kc, and a readout time of 1 usec. A. B. Lyasko et al. have developed a small decade counter of periodic and nonperiodic signals in which a parametric element with five stable phase states was used. The counter displays better energy properties than other known counters, high reliability, and high noise immunity. A. G. Rabin'kin reported on the characteristics of

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ACCESSION NR: AP5013852

new high-coercivity (5000 oe) alloys of the cobalt-platinum system. M. A. Rozenblat et al. discussed the theory and design of magnetic analog computing devices (adder, integrator, multiplier) based on single-stage magnetic amplifiers using magnetic analog storage.

A large number of reports was devoted to the theory and application of power magnetic devices. The papers presented by the Gor'kiy school of A. M. Bamdas concerning frequency multipliers and voltage stabilizers were of great interest in this field.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: DP, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4021-F

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

LUK'YANOV, A.T.; PUSTYL'NIKOV, L.M.; SHAVROV, A.A.

Numerical solution of the problems of chemical kinetics by means of static electron integrators. Dokl. AN SSSR 166 no.3:651-653 Ja '66. (MIRA 19:1)

1. Kazakhskiy gosudarstvennyy universitet im. S.M.Kirova. Submitted April 17, 1965.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, A.L.

Cau e of low frost resistance in some woody plants under conditions prevailing in the Polar-Alpine Botanical Garden. Dokl. AN SSSR 140 no.2:499-502 S '61. (MIRA 14:9)

1. Polyarno-Al'piyskiy botanicheskiy sad Kol'skogo filiala im. S.M.Kirova AN SSSR. Predstavleno akademikom V.N.Sukachevym.
(Kirovsk--Plants--Frost resistance)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, L.A.

Anatomy of wood of the genus Ephedra in the Soviet Union.
Bot.zhur. 41 no.9:1324-1331 S '56. (MLRA 9:11)
(Ephedra) (Wood)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, I.A.

Deviations in the structure of generative organs of the poppy flower (Papaver spp.). Bot.zhur.42 no.8:1249-1253 Ag '57. (MLRA 10:9)

1. Botanicheskiy institut imeni V.L.Komarova Akademii nauk SSSR, Leningrad.
(Poppy) (Inflorescence) (Abnormalities (Plants))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVIKOV, L.A. Cand Biol Sci -- (diss) "Anatomico-Morphological Analysis of Variability of Plants, Transplanted under Conditions of Khibinskiy Mountains". Len-Kirovsk, 1958. 19 pp (Acad Sci USSR. Bot Inst im V.L. Komarov, Kola Affiliate im S.M. Kirov). 120 copies.

(KL, 10-58, 130).

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

AUTHOR: Shavrov, L. L. SOV/20-122-2-40/42

TITLE: Some General Morphological and Anatomical Features in the Variation of Plants Transplanted to an Arctic Alpine Botanical Garden (Nekotoryye obshchiye morfologo-anatomicheskiye cherty izmenchivosti rasteniy pri peresadenii v Polyarno-al'piyskiy botanicheskiy sad)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 308-311 (USSR)

ABSTRACT: This botanical garden is situated on the Kola Peninsula (Kol'skiy poluostrov) in the southern part of the mountain massif Khibiny (33°39' eastern longitude from Greenwich and 67°39' northern latitude) (Ref 1). The natural and climatic conditions are very severe and peculiar, as the garden is situated in a mountain basin 120 km north of the polar circle. This is true in particular for the daylight conditions. Through 55 summer days it never becomes dark. Plant species transferred to this region have to undergo considerable functional and structural modifications in order to become adapted to this climate and to be able to stand climatic conditions. In order to investigate these morphological and

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SOV/20-122-2-46/62

Some General Morphological and Anatomical Features in the Variation of Plants Transplanted to an Arctic Alpine Botanical Garden

indicated by a anerobiosis, which is also known for other plants under similar conditions (Ref4). Besides, a prolification of the flower and of the inflorescence is found: instead of producing seeds the flower prolifies a shoot. A secondary flower or even a whole inflorescence is produced at the top of this shoot. Moreover, a continuous and intensive cell division is observed in transferred plants. Considerable cell groups with a meristematic character explain the frequency of several tumors in plant organs and plant parts and the frequency of coalescence of individual parts, even in completely developed organs. There 2 figures and 4 references, 4 of which are Soviet.

ASSOCIATION: Polyarno-al'piyskiy botanicheskiy sad Kol'skogo filiala im. S. M. Kirova Akademii nauk SSSR (Polar Alpine Botanical Garden of the Kola Branch, AS USSR, imeni S. M. Kirov)

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, L.A.

The nature of fasciations. Bot. zhur. 44 no.4:500-505 Ap '59. (MIRA 12:10)

1. Polyarno-Al'piyskiy botanicheskiy sad Akademii nauk SSSR, g. Kirovsk.

(Abnormalities (Plants))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, L.A.

Some characteristic features of the intraspecific variability of plants introduced to a polar-alpine botanical garden. Izv. AN SSSR. Ser. biol. no.4:582-590 Jl-Ag '61. (MIRA 14:9)

1. Polyarnyy botanicheskiy sad i Botanicheskiy institut im. V.L. Komarova AN SSSR.
(ACCLIMATIZATION (BOTANY))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, L.A.

Fasciation in plants of sub-Arctic regions. Biul. Glav. bot. sada no.41:58-66 '61. (MIRA 14:11)

1. Polyarno-al'piyskiy botanicheskiy sad Kol'skogo filiala AN SSSR, Kirovsk.
(Kirovsk region--Abnormalities (Plants))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, L.A.

Ecologico-geographical patterns of structural variability in introduced plants [w.s.i.e.] Bot. zhur. 46 no.3:328-336 Mr '61. (MIRA 14:3)

1. Kol'skiy filial AN SSSR, Polyarno-al'piyskiy botanicheskiy sad, g. Kirovsk.
(Khibiny Mountains--Plant introduction)
(Botany--Morphology)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

L 24710-66 EWT(m)/ETC(f)/EPF(n)-2/EWG(m) WW

ACC NR: AT6008415 SOURCE CODE: UR/3136/65/000/993/0001/0017

AUTHOR: Ambartsumyan, R. S.; Goncharov, V. V.; Glukhov, A. M.; Yegorenkov, P. M.; Smirnova, R. F.; Shavrov, P. I.

ORG: none

TITLE: Increasing the power of VVR-S reactors 19

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-993, 1965. O povyshenii moshchnosti reaktorov VVR-S, 1-17

TOPIC TAGS: water cooled nuclear reactor, water moderated reactor, reactor fuel element, nuclear reactor power / VVR-S water cooled nuclear reactor

ABSTRACT: The authors consider the possibilities for using slightly modified MR fuel assemblies for increasing the power of VVR-S water-cooled water-moderated reactors. A figure is given showing the construction and dimensions of the MR fuel assembly. The assembly consists of five tubular fuel elements of circular cross section. The heat-transfer area of the MR fuel assembly is 2.35 times as great as assemblies using EK-10 elements. The elements are interchangeable, i.e. they may be

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ACC NR: AT6008415

placed in any cell of the reactor core. The efficient design of the MR elements assures that 90% of the water passing through the core flows through the fuel assembly. The assembly contains 173 grams of U-235, i.e. 35% more than an assembly with EK-10 elements. The use of these elements makes it possible to irradiate specimens in experimental channels or ampules with an outside diameter of 14 mm. Larger specimens may be irradiated by using fuel assemblies with fewer tubular fuel elements. However, use of the MR fuel assembly cuts down the volumetric fraction of water in the reactor core to 0.65 as against 0.7 when assemblies with EK-10 elements are used. The volumetric water fraction is cut still further to 0.52 by the use of beryllium moderators to reduce nonuniformity in heat release due to localized increases in neutron density in the water spaces between adjacent MR fuel assemblies. The use of these fuel assemblies increases the power of the reactor to 8-11 Mw and the maximum neutron intensity (U-235) to $\sim 9 \cdot 10^{13}$ neutrons/cm^2 sec. The authors discuss the experimental possibilities of the VVR-S reactor with MR fuel assemblies. Orig. art. has: 6 figures, 1 table.

SUB CODE: 18/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 003

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

L 24711-66 EWT(m)/ETC(f)/EPF(n)-2/EWG(m) WW

ACC NR: AT6008414 SOURCE CODE: UR/3136/65/000/992/0001/0025

AUTHOR: Goncharov, V. V.; Chernilin, Yu. F.; Shavrov, P. I.; Chernyshevich, V. N.; Yegorenkov, P. M.; Zhigachev, V. M.; Larin, I. I.; Korneyev, V. T.; Yashin, A. F.

ORG: none

TITLE: Remodeling the IRT reactor at the Institute of Atomic Energy imeni I. V. Kurchatov

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-992, 1965. Rekonstruktsiya reaktora IRT v IAE im. I. V. Kurchatova, 1-25

TOPIC TAGS: nuclear reactor, reactor fuel element, nuclear reactor core

ABSTRACT: The authors describe steps taken to redesign the IRT reactor at the Institute of Atomic Energy. The following units and systems were altered to increase the power of the reactor, expand its range of experimental possibilities, and improve its operational qualities: 1. fuel elements and reactor core design; 2. cooling system; 3. experimental units; 4. control and shielding system; 5. radiation-monitoring system; 6. special ventilation. Figures are given showing the

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ACC NR: AT6008414

longitudinal and transverse cross sections of the reactor as well as detailed diagrams of the reactor core and the channel for the "cold" neutron source. The new fuel assemblies have nearly twice as much heat-transfer area as the rod elements formerly used. Each assembly contains 155 grams of 36% enriched U-235. Metallic beryllium is used as the reflector. The core contains 54 cells in all and has a 50 mm lead shield for stopping γ-radiation. The experimental units include horizontal and vertical channels as well as a "cold" neutron source and a thermal neutron "trap". The modifications made in the reactor give a maximum thermal neutron flux (U-235) in the core of $5 \cdot 10^{13}$ neutrons/cm^2 sec, a maximum fast neutron intensity (E>0.5 Mev) of $9 \cdot 10^{13}$ neutrons/cm^2 sec, and a power of 4000-5000 kw. The procedure used for disassembly and reassembly operations in the reactor pool is described. Some of the physical and technical characteristics of the modified IRT-M reactor are tabulated. Orig. art. has: 10 figures, 3 tables.

SUB CODE: 18/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 006

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

L [illegible]

ACC NR: AT6012692 SOURCE CODE: UR/3136 65/000/991/0001/0044

AUTHOR: Goncharov, V. V.; Babulevich, Ye. N.; Shavrov, P. I.; Ryazantsev, Ye. P.; Novikov, I. M.; Yegorenkov, P. M.; Chervyatsov, A. A.; Frolov, I. P.; Zhigachev, V. M.; Pushnin, B. T.; Fishevskiy, V. K.; Zakharov, L. K.; Kruglov, A. B.; Karasev, N. A.; Goncharov, L. A.

ORG: State Committee on the Use of Atomic Energy SSSR, Institute of Atomic Energy im. I. V. Kurchatov, Moscow (Goasudarstvennyy komitet po ispol'zovaniyu atomnoy energii SSSR, Institut atomnoy energii)

TITLE: Experience in operation of the MR reactor [illegible] of fuel elements and materials

SOURCE: Moscow. Institut atomnoy energii. Doklady, no. 991, 1965. Opyt eksplautatsii reaktora MR i provedeniye ispytaniy TVEL i materialov, 1-44

TOPIC TAGS: nuclear research reactor, reactor fuel element, nuclear reactor material, nuclear reactor characteristic

ABSTRACT: The authors discuss the loop research reactor MR constructed at the Kurchatov Institute of Atomic Energy and intended for the test of fuel elements and materials in new atomic installations. It is described in paper [illegible] of the Third Geneva Conference in 1964. The present article describes in detail the con-

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ACC NR: AT0[illegible]

struction and the various test loops in it. The section headings are: I - Introduction. II. Operation of reactor. 1. Certain physical characteristics of the reactor. a) Fuel burnup. b) Efficiency of control valves, scram rods, and movable fuel assemblies. c) Fluxes of thermal and fast neutrons. 2. Control and protection system of the reactor. 3. Technological systems of the reactor. a) Cooling loop for fuel element assembly. b) Cooling loop for the reactor assembly block. c) Intermediate (second) cooling loop of reactor. d) Third cooling loop of reactor. e) Water purification system. 4. Fuel assembly operating conditions and conditions for the graphite stacking blocks. 5. Reloading operations. III. Operation of loop installations. Organization and performance of tests of fuel elements and materials. IV. Dosimetric control. Radiation shielding of reactor. The reactor has been in operation since 24 July 1964, and its power has been gradually increased from the initial 20 MW to 30 MW. The usual operation is at 25 MW. The reactor has 3 loop channels with 7 associated experimental channels. Various characteristics of the reactor at different power ratings are tabulated. Major contributions to the adjustment of the MR reactor were made by I. Ye. Alekseyev, B. A. Alekseyev, S. N. Begichev, A. B. Bugayenko, Yu. I. Kovalev, V. K. Lebedev, A. M. Rotankov, V. D. Rusov, N. V. Sarychev, Ye. S. Chernorotov, and Yu. A. Shikov. Orig. art. has: 13 figures and 6 tables.

SUB CODE: SUBM DATE: 00/ ORIG REF: 001

Card 2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, Pavel Ivanovich; STAYEV, K.P., dotsent, kandidat tekhnicheskikh nauk, dotsent, nauchnyy redaktor; ZNAMENSKIY, A.A., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy redaktor

[Reconditioning of tools] Vosstanovlenie instrumentov. Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1954. 38 p. [Microfilm] (MLRA 10:4)
(Cutting tools)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, S. V.

Peat Industry

Operations graph at "Tesovostroi".
Torf. prom. 29, no. 6, 1952.

9. Monthly list of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, V. B.

USSR/Medicine - Shellfish Jan 1948

"New Forms and Occurrences of Donacii (Coleoptera, Chryzom elidae Subfam. Donaciinae) in the Fauna of the USSR," V. B. Shavrov, 4 pp

"Byullet Mosk Obshch Ispyt Pri, Otdel Biolo" Vol LIII, No 1

Continuation of a previous article which appears to be taken from a German publication: Coleoptera. Zentralblatt 1930, Vol S, No 1, page 29. This part discusses briefly the Plateumaris consimilis orientalis subsp. n.; Donacia impressa Rauk. ab. (morpha?) armillata nova; Donacia appendiculata Abrens ab. coeruleans nova (ab. coeruleans Reitt. i.l.), and several others. Brief passage on new localities where Donacii have been found

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, V. B.

Arkticheskii samolet. (In: Vozdushnye puti severa. Moskva, 1933. p.437-446, illus.)
Title tr.: The Arctic aircraft.

TL532.V6

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, V. B.

The U.S.S.R. amphibian "Sh.7." 2 p. (Gt. Britain. Ministry of Aircraft Production. RTP Tr. 1288)

Trans. from the Russian original publ. in Samolet, 1940, v. 17, no. 23/24, p. 22.

DMAOA MVIAS

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, V. B.

Shavrov, V. B. — "Russian Airplant Building (1869-1917)." Moscow Order of Lenin Aviation Inst imeni Sergo Ordzhonikidze, Moscow, 1955 (Dissertation for the Degree of Doctor of Technical Sciences)

SO: Knizhnaya Letopis', No 24, 11 June 1955, Moscow, Pages 91-104

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

SHAVROV, V.B.

M.V.Lomonosov's helicopter. Trudy Inst.ist.est. i tekh. 45: 115-119 '62. (MIRA 15:8)
(Lomonosov, Mikhail Vasil'evich, 1711-1765)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

IZAKSON, Aleksandr Mikhaylovich; MIL', M.L., doktor tekhn. nauk, retsenzent; STRIZHEVSKIY, S.Ya., kand. tekhn. nauk, dots., retsenzent; SHAVROV, V.B., kand. tekhn. nauk, retsenzent; GIL'BERG, L.A., red.

[Soviet helicopter industry] Sovetskoe vertoletostroenie. Moskva, Mashinostroenie, 1964. 310 p. (MIRA 17:6)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

AUTHORS: Rodionov, K. P. and Shavrov, V. G. 126-3-1/34

TITLE: On the problem of anisotropy of the electric conductivity in ferromagnetics. (K voprosu ob anizotropii elektro-provodnosti v ferromagnetikakh).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.IV, No.3, pp.385-391 (U.S.S.R.)

ABSTRACT: The problem of anisotropy of the electric conductivity was considered by several authors (2-4). Baroody, E.M.(5) determined the anisotropy of the electric conductivity by solving the kinetic equation. He investigated two cases, namely, when the function characterising the inter-relation of the electrons with the lattice oscillations is isotropic and the energy depends on the wave vector (and not on $|\vec{k}|$) and when the energy is isotropic and the anisotropy is taken into consideration as a function of the inter-relation of the electrons with the lattice oscillations. The work of these authors related to non-ferromagnetic metals and were based on the single electron approximation. Akulov,N.S. (6) has shown that the anisotropy of electric conductivity in ferromagnetics can be determined phenomenologically from the symmetry properties of the crystal alone. On the basis of the quantum mechanical model of the ferromagnetic,

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126-3-1/34

On the problem of anisotropy of the electric conductivity in ferromagnetics. (Cont.)

consideration in the kinetic equation. The magnitudes σ_2 and σ_2', eq.(19), to which these deviations are due, include the isotropic as well as the anisotropic part. Eqs. (20 and 21), p.390, express the resulting relative changes in the electric conductivity as a function of the direction of measurement and it can be seen that the signs of the longitudinal and transverse effects coincide, which is in agreement with experimental data. Bates, L.F. (10) has established that there is an anomaly in the relation between the signs of the longitudinal and the transverse effects in the case of high coercive alloys, whilst Drozhzhina, V.I. and Shur Ya. S. (11) have established the existence of such anomaly for high coercive as well as magnetically soft materials; the signs of the effects were equal. On the basis of general symmetry considerations, Vonsovskiy, S. V. (12) explained this anomaly by the presence of "volume" effects and he established a criterion governing equality of signs of the two effects, pointing out that the microscopic theory should explain, at least in principle, the possibility of existence of this criterion. The eqs.(20 and 21) derived in this paper indicate that this

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Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 46 (USSR)

AUTHORS: Turov, Ye.A., Shavrov, V.G.

TITLE: A Phenomenological Theory of Ferromagnetic Phenomena

PERIODICAL: Tr. In-ta fiz. metallov. Ural'skiy fil. AS USSR, 1958, Nr 20, pp 101 - 109

ABSTRACT: The foundations of the mathematic method of a phenomenological theory of ferromagnetic phenomena were laid down. The essence of this theory consists in the viewpoint that a solid body (crystal) is considered not as a discrete but as a compact medium which is characterized by the densities of certain physical quantities (magnetic moment, electrical polarization, impulse, etc.). For finding the energy spectrum of such a medium the expression of the energy is presented in the form of an expansion by the simplest invariants composed of planes with allowance made for the symmetry of the crystal lattice. Moreover, considering that constant density values correspond to the principal state of the system, the Hamiltonian can be expanded into a series by the powers of the

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A Phenomenological Theory of Ferromagnetic Phenomena

weak oscillations around these constant values. Then the Hamiltonian obtained for weak oscillations of the interacting classical fields is quantized according to certain rules, and the main part is singled out from it. This part is the energy spectrum of the system in the form of a sum of the energies of the individual quasi-particles and a small addition describing the interaction between these quasi-particles. It is evident that the whole theory is applicable, in such a formulation, only to those cases, when real motions actually represent weak oscillations around a ground "zero" state (e.g., in the case of the consideration of magnetic phenomena at low temperatures). Although in the theory considered, as in any phenomenological theory, several undetermined constants appear in the final conclusions, which must be determined by experiment or from concrete model notions, it nevertheless makes it possible to obtain a series of general informations on the energy spectrum and the properties of solid bodies at a minimum number of model assumptions.

A. Pakhomov

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

On the problem of anomalies ... S/126/62/013/005/004/031
E032/E314

temperature. An expression is derived for the electrical conductivity of such systems. This formula describes the behaviour of ferrites and the corresponding curve may exhibit non-monotonic behaviour, e.g. a local minimum, depending on the relation between the parameters entering into the expression.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: October 24, 1961

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

37870
S/056/62/042/005/014/050
B104/B102

37700

AUTHORS: Irkhin, Yu. P., Shavrov, V. G.

TITLE: The theory of the spontaneous Hall effect in ferromagnetics

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 5, 1962, 1233-1240

TEXT: The kinetic equation for the scattering of electrons on phonons is set up by the density matrix method of W. Kohn and J. M. Luttinger (Phys. Rev., 108, 590, 1957; 112, 739, 1958), higher terms in the interaction with the scatterers being taken into account. Only the field terms in the second approximation contain linear spin-orbital interaction terms. $R_s \sim \varrho^2$, where R_s is the spontaneous Hall coefficient and ϱ the electric resistivity. Experimental results, however, show that $R_s \sim \varrho^n$, where $n = 1.9$ (Fe) and $n = 1.4$ (Ni). Therefore, the phonon scattering mechanism is inadequate to explain the spontaneous Hall effect in the higher temperature range also. Taking account of the band-to-band transitions, which have been neglected in this calculation, does not change the result. The scattering on magnetic irregularities, which may be regarded as

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statistical at higher temperatures, is one of the possible causes of deviation from $R_s \sim \varrho^2$. Elastic scattering from these irregularities gives a linear term in $R_s(\varrho)$.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Physics of Metals of the Academy of Sciences USSR)

SUBMITTED: July 28, 1961

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

44242

S/056/62/043/006/051/067
B102/B186

AUTHORS: Turov, Ye. A., Shavrov, V. G.

TITLE: Galvano- and thermomagnetic effects in antiferromagnetics

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2273-2276

TEXT: The static effects related to the existence of a separate axis of antiferromagnetic ordering in certain crystals (cf. e.g. ZhETF, 42, 1582, 1962; 33, 807, 1957; 36, 1954, 1959) have been investigated already. Here the kinetic effects, namely galvanic and thermomagnetic, are studied in a general phenomenological manner. Antiferromagnetic crystals with various crystallographic and magnetic structures are considered, the variety of the latter being restricted by the assumption that collinear or weakly non-collinear structures are describable by two sublattices with the magnetizations $\vec{M}_{1,2}$, where $\vec{L} = \vec{M}_1 - \vec{M}_2$ is the axis of antiferromagnetic ordering. Between forces and fluxes the relation $F_\alpha = \varrho_{\alpha\beta}(\vec{H},\vec{M},\vec{L})j_\beta$ must hold; in the case of galvanomagnetic effects $\vec{F}$ will be the electric field strength and $\vec{j}$ the

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current density. First the spontaneous Hall effect is considered for a 2^+2^- rhombohedral lattice structure. The spontaneous transverse galvanomagnetic effect

$$F_x^{(s)} = -R_1^s j_z L_x, \quad F_y^{(s)} = -R_2^s j_z L_y, \quad F_z^{(s)} = R_1^s j_x L_x + R_2^s j_y L_y. \quad (5)$$

For a structure of the type $3_z^+ 2_x^-$

$$F_x = R_1 j_y H_z - R_2 j_z H_y, \quad F_y = R_2 j_z H_x - R_1 j_x H_z, \quad F_z = R_2 (j_x H_y - j_y H), \quad (6)$$

and for $\vec{L} \| \vec{z}$ (e.g. in hematite below 250°K or $FeCO_3$ below 35°K),

$$\begin{aligned} F_x &= \alpha_1 L (j_x H_x - j_y H_y) + \alpha_2 L j_z H_y, \\ F_y &= -\alpha_1 L (j_x H_y + j_y H_x) - \alpha_2 L j_z H_x, \\ F_z &= \alpha_2 L (j_x H_y - j_y H_x). \end{aligned} \quad (7)$$

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make it possible to discern antiferromagnetic states with different directions of $\vec{L}$. The presence of a domain structure with oppositely directed $\vec{L}$'s enables the effects linear in $\vec{L}$ to compensate each other. Therefore one can conclude from the presence of these effects whether in uniaxial antiferromagnetics with $\vec{L} \parallel \vec{z}$ 180° domain boundaries exist or not.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of the Physics of Metals of the Academy of Sciences USSR)

SUBMITTED: July 9, 1962

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

TUROV, Ye.A.; SHAVROV, V.G.

Galvanomagnetic and thermomagnetic effects in antiferromagnetic and ferromagnetic substances. Izv. AN SSSR. Ser. fiz. 27 no.12:1487-1495 D '63. (MIRA 17:1)

1. Institut fiziki metallov AN SSSR.

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L 16908-63 EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD/IJP(C) GG/JD

ACCESSION NR: AP3005292 S/056/63/045/002/0349/0352

59
58

AUTHOR: Shavrov, V. G.; Turov, Ye. A.

TITLE: Galvanomagnetic effects in ferrimagnets near the compensation point

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 349-352

TOPIC TAGS: galvanomagnetic effect , ferrimagnet , compensation point , manganese germanium compound, magnetoresistance, Hall effect, Ettingshausen effect, Nernst effect

ABSTRACT: A list of the various galvanomagnetic and thermomagnetic effects caused by ferromagnetic ordering, which can occur in ferrimagnets near the magnetic compensation point, is obtained from an analysis of the symmetry properties of ferrimagnetic crystals. These effects was predicted in earlier papers by the authors (ZhETF, v. 43, 2273, 1962 and Izv. AN SSSR, ser. fiz. v. 27, 1963) on the basis of the general relations between the fluxes and forces, and include characteristic additions to the usual coefficients of transverse (perpendicular to the flux) kinetic effects (Hall, Ettinghausen, transverse Nernst-Ettinghausen, Righi-Leduc), longitudinal effects that are odd in the magnetic field (change in resistivity in

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ACCESSION NR: AP3005292

a magnetic field, Nernst, effect, longitudinal Nernst-Ettingshausen and Maggi-Righi-Leduc effects), and specific plane-transverse effects such as the "plane Hall effect. A qualitative explanation is given for the odd $\Delta\rho/\rho$ effect experimentally observed near the compesation point in the ferrimagnetic compound Mn_5Ge_2 (ZhETF, v. 45, 52, 1963). Orig. art. has 6 formulas.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Metal Physics Institute of the Academy of Sciences SSSR)

SUBMITTED: 16Feb63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 000

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

ACCESSION NR: AP4011758 S/0181/64/006/001/0210/0218

AUTHORS: Mitsek, A. I.; Shavrov, V. G.

TITLE: Piezomagnetism in antiferromagnetics and ferrimagnetics

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 210-218

TOPIC TAGS: piezomagnetism, antiferromagnetic, ferrimagnetic, sublattice, magnetic crystal, compensation point, piezomagnetic coefficient, antiferromagnetic structure, ferromagnetic structure, spin wave, spin wave spectrum

ABSTRACT: The authors have investigated the piezomagnetic effect in magnetic crystals having two sublattices. They have examined the symmetry of crystals that permit piezomagnetism and have computed the tensors of piezomagnetic coefficients for all types of antiferromagnetic structures. Piezomagnetism can be observed only in antiferromagnetics the structure of which permits the existence of weak ferromagnetism. If the antiferromagnetic is found in a state in which the weak ferromagnetic moment is absent, then piezomagnetism can be observed against a "zero background." When a weak ferromagnetic moment is present, the piezomagnetic effect supplies an additional field that may be distinguished (in principle). Thus, like weak ferromagnetism, the piezomagnetic effect is impossible in triclinic crystals

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ACCESSION NR: AP4011758

or in cubic crystals of the classes T and T_h. Piezomagnetism may probably be observed in ferrimagnetics as well, but only against a "zero background," at the point of compensation (if there is one). Actually the effect will appear on one side of the point of compensation or the other when elastic stresses are applied to the sample. The authors computed the temperature dependence of a piezomagnetic model and the spectra of spin waves, taking into account the elastic stresses, for the antiferromagnetic crystals MnF_2 and CoF_2. "We express our deep thanks to Ye. A. Turov for his constant interest in the work and for his valuable discussions, and we thank S. V. Vonsovskiy for discussing some of the results." Orig. art. has: 3 tables and 29 formulas.

ASSOCIATION: Institut fiziki metallov AN SSSR, Sverdlovsk (Institute of the Physics of Metals AN SSSR)

SUBMITTED: 26Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 018 OTHER: 007

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548720016-7

ACCESSION NR: AP4042402 S/0056/64/047/001/0296/0299

AUTHORS: Turov, Ye. A.; Shavrov, V. G.; Irkhin, Yu. P.

TITLE: Hall effect in a ferrimagnet with compensation point. II; Theory

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 296-299

TOPIC TAGS: Hall effect, ferromagnetism, antiferromagnetism, Hall constant, temperature dependence

ABSTRACT: This is apparently a continuation of a paper by two of the authors (Turov and Shavrov, Izv. AN SSSR, ser. fiz. v. 27, 1487, 1963) and is devoted to an explanation of the temperature dependence of the Hall emf in a ferrimagnet near the compensation point. Such a temperature dependence was observed by V. N. Novogrudskiy and I. G. Fakidov (ZhETF v. 47, 40, 1964) in the compound Mn_5Ge_3. A qualitative variation of the temperature dependence of

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the ferromagnetic and antiferromagnetic Hall effects is obtained by deriving expressions for these Hall constants using the mechanism of scattering by spin inhomogeneities and a generalization of the calculations made by one of the authors (Yu. P. Irkhin, Sh. Sh. Abel'skiy, FTT v. 6, 1635, 1964) to include two magnetic sublattices, for the calculation of the anomalous Hall coefficient. No accurate and detailed temperature variation can be obtained for these coefficients because of the crudeness of the approximations and because the Hall constants cannot be expressed in terms of the part of the electric resistivity due to the scattering by the spin inhomogeneities. The main conclusion is that the coefficients have no singularities as functions of T at the compensation point. The best that can be expected is no pronounced disagreement. "The authors are grateful to Sh. Sh. Abel'skiy and A. N. Voloshinskiy for advice and remarks." Orig. art. has: 12 formulas.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute

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L 26954-65 EWT(1)/EPA(s)-2/EWT(m)/T/EWP(t)/EWP(b) Pt-10 IJP(c) JD/GG

ACCESSION NR: AP5003439 S/0181/65/007/001/0217/0226

43

AUTHORS: Turov, Ye. A.; Shavrov, V. G.

26

B

TITLE: On the energy gap connected with magnetoelastic energy of spin waves in ferromagnets and antiferromagnets

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 217-226

TOPIC TAGS: antiferromagnetism, ferromagnetism, spin wave, energy gap, magnetoelastic energy, piezomagnetism

ABSTRACT: It is pointed out first that there are cases when the spontaneous deformation produced by magnetostriction in a ferromagnetic or antiferromagnetic crystal in the ground state cannot always be neglected, particularly when the magnetic crystallographic anisotropy is small and the magnetostriction is sufficiently large. Since the spontaneous deformation of the crystal contributes primarily to the spin-wave energy gap, the authors show that the spin-wave spec-

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ACCESSION NR: AP5003439

trum of ferromagnets and antiferromagnets contains, besides a purely magnetic gap due to the energy of the magnetic anisotropy and the energy of the demagnetizing field, also an additional energy gap, connected with the spontaneous deformations of the magnetic crystal and due to the magnetic elastic energy. This magnetoelastic gap is isotropic in first approximation in the sense that it does not depend on the direction of the magnetic-ordering axis in the crystal. The most favorable conditions for its appearance occur in a uniaxial antiferromagnet with natural antiferromagnetism axis lying in the basal plane, for the case when the crystallographic anisotropy in this plane is small. Separate calculations are made for the ferromagnetic and antiferromagnetic crystals. It is pointed out that an isotropic gap of magnetoelastic origin was already observed in experiments on antiferromagnetic resonance in hematite by Borovik-Romanov et al (ZhETF v. 47, 886, 1964 and v. 48, 74, 1965). It can also appear in the case of uniaxial ferromagnets with very large negative magnetic-anisotropy constant, and in particular, spontaneous

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deformations play a decisive role in the production of the spin-wave gap in dysprosium. As part of the calculations, the authors consider the influence of external stresses and piezomagnetism on the magnetoelastic gap. In the case of antiferromagnets, account is taken in the magnetoelastic energy of not only the terms that cause the magnetostriction, but also of those responsible for the piezomagnetism. "The authors thank A. S. Borovik-Romanov and Ye. G. Rudashevskiy, who suggested the main idea of the present work, and also B. Kh. Ishmukhametov for a discussion." Orig. art. has: 32 formulas.

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AUTHOR: Shavrov, V. G.

TITLE: Influence of the electric field on the resonant frequency of antiferromagnets

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 328-329

TOPIC TAGS: antiferromagnetism, resonant frequency, electric field effect, crystal structure, spin wave spectrum, energy gap, magnetoelectric effect

ABSTRACT: The author shows by analysis of the variable experimental data that in a rhombohedral antiferromagnet such as Cr_2O_3 the electric field can influence the resonant frequency only at very large values, $E \sim 10^8$ V/cm. On the other hand, in uniaxial antiferromagnets the situation should be different if the axis of antiferromagnetism lies in the basal plane and the anisotropy in this plane is

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low. This is in contrast with Cr_2O_3, where the antiferromagnetism axis is directed along the trigonal axis, so that a rather large gap due to the magnetic anisotropy energy exists in the spin-wave spectrum. In the other type of antiferromagnet, the gap in the spin-wave spectrum is due to magnetostriction energy. Consequently an electric field several orders of magnitude smaller than in the case of Cr_2O_3 should have an effect on the resonant frequency. Such an effect can be observed in Ti_2O_3, in which the magnetoelectric effect was also observed, and in which the antiferromagnetism probably lies in the basal plane. However, recent experiments have shown (S. C. Abrahams, Phys. Rev. v. 130, 130, 1963) that Ti_2O_3 cannot exhibit a magnetoelectric effect. Consequently additional experiments are necessary to clarify this contradiction. "The author thanks Ye. A. Turov for interest in the work and for a discussion of the results." Orig. art. has: 4 formulas.

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