

GALKIN, I.F., inzh.; YEVSEYEV, Yu.A., inzh.

Use of automatic and remote control in subway power supply.

Elek. i tepl. tiaga 2 no.7:26-27 JI '58. (MIRA 11:7)

(Leningrad--Subways) (Automatic control) (Remote control)

L 58283-65 EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EPR/EEC(t)/EWP(t)/EWP(k)/EWP(z)/EWP(b)  
Pf-4/Ps-4/Pt-7/P1-1 IJP(c) JD/GG UR/0020/65/162/004/0839/0842  
ACCESSION NR: AP5015424

AUTHOR: Gindin, L. G.; Vol'p'yan, A. Ye.; Galkin, I. F.; Gul', V. Ye.

TITLE: New data on the electrical breakdown of aluminum suspensions in dielectrics

SOURCE: AN SSSR. Doklady, v. 162, no. 4, 1965, 839-842

TOPIC TAGS: dielectric breakdown, aluminum suspension, aluminum dielectric, aluminum oxide

ABSTRACT: To provide a phenomenological description of the process by which aluminum in suspensions is converted from a dielectric (due to its oxidized surface layer) to a conductor, the authors took motion pictures of the principal stages of this process. The pictures were taken continuously at the rate of one frame every 4 sec. The aluminum powder particles, ranging in size from fractions of one micron to several microns (peak of distribution curve at 1  $\mu$ ), were dispersed in B-70 aviation gasoline. Aluminum powders impregnated with B-70 (into which the electrodes were inserted) were also studied. Photographs representative of the principal stages are illustrated and described. In addition, the authors investigated the fundamental problems of the structure of the bridge formed by the aluminum particles and the nature of the forces which form it and hold it together. To this end, oscil-

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ACCESSION NR: AP5015424

lations of the current and voltage of the bridges were recorded, and the current-voltage characteristics of the bridge were plotted (see Fig. 1 of the Enclosure). The hysteresis loop arises from a structural rearrangement of the bridge. The observed deviations from Ohm's law were attributed to the evolutions of Joule heat. The results confirm an earlier hypothesis that the bonding between the individual links of the bridge is metallic and that when breakdown occurs the aluminum particles are welded to one another. Furthermore, the oscillograms indicate that when the current passes through the bridge, a major part is played by the forces of the electric field which continuously restore the broken contact between the links of the bridge and give it a degree of stability. Orig. art. has: 2 figures, 2 tables, and 3 formulas. [08]

ASSOCIATION: none

SUBMITTED: 18Dec64

ENCL: 01

SUB CODE: IC, EM

NO REF SOV: 003

OTHER: 002

ATD PRESS: 4037

Card 2/3

L 58283-65

ACCESSION NR: AP5015424

ENCLOSURE: 01

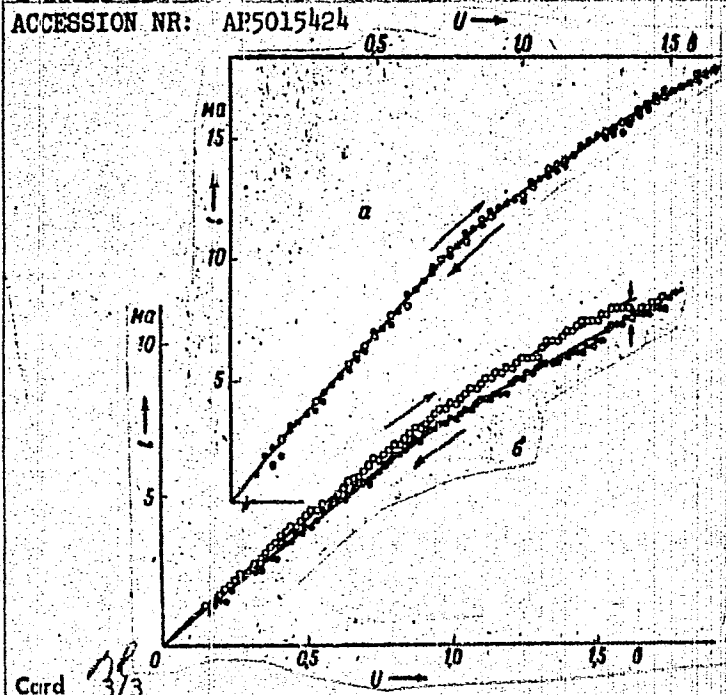


Fig. 1. Current-voltage characteristics of aluminum bridges

a - Without hysteresis loop; b - with hysteresis loop.

L 00100-02 EWP(R)/EWT(M)/EWP(C)/EWP(W)/EWP(L)/ETI IJP(c) WE/DS/WW/JD/WW/JG

ACC NR: AF6027736

SOURCE CODE: UR/0020/66/169/004/0865/0867

AUTHOR: Gindin, L. G.; Vol'p'yan, A. Yo.; Galkin, I. F.

91  
89  
B

ORG: All-Union Correspondence Polytechnic Institute (Vsesoyuznyy zaochnyy politekhnicheskii institut)

TITLE: Structuralization of suspensions and powders of certain metals in a constant electric field

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 865-867

TOPIC TAGS: powder metal, dielectric breakdown, *ELECTRIC FIELD, ELECTRIC CONDUCTIVITY*

ABSTRACT: Suspensions in gasoline (B-70) and gasoline-immersed powders of Fe, Ni, Co, Cr, Mo, W, Sb, Bi, Sn, Pb and Ag were studied in a constant electric field. All the metal particles were oxidized as a result of prolonged contact with air. On the basis of the behavior of their disperse systems, the metals studied are divided into four groups: (1) Pb, Bi; (2) Fe, Co, Ni, Cr, W, Mo; (3) Sn, Zn; (4) Ag, Sb. The differences between the first three groups are shown in Fig. 1, where the first group is represented by lead. The conductivity of lead up to the breakdown was too low to be measured, and became high only after the breakdown (indicated by a broken line). The second group is represented by Fe and Co, whose structures in relatively weak fields (up to the breakdown) display a conductivity obeying Ohm's law, and as the field increases, a conductivity characteristic of thin semiconducting films in strong fields.

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UDC: 54-148

L 05130-67

ACC NR: AP6027736

Breakdown occurs after  $E \geq E_{cr}$  is reached. The third group is characterized by a still greater increase of conductivity with rising  $E$ ; whereas in Fe and Co the currents preceding the breakdown are  $10^{-6}$  A, they amount to  $\sim 10^{-3}$  A in Zn and Sn. In general, the behavior of suspensions and powders of the metals studied is determined by the nature and primarily by the conductivity of their oxide films. The formation of structures in the electric field is due to polarization forces of the particles, this polar-

Fig. 1. Volt-ampere characteristics of structures in Po, Fe, Co, Zn and Sn powders (broken lines indicate breakdown leading to the formation of a bridge).



L 05130-67

ACC NR: AP6027736

ization in turn being related to the conductivity of the surface oxides. A conductivity low enough to promote the formation of more or less stable structures up to the breakdown is shown by oxides of the metals of the first three groups. The paper was presented by Academician Robinder, P. A., 11 Dec 65. Authors thank Prof. V. Ye. Gul' for his steady interest in this work and for discussing its results. Orig. art. has 2 figures.

SUB CODE: 07, 11, 20 / SUBM DATE: 04 Oct 65 / ORIG REF: 010 / OTH REF: 004

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Card 3/3

GALVIN, I. G.

"Comparative Effectiveness of Various Methods for Winter Concrete and Reinforced-Concrete Works." Thesis for degree of Cand. Technical Sci., Sub 24 Jun 49, Moscow Engineering Economics Inst imeni Sergo Ordzhonikidze.

Summary #2, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.



GALKIN, I.G.

PHASE I

TREASURE ISLAND BIBLIOGRAPHIC REPORT

AID 146 - I

BOOK

Call No.: TA681.G25

Author: GALKIN, I. G., Bach. Eng. Sci.

Full Title: SELECTION OF THE EFFECTIVE METHOD OF WINTER CONCRETE WORK

Transliterated Title: Vibor effektivnogo sposoba zimnego betonirovaniya

Publishing Data

Originating Agency: Constructor's Library on Questions on Economics and Planning

Publishing House: State Publishing House of Construction Literature (Stroyizdat)

Date: 1951

No. pp.: 91

No. of copies: 4,000

Editorial Staff

Editor: Budnevich, L. I., Bach. Eng. Sci.

Tech. Ed.: None

Editor-in-Chief: None

Appraiser: None

Text Data

Coverage: Methods of computation of the time-temperature relation for different concrete grades under different winter conditions are given for comparison and selection of the most efficient and economical procedure in concrete and reinforced concrete works under given climatic and regional conditions. The analysis of technico-economical characteristics of different methods of mold heating is presented with tables and charts.

The book contains analytical and practical solutions of essential problems on winter concrete works based on the experiments of promi-

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GALKIN, I.G.

Vibor effektivnogo sposoba zimnego betonirovaniya

AID 146 - I

ment engineers in the scientific research institutions.

Purpose: A handbook for engineers, designers, and technical personnel in construction works.

Facilities: Presented data developed from early works of the following Soviet scientists: Prof. A. V. Baranovikiy, Prof. T. A. Kireenko, Dr. Eng. Sci., V. S. Luk'yanov, Prof. V. D. Machinskiy, Laureate of the Stalin Prize, Dr. Eng. Sci. S. A. Mironov, Bach. Eng. Sci. E. V. Shuipko, Laureate of the Stalin Prize, Bach. Eng. Sci. V. N. Sizov, Prof. B. G. Skramtaev, Laureate of the Stalin Prize, Bach. Eng. Sci. I. G. Sovalov, Bach. Eng. Sci. V. F. Utenkov and others.

No. of Russian and Slavic References: 12

Available: Library of Congress.

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GALKIN, I. G.

4399. GALKIN, I. G. I CHEPYZHENKO, A. V. -- Kamennyye raboty. (uchebnik dlya izd  
stroit. prom-sti). Kaunas, uchpedgiz, 1954. 164 s. s ill. 22 sm. 2.00 ekz.  
3r. 85k. V per.--Bibliogr: S. 161 -- Na litov. yaz.--(54-57058)  
693.1/2 & (016/3)

SO: Knizhnaya Letopsis', Vol. 1, 1955

USPENSKIY, Vasil'y Vasil'yevich; GALKIN, I.G., kandidat tekhnicheskikh nauk, redaktor; KUTSENOVA, A.A., redaktor izdatel'stva; MEDVEDEV, L.Ya., tekhnicheskij redaktor

[Lowering the cost of reinforced concrete construction] Snizhenie stoimosti sbernego zhelezobetona. Izd. 3-e, dop. Moskva, Gos. izd-vo lit-ry po stroit. i arkhit., 1956. 100 p. (MLBA 9:7)  
(Reinforced concrete construction)

GALKIN, Il'ya Grigor'yevich, kandidat tekhnicheskikh nauk; EDRELEV, N.P.,  
kandidat tekhnicheskikh nauk, nauchnyy redaktor; TYAPKIN, B.G.,  
redaktor izdatel'stva; GUSEVA, S.S., tekhnicheskiy redaktor

[Masonry and facing work] Kamennye i oblitsovochnye raboty. Izd.  
2-oe, perer. i dop. Moskva, Gos.isd-vo lit-ry po stroit. i arkhit.,  
1957. 207 p. (MIRA 10:7)  
(Masonry) (Façades)

GALKIN, I.

GALKIN, I., kand.tekhn.nauk.

~~\_\_\_\_\_~~ Preparing the building site for work in winter. Stroitel' no.9:8-9  
S '57. (MIRA 10:12)

(Building)

GALKIN, I.G., kand.tekhn.nauk

Problems in the rhythmic work of construction organizations.

Trudy MIEI no.9:299-311 '58.

(Construction industry)

(MIRA 1116)

~~GAIKIN, Il'ya Grigor'yevich, kand.tekhn.nauk; USPENSKIY, V.V., red.;~~  
~~IL'IN, V.M., red.;~~ MALYUGIN, V.I., red.; MASLOV, E.A., red.;  
CHERNYAK, M.Ya., red.; SHASS, M.Ye., red.; TARAYEVA, Ye.K.,  
red.izd-va; STEPANOVA, E.S., tekhn.red.

[Rhythmic work in the construction industry] Ritmichnost'  
v stroitel'stve. Moskva, Gos.izd-vo lit-ry po stroit., arkhit.  
i stroit.materialam, 1959. 63 p. (MIRA 12:5)  
(Construction industry)



ETMEKDZHIYAN, Ashot Arutyunovich; GALKIN, I.G., kand.tekhn.nauk, nauchnyy red.; MORSKOY, K.L., red.izd-va; ML'KINA, Z.M., tekhn.red.

[Consolidation and specialization of building organizations and building materials plants in Moscow; practices and economic effectiveness] Ugrupnenie i spetsializatsiia stroitel'nykh organizatsii i predpriatii promyshlennosti stroitel'nykh materialov v Moskve; opyt i ekonomicheskaya effektivnost'. Moskva, Gos.izd-vo lit-ry po stroit., arkhitek. i stroit.materialam, 1959. 141 p.

(MIRA 13:6)

(Moscow--Construction industry)  
(Moscow--Building materials industry)



GALKIN, I.G., dotsent, kand.tekhn.nauk

Methods for lowering costs of concrete and reinforced concrete construction in winter. Trudy MIEI no.14:373-387 '59.  
(MIRA 13:1)

1. Moskovskiy inzhenerno-ekonomicheskij institut.  
(Concrete construction--Cold weather conditions)  
(Building--Estimates)

GALKIN, I.G., kand.tekhn.nauk, red.; SHITOVA, L.N., red.izd-va;  
SHERSPNEVA, N.V., tekhn.red.

[Norms and instructions (SN 104-60) related to operation  
completion in housing construction] Normy i ukazania po  
opredeleniu zadela v zhilishchnom stroitel'stve (SN 104-60).  
Izd.2., ispr. Moskva, Gos.izd-vo lit-ry po stroit., arkhit.  
i stroit.materialam, 1961. 27 p. (MIRA 14:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam  
stroitel'stva.

(Construction industry)

GALKIN, I.G., kand.tekhn.nauk, dotsent

The planning of operation completion and its significance in accelerating commencement of the use of fixed assets and reducing unfinished construction. Trudy MIEI no.15:338-347 '61.

(MIRA 14:12)

1. Moskovskiy inzhenerno-ekonomicheskiy institut.  
(Construction industry)

VARENİK, Ye.I., doktor tekhn.nauk, prof.; KANTORER, S.Ye., kand.tekhn.nauk, dotsent; PARABEK, G.E., kand.tekhn.nauk, dotsent; GALKIN, I.G., kand.tekhn.nauk, dotsent; PETROV, I.A., doktor tekhn.nauk, prof.; VIKHREV, I.D., kand.tekhn.nauk, dotsent; DIKOV, N.D., kand.tekhn.nauk, dotsent; SYRTSOVA, Ye.D., kand.tekhn.nauk, dotsent; BRISKMAN, I.A., ekonomist; IL'IN, V.M., inzh., nauchnyy red.; LBYKIN, B.P., ekonomist, nauchnyy red.; SKVORTSOVA, I.P., red.izd-va; GERASIMOVA, G.S., red.izd-va; GOL'BERG, T.M., tekhn.red.; KASIMOV, D.Ya., tekhn.red.

[Organization and planning in the construction industry] Organizatsiia i planirovanie stroitel'nogo proizvodstva. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam, 1961. 526 p. (MIRA 14:12)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR (for Varenik).  
(Construction industry)

GALKIN, I.G.; KAZANSKIY, B.M., nauchnyy red.; IL'IN, V.M., red.;  
MALYUGIN, V.I., red.; KATSIN, A.S., red.; USPENSKIY, V.V.,  
red.; LEYKIN, B.P., red.; SHASS, M.Ye., red.; GLAZUNOVA,  
Z.M., red. izd-va; BOROVNEV, N.K., tekhn. red.

[Problems of rhythm and operation completion in construction]  
Voprosy ritmichnosti i zadela v stroitel'stve. Moskva, Gos-  
stroizdat, 1962. 168 p. (MIRA 15'9)  
(Construction industry)

GALKIN, Il'ya Grigor'yevich, kand. tekhn. nauk; SINEV, V.S., inzh.,  
red.; GLAZUNOVA, Z.M., red. izd-va; MOCHALINA, Z.S., tekhn.  
red.

[Planning operation completion in housing construction] Planiro-  
vanie zadela v zhilishchnom stroitel'stve; nauchnoe soobshchenie.  
Moskva, Gosstroizdat, 1961. 45 p. (Nauchnye soobshcheniia,  
no.14) (MIRA 16:1)  
(Apartment houses) (Construction industry)



VARENİK, Ye.I.; PETROV, I.A., doktor tekhn. nauk; KANTOPER, S.Ye.,  
doktor ekon. nauk; GALKIN, I.G., doktor ekon. nauk;  
PARAUHEK, G.E., kand. tekhn. nauk; DZKOV, N.D., kand. tekhn.  
nauk; VIKHREV, I.D., kand. tekhn. nauk; SYRISOVA, Ye.D.,  
kand. tekhn. nauk; BALIKHIN, M.I., kand. ekon. nauk;  
BRISKMAN, I.A., ekonomist

[Organization and planning of construction production] Or-  
ganizatsiia i planirovanie stroitel'nogo proizvodstva.  
2. izd. [by] E.I.Varenik i dr. Moskva, Stroizdat, 1965.  
531 p. (MIRA 18:2)

LUKAYEV, Lazar' Panayotovich GALKIN, I.G., prof., retsenzent;  
KUPERSHMIDT, L.S., red.

[Cranes for construction assembly and loading and unloading operations] Krany dlia stroitel'no-montazhnykh i pogruzочно-razgruzochnykh rabot. Moskva, Vysshaya shkola, 1965. 231 p. (MIRA 18:7)

1. Moskovskiy inzhenerno-ekonomicheskii institut imeni S.Ordzhonikidze (for Galkin).

MASALOVICH, G.I., kand. tekhn. nauk, dots.; GALKIN, I.N., kand.  
tekhn. nauk, dots.; KOSAREV, A.I., kand. tekhn. nauk, dots.;  
NIKOLAYEV, A.A., assistent

[Outline of lectures in the general course on the technology  
of metals] Konspekt lektsii po obshchemu kursu tekhnologii  
metallov. Moskva, Pt.3. Sec.6. [Metal cutting] Obrabotka me-  
tallov rezaniem. 1963. 235 p. (MIRA 17:7)

1. Moscow. Energeticheskii institut.

STARSHINOVA, Ye. A.; GALKIN, I.N.

Use of explosions as sources of sound in determining the depth of the sea. Trudy Okean. kom. 10 no.1:152-169 '60. (MIRA 14:6)

1. Institut okeanologii i Institut fiziki Zemli AN SSSR.  
(Pacific Ocean—Seismometry)

S/169/62/000/005/017/093  
D228/D307

AUTHORS: Galkin, I. N. and Kichin, N. N.

TITLE: Application of amplifiers of the seismic station CC-30/60 KMMB (SS-30/60 KMPV) for deep seismic sounding work

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 26, abstract 5A203 (V sb. Razved. i promysl. geofiz., no. 42, M., 1961, 29-38)

TEXT: A redesigned version of serial station amplifiers is proposed for deep seismic sounding work with the aim of changing over to low-frequency recording on moving for distances of 300 - 400 km from the explosion point. Frequency characteristics, open leftwards to 2 c/s (on the 3 db level) and having a large set of right-hand cuts of variable sharpness in the frequency-band 5 - 20 c/s were obtained as a result of the redesigning. The improvement in the left-hand (low-frequency) part of the frequency characteristic is related to the increase in the time constant of the connecting

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Application of amplifiers ...

S/169/62/000/005/017/093  
D228/D307

circuits and to the increase in the inductance of the input and the output transformers. Versions of transformerless anode and cathode outputs that are sufficiently reliable and simple in their execution are also considered. The set of the right cuts of the characteristics was successfully increased and displaced to the low-frequency side at the expense of a different switch commutation, the increased inductance in the filter, and the use of new low-frequency filters -- two-mesh asymmetrical P-shaped filters with increased inductance at the center, single-mesh P-shaped filters with doubled inductance, and single-mesh T-shaped filters. The harmonization of the filters, ensuring the best form of the frequency characteristics, was thereby accomplished. Experimental data are cited about the influence of the regime of the amplifier's input on its frequency characteristic. Several intermediate versions of amplifier redesign are suggested in relation to the problems and the available parts. /Abstracter's note: Complete translation./

Card 2/2

IVANOV, M.I.; PODOL'SKAYA, N.S.; GALKIN, I.N.

Dissolution calorimeter with an oscillating reaction vessel.  
Zhur.fiz.khim. 36 no.8:1838-1841 Ag '62. (MIRA 15:8)  
(Calorimeters)

L 47562-56 INT(1) RW

ACC NR: AP6032417

(N)

SOURCE CODE: UR/0387/66/000/009/0012/0022

AUTHOR: Zverev, S. M.; Galkin, I. N.

29  
B

ORG: Institute of Physics of the Earth, Academy of Sciences, SSSR (Institut fiziki Zemli, Akademiya nauk SSSR)

TITLE: Methods of observation and possibilities of increasing the recording range in deep seismic sounding at sea. ✓

SOURCE: AN SSSR. Izvestiya, Fizika Zemli, no. 9, 1966, 12-22

TOPIC TAGS: deep seismic sounding, seismic measurement, marine seismic measurement, oceanographic seismic measurement, seismic noise background, *MICROSEISM,* *SEISMOGRAPHY, UNDERWATER SOUND EQUIPMENT, OCEAN ACOUSTICS*

ABSTRACT: The state-of-the-art of regional microseismic investigations on land and at sea in the USSR and in non-Soviet countries, primarily the USA, is outlined. On the basis of data obtained in 1963—1964 by the Pacific Ocean Deep Seismic Sounding Expedition of the Institute of Physics of the Earth of the Academy of Sciences USSR, the problem of improving the recording range, instrument parameters, and techniques of seismic measurements at sea is examined. Comparison of the absolute values of signals recorded during deep seismic sounding with the microseism background levels at sea shows that during observations at a specific water layer or with the hydrophone on the bottom, the level of regional background noise sets certain limits on the effective sensitivity of this method. The level of regional microseisms is found to

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UDC: 550.834



L 47560-66

ACC NR: AP6032417

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be lower on land than at sea. This is in agreement with the high effective sensitivity and recording range observed during coastal observations of marine detonations. The level and spectral composition of regional interference permit improved parameters of apparatus used in deep seismic-sounding operations at sea, especially in establishing the necessary sensitivity — minimal signal that can be reliably recorded (0.1 dyne/cm<sup>2</sup> in the 2—12 cps band)—and the necessary cut-off characteristics from the low frequency side, beginning at 2—3 cps. Orig. art. has: 4 figures. [DM]

SUB CODE: 08/ SUBM DATE: 14Jun65/ ORIG REF: 016/ OTH REF: 023/ ATD PRESS: 5093

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Card 2/2

L 04927-67 ENT(1) GW

ACC NR: AT6028734 (N)

SOURCE CODE: UR/3152/66/000/010/0041/0047

AUTHOR: Galkin, I. N.; Zverev, S. M.

ORG: none

TITLE: Hydrophones for deep-sea seismic sounding

SOURCE: Razvedochnaya geofizika, no. 10, 1966, 41-47

TOPIC TAGS: seismologic instrument, ocean acoustics, seismic wave

ABSTRACT: A novel light-weight piezoelectric hydrophone is described which will record elastic waves over a wide dynamic and frequency range. It was developed at the Institute of Physics of the Earth, AN SSSR (Institut fiziki Zemli AN SSSR). The device makes it possible to record simultaneously, without distortion, waves originating from deep-lying interfaces in the earth's crust and sound waves propagating in the water. The sensors are cylindrical radially polarized piezoceramics (either barium titanate or lead zirconate titanate), characterized by high mechanical strength, thermal stability, and resistance to moisture. A low-voltage version of a preamplifier, designed to increase the signal level at the point of reception and to match the high-resistance piezoelement with the recording circuits, is diagrammed

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ACC NR: AT6028734

and discussed. The hydrophone weighs 0.4 kg, and its parameters are: sensitivity, 35 — 50,  $\mu\text{v}/\text{dyne}/\text{cm}^2$ ; transmission band from 1 cps to 1 kc; a minimum value of 0.2  $\text{dyne}/\text{cm}^2$  of signals detectable against a noise background; a maximum undistorted signal of  $\sim 200 \times 10 \text{ dyne}/\text{cm}^2$ ; and a dynamic range of the order of 120 db. Orig. art. has: 1 table and 4 figures.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 006

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Card 2/2

ACC NR: AF6036361

(N)

SOURCE CODE: UR/0387/66/000/011/0100/0107

AUTHOR: Galkin, I. N.

ORG: Academy of Sciences SSSR, Institute of Physics of the Earth (Akademiya nauk SSSR, Institut fiziki Zemli)

TITLE: Use of absolute amplitude characteristics of waves for the adjustment of apparatus used in deep seismic sounding at sea

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 11, 1966, 100-107

TOPIC TAGS: seismic prospecting, geophysic research facility, submarine relief, oscilloscope, magnetic recording

ABSTRACT: The author proposes a method for adjusting the gain of seismic apparatus on the basis of a determination of the absolute amplitudes of the useful waves and accurate calibration of the receiving apparatus. This is to replace the presently employed intuitive procedure of adjusting the equipment to minimize the background. The signal-amplitude transformations occurring in each element of the recording apparatus are traced, and ways of determining the minimum and maximum electric-output signals for a specified apparatus sensitivity are described. The experimental data used for the analysis were obtained during the 1963-1964 deep seismic-sounding expedition in the Pacific. The data show that the dynamic range of the seismic waves produced at distances of 10-200 km by exploding a charge of 130 kg TNT spans 4 - 5 decades. For correct signal registration, it is therefore necessary to have an exact calibration of

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UDC: 550.834

ACC NR: AP6036361

the amplifiers for each gain setting, and to use parallel channels having different sensitivities. A comparison of oscillographic and magnetic recording is obtained. The former has a wider range (a ratio of 6 orders of magnitude is possible, against about 2 orders with magnetic recording), but the latter is essential when the operator cannot observe the seismic signal for some reason. A diagram which facilitates the choice of the amplification apparatus for seismological profiling is presented and its use is explained. It is concluded that the use of absolute signal magnitudes can be useful for the comparison of the results of different seismic methods such as seismological profiling deep, seismic sounding, and low-frequency seismic prospecting. Orig. art. has: 3 figures, 2 formulas, and 1 table.

SUB CODE: 08, 09/      SUBM DATE: 16Jul65/      ORIG REF: 011/      ATD PRESS: 5108

Card 2/2

ACC NR: AF6036361 (N) SOURCE CODE: UR/0387/66/000/011/0100/0107

AUTHOR: Galkin, I. N.

ORG: Academy of Sciences SSSR, Institute of Physics of the Earth (Akademiya Nauk SSSR, Institut fiziki Zemli)

TITLE: Use of absolute amplitude characteristics of waves for the adjustment of apparatus used in deep seismic sounding at sea

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 11, 1966, 100-107

TOPIC TAGS: seismic prospecting, geophysical research facility, submarine relief, oscilloscope, magnetic recording

ABSTRACT: The author proposes a method for adjusting the gain of seismic apparatus on the basis of a determination of the absolute amplitudes of the useful waves and accurate calibration of the receiving apparatus. This is to replace the presently employed intuitive procedure of adjusting the equipment to minimize the background. The signal-amplitude transformations occurring in each element of the recording apparatus are traced, and ways of determining the minimum and maximum electric-output signals for a specified apparatus sensitivity are described. The experimental data used for the analysis were obtained during the 1963-1964 deep seismic-sounding expedition to the Pacific. The data show that the dynamic range of the seismic waves produced at distances of 10-200 km by exploding a charge of 130 kg TNT spans 4 - 5 decades. For correct signal registration, it is therefore necessary to have an exact calibration of

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UDC: 550.834

AGC NR: AP6036361

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SUB CODE: 08, 09/    SUBM DATE: 16Jul65/    ORIG REF: 011/    ATD PRESS: 5108

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GALKIN, I.P.; VERYTIN, U.D.; KARPOV, V.I.

Some physicochemical properties of ammoniumuranyl penta-  
fluoride. Zhur. neorg. khim. 7 no.8:2020-2022 Ag '62.  
(MIRA 16:6)

(Uranyl compounds)



YESINOVSKAYA, G.N.: GALKIN, I.P.

Two cases of tuberculosis of the bones of the cranial vault. Probl.  
tub. 42 no.11:71-72 '64. (MIRA 18:8)

1. Ob'yedineniya zheleznodorozhnaya bol'nitsa (glavnyy vrach Ye.P.  
Belova) st. Velikiye Luki.

GALKIN, I.R.

~~Regulation of carbohydrate metabolism in hypotonia.~~ Regulation of carbohydrate metabolism in hypotonia. Klin.med.,  
Moskva 28 no.5:71-73 May 50. (CLML 19:4)

1. Of the Hospital Therapeutic Clinic (Director --- Prof. M.W.  
Mandel'shtam) Leningrad Pediatric Medical Institute, Leningrad.

VOLKOVA, K.A.; GAUKHMAN, R.P.; GALKIN, I.S., prof., otv.red.;  
KUDRYAVTSEVA, A.I., red.; FEDOROV, I.V., dotsent, red.;  
BLANK, Ye.Ye., bibliograf-redaktor

[Aleksandra Andreevna Glagoleva-Arkad'eva, 1884-1945; a biographical sketch] Aleksandra Andreevna Glagoleva-Arkad'eva, 1884-1945; biograficheskiy очерк. Sost.K.A.Volkova. Moskva, 1947. 31 p. (MIRA 12:6)

1. Moscow. Universitet. Biblioteka.  
(Glagoleva-Arkad'eva, Aleksandra Andreevna, 1884-1945)

GALKIN, I.S., laureat Stalinskoy premii, inzhener.

Telescopic hoisting jack. Mekh.stroi.4 no.3:8-10 Mr. '47.  
(MLRA 9:2)

1.Promstal'montash.  
(Hoisting machinery)

GALKIN, I.S., inzh.

Using twisted double strand ropes in reinforcing precast prestressed reinforced concrete construction elements. Bet. i zhel.-bet. no.9:  
336-340 S '58. (MIRA 11:10)

(Precast concrete)

YERUSALIMSKIY, A.S., doktor ist. nauk, otv. red.; AYZIN, B.A.,  
kand. ist. nauk, red.; GALKIN, I.S., doktor ist. nauk, red.;  
GOROSHKOVA, G.N., kand. ist. nauk, red.; SMIRIN, M.M., doktor  
ist. nauk, red.; TARTAKOVSKIY, B.G., red. izd-va; NOVICHKOVA,  
N.D., tekhn. red.

[German labor movement in the modern period] Germanskoe rabo-  
chee dvizhenie v novoe vremia; sbornik statei i materialov.  
Moskva, Izd-vo Akad. nauk SSSR, 1962. 405 p. (MIRA 15:10)

1. Akademiya nauk SSSR. Institut istorii.  
(Germany—Labor and laboring classes)

30305  
S/109/61/006/011/020/021  
D201/D304

9,1300 (1144)  
AUTHORS

Artemenkov, L.I., and Galkin, I.V.

TITLE:

A high-frequency rotating field in a cylindrical resonator

PERIODICAL:

Radiotekhnika i elektronika, v. 6, no. 11, 1961, 1939 - 1941

TEXT: The experiments were carried out with a copper cylindrical resonator 255 mm dia. The supply generator wave length  $\lambda$  was approximately 40 cm. The indication of the fields inside the resonator was obtained by a loop and two pins. The loop was placed in the beyond-cut-off section of a circular waveguide and could be rotated around the axis of the latter. The dimensions of the loop ( $\sim 10 \times 10$  mm) and its distance from the end face surface of the resonator were chosen in such a manner that the loop would not distort the field patterns inside the resonator. The rods were oriented in the direction of the electric field of both passive and active polarization. The depth of their insertion could also be varied.

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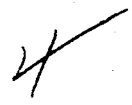
A high-frequency rotating field ...

30305  
S/109/61/006/011/020/021  
D201/D304

ried. The experiments showed that with resonant curves of both polarizations superimposed on each other and with accurate tuning to the frequency of the resonance  $f_p$  of the passive polarization, the curve of dependence of the detector current on the angle of rotation has a nearly elliptical shape, independently of detuning with respect to the actual polarization frequency  $f_a$ , the axes of the ellipse being oriented in the required direction with an accuracy of  $\pm 10^\circ$ . The conclusion may be made, therefore, that when the generator is tuned to the resonant frequency of passive polarization, a phase shift of  $\pi/2$  occurs between the components of the  $H_{111}$  field. This corresponds qualitatively to a  $\pi/2$  phase shift between primary and secondary currents in inductively coupled circuits with lumped parameters when the secondary is tuned to the generator frequency. There are 5 figures and 1 Soviet-bloc reference.

SUBMITTED: March 30 1961

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→ KUZ'MIN, I., general-mayor intendantskoy sluzhby; GALKIN, K., polkovnik  
veterinarnoy sluzhby

Military state farms of Transbaikalia have improved their operation.  
Ty1 i snab.Sov.Voor,Sil 21 no.2:16-19 F '61. (MIRA 14:6)  
(Transbaikalia—State farms)

GALKIN, K.A., inzhener.

End straightener for parquet strips. Der.prom 5 no.12:17-19 D '56.  
(MIRA 10:1)

1. Kostopol'skiy domostroitel'nyy kombinat.  
(Parquetery) (Woodworking machinery)

GALKIN, K. I.

21083 Galkin, K.I. O Kompetovani aspirantury. Vestnik vy ssh. shkoly, 1949, No. 6,  
s. 41-42

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

Galkin, K.T.  
AUTHOR: Galkin, K.T., Candidate of Pedagogical Sciences. 3-9-10/31  
TITLE: From the History of the **System of Conferring** Degrees on Scientific Pedagogical Cadres (Iz istorii attestatsii nauchno-pedagoicheskikh kadrov)  
PERIODICAL: Vestnik Vyshey Shkoly, 1957, # 9, pp 44 - 48 (USSR)  
ABSTRACT: The author gives a description of the history of graduations during the post-revolution period. Scientific ranks and titles were abolished at the beginning of the post-revolution period, but they were re-introduced. Since then the number of holders has increased. More than 11,000 doctors of sciences were graduated from 1937 to 1956, 27% of them during 1951-1955. This general figure is broken up among the various sections as follows: 30% of the doctor's degrees were conferred in medical sciences, 23% in engineering, 10% in biology, 6% in physics and mathematics, 5.6% in agriculture, 5% in geology and 4.9% in geology and mineralogy. During the same period the degree of candidate of sciences was conferred to 95,000 persons. This figure was reached in the following proportion: 12,000 applicants obtained the degree of a candidate of sciences from 1937 - 1940, 22,700 from 1946 - 1950, more than 50,000 from 1951 - 1956.

Card 1/2

From the History of the System of Conferring Degrees on Scientific  
Pedagogical Cadres

3-9-10/31

The highest percentage of candidates is in technical sciences. In social sciences, physics, mathematics, geography, pedagogy and the study of art, doctors and candidates are in demand.

During 1937 - 1955, 9,700 professors and nearly 36,000 doctors were graduated. In 1956, more than 400 persons obtained the degree of a professor and more than 2,500 the degree of a doctor.

The Supreme Commission of Attestation exercised severe control and during 1947 - 1956, 956 contestants for the degree of candidate were rejected. Nevertheless the situation is still unsatisfactory and various deficiencies were stated in the report made by N.A. Bulganin at the XXth Congress of the KPSS. The Supreme Commission of Attestation was directed to increase qualification requirements for doctor's and candidate's theses and to pay special attention to the scientific and practical value of the submitted works.

In a report made at this Party Congress, N.S. Krushchev stated that, with regard to the pre-war period, the number of specialists possessing a higher education has increased considerably. The article contains percentages of specialists for nationalities, republics and regions.

Library of Congress

AVAILABLE:  
Card 2/2

PHASE I BOOK EXPLOITATION 802

Galkin, Konstantin Tikhonovich

Vyssheye obrazovaniye i podgotovka nauchnykh kadrov v SSSR (Higher Education and Training of Professorial and Scientific Personnel in the USSR) Moscow, Gos. izd-vo "Sovetskaya nauka", 1958. 174 p. 3,000 copies printed.

Ed. (title page): Konstantinov, N.A., Professor: Ed. (inside book): Gorbachevskiy, B.S.; Ed. of Publishing House: Lipkina, T.G.; Tech. Ed.: Pavlova, V.A.

**PURPOSE:** The book is a brief review of the development and status of higher education in the USSR.

**COVERAGE:** The first part of the book traces the origin and development of higher education in pre-Revolutionary Russia. It portrays the

Card 1/4

Higher Education and Training (Cont.)

802

status and methods of training professorial and scientific personnel in this period and points out the role and significance of scientists and socio-pedagogical workers who had an affect on the institutions of higher learning, on the training of Russian professorial and scientific personnel, and on the development of Russian and world science. The second part of the book emphasizes the role of the Communist Party and that of the Soviet socialist intelligentsia in creating the new Soviet school. It also points out the special features of Soviet higher education, describes the creation and development of a new training system, and presents some of the important results attained in building-up higher education and in the training of professorial and scientific personnel in the USSR during the forty years of socialism. No personalities are mentioned. There are 129 Soviet references.

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Higher Education and Training (Cont.) 802

PART II. HIGHER EDUCATION, TRAINING AND ACCREDITATION  
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AVAILABLE: Library of Congress

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11-4-58

GALKIN, KONSTANTIN TIKHONOVICH

The Training of Scientists in the Soviet Union. Moscow, Foreign Languages  
Publishing House, 1959.

203 p. Tables.

Translated from the Original Russian: Podgotovka Nauchnykh Kadrov v SSSR.  
Moscow, 1958.

GALKIN, K. V.

Galkin, K. V., and Zlotnikov, Z. N. Collection of Refractory Scrap.  
Ogneupory, 8,370 (1940).--A review of work carried out by the Refractory Scrap  
Organization at Kharkov is given.

Galina L. V.

PLANNING BOOK EXTRACTS 807/2076

Topography section (Soviet Academy of Sciences) by Institut geofizicheskikh nauk i razvedki. Preliminary geofizicheskiye obratnyye daniya, 77p, 18 (Applied Geophysics: Collection of Articles, No. 18) Moscow, Gosgeofizicheskii tsentr, 1958, 286 p. Article also inserted. 3,000 copies printed.

M.I. A.I. Bogdanov; Associate M.I. B.P. Dobrynina; Tech. M.I. S.A. Mukhina.

REMARKS: The book is intended for engineers, technicians, geophysicists, and persons interested in the geophysical methods of petroleum prospecting.

CONTENTS: The book is a collection of 16 articles dealing with the theoretical and practical problems of electrical sounding, seismic prospecting and gravity. Articles are treated for the first time in Soviet literature. New methods for the investigation and detection of radioactive emissions of drill holes, as well as optical and laser-scanning logging are analyzed. No personalities are mentioned. Extensive summary part of the articles.

Galina L. V., G.A. Kravtchenko, V.I. Kuznetsov, and A.V. Prokhorov. Methods for Solving Problems of Application of Geoelectric Prospecting for the Solution of Spatial Problems in Geometric Sciences. 3

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Kolobovskiy, S.V. Some Relations Between Errors in Gravimeter Observations of a New Report in the Case of a Linear Change of the Ball Point. 198

Abelev, S.M. Instruments for Controlling the Distribution of Currents in a Casing Column. 210

Galina L. V. Some Problems in Sea Logging. 232

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Kolobovskiy, S.V. Optical Methods for Investigation of Bore Holes. 257

Yegorov, S.G. Method for Detecting Selective Disturbances of Very Small Frequency. 275

Reznor, I.J. Relationship Between the Observation Control Quality and the Grid Interval of Geophysical Maps. 279

REMARKS: Library of Congress (DS59.J7)

24/20/76  
S-15-00

(2)

GALKIN, L.A.

On gas logging problems. Prikl. geofiz. no.18:232-245 '58.  
(Logging (Prospecting)) (MIRA 11:5)

YUROVSKIY, Yu.M.; VLADIMIROV, B.V.; GAIKIN, L.A.

Chromathermographic analysis of hydrocarbon gases in gas surveys.  
Razved. i prom. geofiz. no.30:60-70 '59. (MIRA 12:12)  
(Gases--Analysis)

YUROVSKIY, Yu.M.; GALKIN, L.A.

Calibration of thermochemical gas analyzers used in gas surveys.  
Razved. i prom. geofiz. no.30:74-75 '59. (MIRA 12:12)  
(Gases--Analysis)

VLADIMIROV, B.V.; GALKIN, L.A.

Apparatus for the production of ethylene and the preparation  
of gas mixtures. *Изв.и пр.и.г.ф.и.з.* no.33:67-69 '59.

(MIRA 13:4)

(Ethylene) (Gases--Analysis)



44874-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6015701 (A) SOURCE CODE: UR/0413/66/000/009/0101/0101

INVENTOR: Galkin, L. A.; Gurevich, S. M.

ORG: none

TITLE: Method of chromatographic analysis of gas mixtures. Class 42, No. 181375

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 101

TOPIC TAGS: chromatographic analysis, argon, oxygen, molecular sieve, gas carrier

ABSTRACT: An Author Certificate has been issued for a method of chromatographic analysis of gas mixtures containing argon and other low-boiling gases in the presence of oxygen. The gas mixture to be analyzed is separated in a chromatographic column and filled with molecular sieves in the gas-carrier flow, with subsequent rectification of the separated mixture components at the outlet of the column. To shorten the time required for analysis and to increase its accuracy, oxygen is used as a gas carrier. [Translation] [NT]

SUB CODE: 07/ SUBM DATE: 21Apr65/

Card 1/1 *207*

UDC: 543.544.25

*35*  
*B*

ALBY, I. A.

Kamennye raboty [Albany]. Moskva, G. S. Iskusstvo liternykh konstruktivnykh i arkhitektura, 1952. 176 s.

30: Monthly List of Russian Acquisitions, Vol. 6 No. 5, August 1953

S/080/60/033/010/011/029  
D216/D306

AUTHORS: Flyerov, V.N., Shchegol', Sh.S., Armenskaya, L.V., and Galkin, L.G.

TITLE: Electrolysis of hydrochloric acid solutions of bivalent copper

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 10, 1960, 2245 - 2252

TEXT: The regeneration of chlorine from hydrochloric acid formed in large quantities during the synthesis of DDT, polyvinylchloride etc. presents a very real problem. In their experimental work, the authors studied the electrode characteristics, of hydrochloric solutions of cupric chloride. The equivalent potential for the reaction  $Cu^{++} + 3Cl^{-} + e \rightleftharpoons CuCl_3^{-}$  was determined with a polished platinum electrode in a series of solutions with constant HCl concentrations ( $\sim 20\%$ ) and varying concentrations of  $CuCl_2$  and  $CuCl$ . ✓

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Electrolysis of hydrochloric ...

S/O80/60/033/010/011/029  
D216/D306

The sum of the molar concentrations was determined with a potentiometer type PPTV-1. To avoid oxidation of the monovalent copper the measurements were taken in an atmosphere of CO<sub>2</sub>; cupric chloride in solution was analyzed iodometrically, cuprous chloride using permanganate and iron-ammonium alum. Hydrochloric acid was titrated with sodium hydroxide solution using methyl orange as indicator. The equivalent potential for the reaction  $\text{CuCl}_2 + e \rightleftharpoons \text{Cu} + \text{Cl}^-$  was determined with a copper electrode in a series of solutions with constant HCl and varying CuCl concentrations (from 29 to 138 gm/l). To prevent cupric ions appearing in the solution, copper metal powder was sprinkled in and the experiment was conducted in an atmosphere of CO<sub>2</sub>. The article shows the normal potentials of certain oxidation-reduction reactions; the relationship between cathode potential and current density; the relationship between potential and current density in hydrochloric acid solutions of cupric and cuprous chlorides. Cathode-impervious graphite,

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S/080/60/033/010/011/029  
D216/D306

Electrolysis of hydrochloric ...

temperature 80°; the relationship between the cathode potential and current density in various electrolytes; the change of potential of a porous graphite cathode with current density at various rates of flow of the electrolyte; anode polarization curves in HCl solutions of  $\text{CuCl}_2$ . The electrolyzer for electrolysis of HCl solutions of  $\text{CuCl}_2$  at 40 amps loading; relationship between current efficiency and current density. It is concluded that 1) The limiting current density with impervious graphite electrodes is increased with decreasing monovalent Cu ions in solution and rising temperature. For porous electrodes the basic factor is the rate of flow of the electrolyte; the temperature and thickness of these cathodes have comparatively little effect. 2) Polarization when chlorine is evolved from HCl solution of bivalent Cu is comparatively small at higher c.d. 3) The current efficiency depends on the type of cathode graphite, the current density and the rate of flow of the electrolyte. There are 7 figures, 2 tables, and 15 references: 5 Soviet-bloc and 10 non-Soviet-bloc. The references to the

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Electrolysis of hydrochloric ...

S/080/60/033/010/011/029  
D216/D306

English-language publications read as follows: I. Gordon, Chem. Eng., 5, 187, 1953; Ch.P. Roberts, Chem. Eng. Progr., 46, 9, 456, 1950.

SUBMITTED: October 5, 1959

Card 4/4

FLEROV, V.N.; SHCHEGOL', Sh.S.; ARMENSKAYA, L.V.; GALKIN, L.G.; Prinsipali  
uchastiye: KALININA, R.N.; IGUMNOVA, N.N.

Electrolysis of hydrochloric acid solutions of cupric chloride.  
Zhur.prikl.khim. 33 no.10;2245-2252 0 '60. (MIRA 14:5)  
(Copper chloride)

GALKIN, L.M.; AFANAS'YEV, P.M.; MIROSHNICHENKO, M.T.

Landscaping and playground improvements near housing projects.  
Gor.khoz.Mosk. 28 no.6:25-27 Je '54. (MLRA 7:7)

1. Upravlyayushchiy domami domoupravleniya no. 53 Moskvoretsko-  
to rayona (for Galkin) 2. Upravlyayushchiy domami domoupravleniya  
no. 11 Oktyabr'skogo rayona (for Afanas'yev) 3. Upravlyayushchaya  
domami domoupravleniya no. 65 Frunzenskogo rayona (for Miroszni-  
chenko)

(Moscow--Landscape architecture) (Landscape architecture--  
Moscow) (Moscow--Playgrounds) (Playgrounds--Moscow)



GALKIN, L.N.

②

✓ Photoluminescence of lead sulfide in the infrared. L. N. Galkin and N. V. Korolev. *Doklady Akad. Nauk S.S.S.R.* 92, 829-30 (1953). (Engl. translation issued as *U.S. Atomic Energy Comm. NSF-tr-151*, 2 pp. (1953)).—When a PbS receiver is placed behind the exit slit of the monochromator and a detecting system consisting of an amplifier and an oscillograph is used, it is observed that at room temp. the photoluminescence of PbS lies in the wave length region above  $2 \mu$ . The max. of the observed signal is in the vicinity of  $2.8 \mu$ . This phenomenon is very similar in many respects to the effect described previously by Lashkirev and Kosonogova (*C.A.* 41, 3371) who observed infrared luminescence in  $\text{Cu}_2\text{O}$ , and is of interest for the physics of semiconductors.

George Meister

*[Handwritten signature]*  
10/15/54

CALKIN, L. N.

Luminescence of the telluride. *C. A. Zinkevich and  
 L. N. Calkin. Zh. Fiz. i Spektroskop. 102:1-3 (1958).  
 The luminescence of ZnTe was measured over the temp.  
 range 100-800°. The yield of luminescence is strongly  
 dependent on the temp. and the change in the yield with  
 temp. is similar to that observed for ZnS and ZnSe. Letof-  
 Si, et al., *Preparation and Characteristics of Solid Lumines-  
 cent Materials*, 1948, 314 (London). The max. lumines-  
 cence of ZnTe was detd. to be 1.140  $\mu$  at 90°K.*

for  
MT

48-5-20/56

SUBJECT: USSR/Luminescence

AUTHOR: Galkin L.N.

TITLE: Infra-Red Photoluminescence of Lead Sulfide (Infrakrasnaya fotolyuminescentsiya sernistogo svintsa)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, p 680 (USSR)

ABSTRACT: The photoluminescence of lead sulfide subjected to thermal treatment in the air was investigated. Special receivers, mirror optics, were applied for studying luminescence, and a diffraction lattice was used as a dispersing element.

The luminescence of lead sulfide is inherent to samples showing a noticeable internal photoeffect, and is located in the infra-red region of spectrum. The maximum of emission band was observed at  $2.8 \mu$  at room temperature and shifted to longer wavelengths with the cooling of the sample. The power yield of luminescence at the excitation by the green mercury line was estimated to be 0.1 % at 20°C.

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The report was followed by a short discussion.

48-5-20/56

TITLE: Infra-Red Photoluminescence of Lead Sulfide (Infrakrasnaya fotolyuminestsentsiya sernistogo svintsa)

No references are cited.

INSTITUTION: Not indicated.

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 2/2

AUTHORS: Galkin, L. N., Fedofilov, P. P. 20-114-4-18/63

TITLE: The Luminescence of Trivalent Uranium (Lyuminestsentsiya trekhvalentnogo urana)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 745-747 (USSR)

ABSTRACT: First some previous papers dealing with this subject are referred to. When investigating artificial monocrystals of  $\text{CaF}_2$ ,  $\text{SrF}_2$  and  $\text{BaF}_2$ , which contain about 0,3% uranium and were bred under strongly reduced (?) conditions, the authors discovered a strong luminescence. The spectrum of this luminescence is located in the ultrared domain at about  $2,0 - 2,5\mu$ . The monocrystals investigated here were bred from a melt in the vacuum and the process of breeding is here discussed in short. The crystals bred in this manner were colored intensively, viz.  $\text{CaF}_2$  red,  $\text{SrF}_2$  orange-red and  $\text{BaF}_2$  orange. This coloring is caused by the existence of strong absorption bands within the visible domain of the spectrum. The spectrum of the  $\text{CaF}_2$ -crystal containing uranium, which was bred in this way, is shown in a diagram. The absorption spectrum consists of some absorption bands in the ultraviolet visible and infrared domain of the spectrum. The

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## The Luminescence of Trivalent Uranium

20-114-4-18/63

position of the maxima valid for room temperature is given here. The absorption spectra of the uranium-containing crystals of  $\text{SrF}_2$  and  $\text{BaF}_2$  are of similar character. The number and the shape of the bands remains unchanged for these crystals, but the intensive bands are shifted towards the short-waved side. The device for the investigation of the luminescence spectrum is described in short. The luminescence of the  $\text{CaF}_2$  crystals is very intense already at room temperature and consists of some bands located within the domain  $2,1-2,5\mu$ . At room temperature four bands are observed. The luminescence spectra of the crystals  $\text{SrF}_2\text{-U}$  and  $\text{BaF}_2\text{-U}$  are located in the same domain but differ with respect to structural details. Several reasons indicate that the here discussed luminescence is due to the trivalent ions  $\text{U}^{+++}$ . The reasons are enumerated in detail. There are 1 figure and 16 references, 6 of which are Slavic.

Card 2/3

The Luminescence of Trivalent Uranium

20-114-4-18/63

PRESENTED: January 14, 1957, by A.N. Terenin, Member of the Academy

SUBMITTED: January 8, 1957

Card 3/3

67163

SOV/51-7-6-31/38

24.3410

AUTHORS: Galkin, L.N. and Feofilov, P.P.TITLE: Luminescence Spectra<sup>1</sup> of Trivalent Uranium Ions

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, No 6, pp 840-841 (USSR)

ABSTRACT: In 1957 the authors reported absorption and infrared luminescence spectra of trivalent uranium ions in artificially grown calcium, strontium and barium fluoride monocrystals (Ref 1). In the present paper the authors report more detailed data on the luminescence spectra of these crystals at room temperature and at  $-150^{\circ}\text{C}$ . The crystals were grown by I.V. Stepanov and M.A. Vasil'yeva from melt using a technique developed under the leadership of I.V. Stepanov (Ref 2). Strongly reducing conditions, which are necessary to obtain crystals with uranium ions of low valency, were ensured by putting some graphite powder into the charge. The amount of uranium in these crystals was 0.1-0.3%. The luminescence spectra were recorded in the same way as before (Ref 1). Luminescence was excited using a mercury lamp SVD-Sh-250; a cell containing water and heat-absorbing glass was placed between the lamp and the samples in order to cut out infrared radiation. The exciting light was modulated at 300 c/s. A mirror monochromator with a diffraction grating (300 lines/mm) was used to analyse luminescence. A lead sulphide 4

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67163

SOV/51-7-8-31/38

## Luminescence Spectra of Trivalent Uranium Ions

photocell was employed as a receiver and a signal was recorded by means of a potentiometer EPP-09. The comparatively high sensitivity of the apparatus made it possible to employ narrow slits ( $10\text{-}30\text{ cm}^{-1}$  in the  $2.5\text{ }\mu$  region) and to observe fine structure in the luminescence of these crystals at low temperatures. It was found that on cooling to  $-150^{\circ}\text{C}$  the intensity of luminescence rose by a factor of 2-3 and this made it possible to use still narrower slits. The main results are shown in a figure on p 840; the left-hand part of this figure shows the luminescence spectra of  $\text{CaF}_2\text{-U}$ ,  $\text{SrF}_2\text{-U}$  and  $\text{BaF}_2\text{-U}$  at  $20^{\circ}\text{C}$ , while the right-hand part of the figure shows the luminescence spectra of the same crystals at  $-150^{\circ}\text{C}$ . The positions of the emission bands and their general nature do not differ greatly between the three types of crystals employed. Cooling produces a clearer picture of the fine structure of the spectrum and shows the effect of variation of the crystalline-lattice parameters on the luminescence spectra. Table 1 p 481 lists the positions of the luminescence band maxima at  $-150^{\circ}\text{C}$ . An extremely narrow and intense band observed at  $-150^{\circ}\text{C}$  near  $2.2\text{ }\mu$  is displaced monotonically towards shorter wavelengths on transition from  $\text{CaF}_2\text{-U}$  to  $\text{BaF}_2\text{-U}$ . On both sides of this band there are wider bands whose positions approach the former on increase of the lattice constant of the base crystal. Such a displacement may be

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regarded as the result of a change in the intensity of the internal electrical field in the crystal. It is also possible that the luminescence spectrum structure may be partly of vibrational nature. The authors suggest that the observed infrared luminescence of trivalent uranium ions is due to forced electron transitions within the 5 f-shell, i.e. transitions  $^4I_{11/2} \rightarrow ^4I_{9/2}$ . According to Jorgensen (Ref 3) the separation between the two levels just quoted amounts to  $4100 \text{ cm}^{-1}$  ( $2.44 \mu$ ) which is in satisfactory agreement with the authors' data on the absorption spectra of  $U^{+3}$  in  $MeF_2$  crystals. There are 1 figure, 1 table and 3 references, 2 of which are Soviet and 1 Danish.

SUBMITTED: July 2, 1959

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33643

24.3500 (also 1137, 1138)  
9.4177 (also 1051)

S/051/62/012/001/011/020  
E032/E414

AUTHORS: Galkin, L.N., Kurbatov, L.N.

TITLE: The effect of oxygen on the photoluminescence of lead sulphide films

PERIODICAL: Optika i spektroskopiya, v.12, no.1, 1962, 95-98

TEXT: It is pointed out that although there is extensive published literature on the electrical and photoelectric properties of lead sulphide, the optical properties of these films have not been investigated to the same extent. In particular, there has been no work on the effect of sorption of oxygen on the photoluminescence of lead sulphide films, which is claimed to have been discovered by the first of the present authors (Ref.1: DAN SSSR, v.92, 1953, 529; Izv. AN SSSR, ser. fiz., v.21, 1957, 680). The aim of the present work was to investigate changes in the conductivity, photoconductivity and photoluminescence during the absorption of oxygen at room temperature. Vacuum lead-sulphide photoresistors prepared by Ye.V.Prokof'yev in accordance with the method of I.G.Kopilevich were investigated. The resistance was determined by a dc method and the photoeffects were measured

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"in the usual way" in modulated light and with a germanium filter. The luminescence was excited by a mercury lamp. The emission of the specimen was examined through crossed filters and was measured with a cooled lead sulphide photoresistor. Fig.1 shows a typical result obtained on first contact with oxygen. The resistance of the film is plotted along the horizontal axis on a logarithmic scale. The points refer to different times of contact with oxygen. Displacement along the horizontal axis to the right corresponds to an increase in the amount of sorbed oxygen and the displacement of the Fermi level towards the valence band. The values of  $\Delta R/R^2$  which are proportional to the photocurrent  $\Delta i_p$  and the intensity of the luminescence  $I_l$  are plotted along the vertical axis (in relative units). It is clear from this figure that chemisorption of oxygen gives rise to a change in all the three quantities, namely the resistance, the photocurrent and the luminescence. The salient points are: the quantum yield is small and the effect of oxygen on the luminescence is very much smaller than on the photoconductivity or conductivity. These results are interpreted on the basis of a model which takes into

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account the effect of capture of minority carriers by traps of non-recombinational type during the lifetime of a majority carrier. It is assumed that adsorbed oxygen molecules play the part of these traps. From this point of view, the effect of oxygen absorption on the conductivity and photoconductivity is a primary result of absorption. The effect on the luminescence is an indirect result associated with the redistribution of the population of recombinational levels. There are 3 figures and 4 references: 2 Soviet-bloc, 1 Russian translation from non-Soviet publication and 1 non-Soviet-bloc. The reference to an English language publication reads as follows:  
Ref.3: H.T.Minden. J. Chem. Phys., v.25, 1956; J.C.Slater. Phys. Rev., v.103, 1956, 1631.

SUBMITTED: January 14, 1961

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E 31849-65 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) PT-5/Tab EWP(c)  
RDW/AT/JD

ACCESSION NR: AP5004587

S/0020/65/160/002/0308/0310

AUTHOR: Galkin, L. N.

TITLE: Recombination radiation in lead selenide layers

SOURCE: AN SSSR. Doklady, v. 160, no. 2, 1965, 308-310

TOPIC TAGS: lead selenide, lead sulfide, recombination radiation, luminescence, luminescence center, photoconductivity, forbidden band

ABSTRACT: The article describes the recombination-radiation spectrum of a lead selenide layer, compares the photoconductivity and photoluminescence spectra of lead selenide and sulfide, and interprets the observed parallelism in the spectra shift of both effects from a single point of view, attributing it to the heterogeneous composition of the layer. The luminescence spectra were excited with a mercury lamp whose thermal radiation was filtered out with water, and were measured with a fund-type mirror monochromator with a 200 line/mm diffraction grating and a cooled lead telluride photoresistor as a receiver. The exciting light was modulated with a perforated disk. The luminescent radiation was filtered out with a germanium optical filter. In both substances, the maximum of the luminescence

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ACCESSION NR: AP5004587

spectrum coincided approximately with the wavelength at which the photoconductivity was equal to half its maximum value, and in the energy of the radiated quantum exceeded greatly the width of the forbidden band. Arguments are presented in favor of the assumption that the relative shift in the luminescence and photoconductivity spectra is not governed solely by the band structures of the two compounds. It is assumed on the basis of other experimental data that the luminescence is due primarily to recombination of a hole with a center that had previously captured an electron. While the structure of the centers themselves is independent of the method of layer preparation, their energy terms are governed both by the properties of the lead chalcogenide and by the properties of the oxide environment, which in turn are governed by the method of preparation and activation. This makes for a variable forbidden gap and explains the different positions of the photoconductivity and luminescence maxima. "The author thanks Academician A. A. Lebedev and L. N. Kurbatov, and also I. V. Abarenkov and M. M. Petrashen for interest and valuable hints. G. N. Ikonnikova and O. A. Kurzina rendered great help in the measurements." This report was presented by A. A. Lebedev. Orig. art. has: 2 figures. [02]

ASSOCIATION: None

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L-31849-65

ACCESSION NR: AP5004587

SUBMITTED: 15Jun67

ENCL: 00

SUB CODE: SS, OP

NO REF SOV: 002

OTHER: 002

ATT PRESS: 3200

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GALKIN, I.N.

Recombination radiation from lead selenide films. Dokl. AN SSSR  
160 no.2:308-310 Ja '65. (MIRA 18:2)

1. Submitted July 27, 1964.

L 46746-66 EWP(e)/EWT(m)/FWP(t)/ETI IJP(c) JD/HW/WH

ACC NR: AP6032274

SOURCE CODE: UR/0020/66/170/002/0315/0316

AUTHOR: Galkin, L. N.

68  
B

ORG: none

TITLE: The "illumination" effect in  $\text{AnS}(\text{Co})$  crystals induced by a giant-pulse ruby laser

15

SOURCE: AN SSSR. Doklady, v. 170, no. 2, 1966, 315-316

TOPIC TAGS: ruby laser, giant pulse, laser, zinc sulfide, ILLUMINATION OPTICS, CRYSTAL OPTIC PROPERTY, LASER RADIATION

ABSTRACT: The transmission spectrum of cobalt-doped ( $N_{\text{Co}} = 2 \times 10^{18} \text{ cm}^{-3}$ ) zinc sulfide crystals (1 mm thick) under the effect of a high-intensity ruby laser radiation

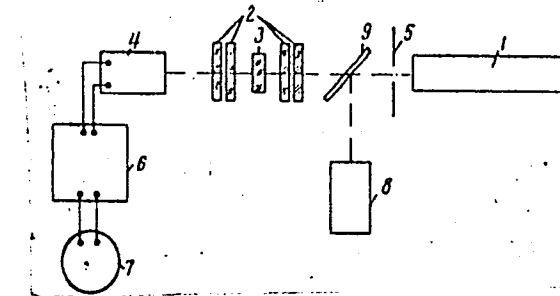


Fig. 1. Setup for the measurement of nonlinear transmission of saturating filters

- 1 - Single-pulse ruby laser; 2 - system of neutral filters with  $D_{10} = 2.5$ ; 3 - test specimen; 4 - colorimeter; 5 - diaphragm;
- 6 - FEOU-15 amplifier; 7 - spectrophotometer; 8 - auxiliary colorimeter; 9 - color-selection mirror.

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ACC NR: AP6032274

tion was investigated at 694 mμ. The experiments were carried out by means of the setup shown in Fig. 1. The results indicate that a 50% "illumination" was attained at an incident intensity of approximately 50 Mw/cm<sup>2</sup>, in a process during which a considerable portion of the Co<sup>2+</sup> ions migrated from the <sup>4</sup>A<sub>2</sub>(F) state to the <sup>4</sup>T<sub>1</sub>(P) state. The relaxation time of the inverted transition was found to be high,  $\tau = 1 \cdot 10^{-9}$  sec, assuming  $\sigma = 1.6 \cdot 10^{-17}$  cm<sup>-2</sup>. This indicates that only a negligible number of ions remains in the metastable <sup>4</sup>T<sub>2</sub>(F) state, transition from which into the lower <sup>4</sup>A<sub>2</sub>(F) state is radiative and requires tens of μsec. Thus, the <sup>4</sup>T<sub>1</sub>(P) → <sup>4</sup>A<sub>2</sub>(F) and <sup>4</sup>T<sub>2</sub>(F) → <sup>4</sup>A<sub>2</sub>(F) transitions remain quasi-independent when the Co ions are exposed to short optical pulses. Orig. art. has: 3 figures. [YK]

SUB CODE: 20/ SUBM DATE: 12Aug65/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 5089

\* possibly ZnS(Co)

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1968/66/005/005/0689/0692

centers into the metastable state. The balance on a metastable level when the switch is excited with a photon flux  $E$  quanta/sec·cm<sup>2</sup> is expressed by

$$\frac{dn_1}{dt} = E(N_1 - n_1)\sigma_1 - \frac{n_1}{\tau_1}$$

where  $N_1$  is the concentration of centers on the ground level,  $n_1$  is the concentration on the metastable level;  $\sigma_1$  is the effective cross section of the light absorption of the pump lamp, and  $\tau_1$  is the time relaxation constant from the metastable level. At low pumping,  $E\sigma_1\tau_1$  is less than 1 and the transmission decreases linearly with the increase of  $E$ . At a sufficiently high pumping level ( $E\sigma_1\tau_1 > 1$ ), the transmission does not depend on  $E$ . The author thanks M. P. Vanyukov for proposing the topic and discussing the results. Orig. art. has: 12 formulas and 2 figures. [WA-14]

SUB CODE: 20/ SUBM DATE: 11Dec65/ ORIG REF: 001/ OTH REF: 004/

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(MIRA 14:12)

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"Spectrophotometry of Gamma Cassiopeiae"  
Izv. Krymsk. Astrofiz. Observ., 11, 1954, pp 59-73

A total of 12 spectrograms of gamma-Cas. obtained by means of the 1,200 mm reflectors of Crimea Observatory and the spectrograph constructed by V. A. Albitskiy are analyzed. Iron-arc spectrum was used for comparison. Microphotograms were obtained by self-recording Moll's microphotometer. Data are tabulated and compared with quantum number  $n$  of Balmer series. (RZhAstr, No 11, 1954)

SO: W-31187, 8 Mar 55

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"Study of Stars of Spectral Classes A and F With Anomalous Intensities of Metallic Lines"  
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The relatively small content of neutral and singly ionized atoms of some metals in "metallic" stars may be due to several causes: deviation from normal state, i. e., from the state, i. e., from the state to which most of the main sequence stars belong and anomalous excitation conditions, as produced by strong ultraviolet radiation fields, created by recombination of ionized H atoms. It is exhibited by the difference of profiles of Balmer series and confirms a real deviation of the chemical compound from that of main sequence stars. (RZhAstr, No 10, 1955)

SO: Sum-No. 787, 12 Jan 56



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