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(Plastics) (Electric insulators and insulation)

LEVANOV, I.N., polkovnik, redaktor; BELYY, B.A., polkovnik, redaktor; NOVOSELOV, A.P., polkovnik, redaktor; ARISTOV, A.D., redaktor; VOLKOVA, V.Ye., tekhnicheskiy redaktor

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(War) (Armies)

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(Electric motors)

BELYY, B.A.

ZHURAVKOV, M.G., doktor filosofskikh nauk,polkovnik, nauchnyy sotrudnik,; BELYY, B. A.,dots, polkovnik, nauchnyy sotrudnik,; SHABAYEV, G.Ye., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; ZAKHAROV, V.A., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; MIKHAYLENKO, N.N., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; MARYGANOV, I.V., dots, polkovnik, nauchnyy sotrudnik,; ARISTOV, A.D., polkovnik, red.; KONOVALOVA, Ye. K.,tekhn. red.

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(Morale)

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(Factories--Heating and ventilation)

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L 02440-67 EWP(j)/EWT(l)/EWT(m)/T LJP(c) RM/WW

ACC NR: AP6018794 (A) SOURCE CODE: UR/0314/66/000/002/0022/0023

AUTHOR: Belyy, B. M. (Engineer)

ORG: None

TITLE: End sealing of centrifugal pump shafts

SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 2, 1966, 22-23

TOPIC TAGS: sealing device, shaft, centrifugal pump, graphitization, carbon, reinforced plastic, hydrocarbon, sulfuric acid, teflon

ABSTRACT: The author describes the development and industrial use of end seals for centrifugal pump shafts used in the following pumps: 4NK-5x1, 5NK-5x1, 6NK-6x1, 4NG-5x1, 4NG-5x4, 5NG-5x1, 4NGK-5x1, 5NGK-5x1, 6NGK-9x1, 8ND-6x1, 4N-5x2, 1.5STsV-1.2, 2.5STsV-0.8, 2.5STsV-1.4, 3STsV-1.9, TsKh-30/60, TsKN-100/80, 1.5VKhS-5x2, LK-14-8, and 3KL-7. Three types of centrifugal pump shaft seals are considered. The seals are made in single and double thicknesses with various friction pair materials depending on designation and working conditions. PK-0 graphitized carbon is used where the pressure of the medium is not more than 10 kg/cm^2, while PT-1000 and 2PT-1000 graphitized carbon and ATM graphite-reinforced plastic are used at pressures up to 20 kg/cm^2 at a sliding rate of 8-12 m/sec. Left- and right-helix spring-reinforced seals are used in pumps transferring hydrocarbons, benzene, α-methylstyrene, copper ammonium

Card 1/2 UDC: 62-762:621.671

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(Distances--Measurement)

BELYY, B.N. (Drogobych)

Aleksandr Matveevich Astriab. Mat. v shkole no.5:73-75 S-O '54.
(Astriab, Aleksandr Matveevich, 1879-) (MLRA 7:11)

BELYY, B.N. (Drogobych)

Literature on organizing and supervising practical area measurement. Mat.v shkole no.3:79-80 My-Je '56. (MLRA 9:8)
(Bibliography--Area measurement)

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BELYY, B.N. (Vinnitsa).

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(Ukraine--Mathematics--Study and teaching)

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(Mathematics--Tables, etc.)

BELYY, B.N.; BERNSHTEYN, A.M. (Vinnitsa)

Organizing and equipping a mathematics laboratory at school. Mat. v shkole no.5:30-33 S-O '58. (MIRA 11:10)
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BELYY, B.N. (Vinnitsa)

Heuristic and lecture methods for teaching mathematics in advanced classes. Mat. v shkole no.6:36-38 N-D '59 (MIRA 13:3)
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Development of independence and initiative in students in extra-curricular work on mathematics. Mat. v shkole no.2:57-59 Mr-Ap '62. (MIRA 15:3)

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(Kiev--Mathematical societies)

BELYY, B.N.

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Fiz.-khim. mekh. mat. 1 no.1:78-81 '65. (MIRA 19:1)

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(Railroads--Maintenance and repair)

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1. Mikologicheskoye otdeleniye (zav. Ye.A.Bel'ts) Vinnitskoy zheleznodorozhnoy bol'nitsy (nachal'nik I.P.Belyy)

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STUPEL', F.A., kandidat tekhnicheskikh nauk; BELYY, I.V., inzhener.

Superfast acting protection devices. Vest. elektroprom. 28 no.3:14-17 Mr '57. (MLRA 10:4)

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FERTIK, S.M., kand. tekhn. nauk; BELYY, I.V., inzh.

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TK1081.B44

BELYY, L.D., laureat Stalinskoy premii; BEYSHTADT, L.I.; KONYAROVA, L.P.; POPOV, I.V., professor, doktor geologo-mineralogicheskikh nauk, redaktor; SKVORTSOV, I.M., tekhnicheskiy redaktor

[Engineering and geological research in the planning and construction of hydroelectric structures; a manual of methods for engineering geologists] Inzhenerno-geologicheskie issledovaniia pri proektirovanii i stroitel'stve gidroenergeticheskikh sooruzhenii; metodicheskoe posobie dlia tekhnikov-geologov. Moskva, Gos. energ. izd-vo, 195[illegible]. 408 p. (MRLA 9:7)

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BELYY, L.D., laureat Stalinskoy premii; MEYSHTADT, L.I.; KONYAROVA, L.P.; POPOV, I.V., professor, doktor geologo-mineralogicheskikh nauk, redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Engineering geology research in designing and constructing hydroelectric power structures; a practical manual for technicians and geologists] Inzhenerno-geologicheskie issledovaniia pri proektirovanii i stroitel'stve gidroenergeticheskikh sooruzhenii; metodicheskoe posobie dlia tekhnikov-geologov. Izd. 2-oe, ispr. Moskva, Gos. energ. izd-vo, 1954. 408 p. (MLRA 9:12)

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(Soil mechanics) (Hydraulic engineering)

15-57-7-10026D

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7, p 188 (USSR)

AUTHOR: Belyy, L. D.

TITLE: Main Problems in Theory and Practice of Engineering and Geology in Water-Power Structures (Osnovnyye voprosy teorii i praktiki inzhenernoy geologii v gidroenergostroitel'stve)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Doctor of Geological and Mineralogical Sciences, presented to the Moscow State University (MGU), Moscow, 1956

ASSOCIATION: MGU (Moscow State University)
Card 1/1

BELYY, L.D., kandidat geologo-mineralogicheskikh nauk.

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(Soil mechanics--Congresses)

BELYY, L.D., kandidat geologo-mineralogicheskikh nauk; AL'TOVSKIY, M.Ye., professor, redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Basic problems in the theory and practice of engineering geology for hydroelectric power construction] Osnovnye voprosy teorii i praktiki inzhenernoi geologii v gidroenergostroitel'stve. Pod obshchei red. M.E.Al'tovskogo. Moskva, Gos.energ.izd-vo, 1957. 175 p. (MLRA 10:8)

(Engineering geology) (Hydroelectric power stations)

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BLIZNYAK, Yevgeniy Varfolomeyevich, prof., doktor tekhn.nauk; BELIKOV, Yevgeniy Fedorovich, dotsent; BELYY, Leonid Dmitriyevich, dotsent, kand. geologo-mineral.nauk; DUBROVSKIY, V.V., red.; VORONIN, K.P., tekhn.red.

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[Geology and dams] Geologiia i plotiny. Pod obshchei red. A.N.Voznesenskogo. Moskva, Gos.energ.izd-vo. (Materialy po proektirovaniiu gidroenergeticheskikh uzlov. Ser.2. Izyskaniia). Vol.1. 1959. 182 p. (MIRA 13:2)

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(Dams) (Engineering geology)

(2)

32. GROUNDWATER HYDROGEOLOGICAL INVESTIGATION METHODS EMPLOYED IN CONNEXION WITH WATER SUPPLY, DEWATERING AND DRAINAGE PROBLEMS IN THE NATIONAL ECONOMY AND CONSTRUCTION OF THE USSR

by

L. D. Boly and I. V. Zenkov

(Abstract)

The paper gives details of investigations conducted in the USSR in connexion with regional studies of groundwater for purposes of water supply, and in connexion with the construction of various structures. The problem is highlighted by reference to the influence of such structures on the groundwater regime, and *vice versa*. The importance of investigations of artificial dewatering, reclamation, drainage, etc. is noted.

Methods of drilling and testing operations are described, as well as the method for studying the groundwater regime. Information is given on dewatering and drainage in connexion with construction of hydro power structures.

The results of work carried out by Gidroenergo project on selecting the best types of filters to increase the efficiency of dewatering, drainage and water supply are given.

REPORT PRESENTED AT THE Fourth Regional Technical Conference on Water Resources Development in Asia and the Far East, Colombo, Ceylon, 5-13 Dec 1960

HELYY, L.D., doktor geol.-miner.nauk

Some results of introducing new techniques in research work.
Gidr.stroi. 29 no.3:24-28 Mr '60. (MIRA 13:6)
(Hydraulic engineering--Research)

BELYY, L.D., doktor geol.-miner.nauk; VERIGIN, N.N., doktor tekhn. nauk, prof., ABRAMOV, S.K., kand.tekhn.nauk; LYKOSHIN, A.G., inzh.-gidrogeolog

Valuable generalization of experience ("Trudy" of the State Institute for the Design and Planning of Hydraulic Structures. No.3. Reviewed by L.D. Belyi and others). Gidr. stroi. 30 no.6:63-64 Je '60. (MIRA 13:7)
(Hydraulic engineering—Research)

SERGEYEV, Ye.M.; BELYY, L.D.

Basic problems of engineering geology and means for solving them.
Vest.Mosk.un. Ser.4:Geol. 16 no.5:37-45 S-O '61. (MIRA 14:9)
(Engineering geology)

TIZDEL', A.R.; KARPYSHEV, Ye.S.; MOLOKOV, L.A.; KONYAROVA, L.P.; PESTOVSKIY, K.N.; ZENKOV, M.V.; KIRICHENKO, N.I.; NEYSHTADT, L.I.; MALYAROVA, I.Ye.; PIRTSKHALAYSHVILI, G.P.; KALMYKOVA, N.I.; BELYY, L.D., doktor geol.-miner. nauk; BOROVOY, A.A., red.; GOTMAN, T.P., red.; LARIONOV, G.Ye., tekhn. red.

[Geology and dams]Geologiia i plotiny. Pod obshchei red. A.A. Borovogo. Moskva, Gosenergoizdat,(Its Materialy po proektirovaniiu gidroenergeticheskikh uzlov. Seriia 2: Izyskaniia) Vol.2. 1962. 151 p. (MIRA 15:9)

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(Geology) (Dams)

KOTLOV, F.V., kand. geol.-min. nauk, otv. red.; BEZRUK, V.M., doktor geol.-miner. nauk, red.; BELYY, L.D., doktor geol.-miner. nauk, red.; BYKOVA, V.S., kand. geol.-miner. nauk, red.; GOR'KOVA, I.M., doktor geol.-miner. nauk, red.; GUREYEV, A.M., red.; YEMEL'YANOVA, Ye.P., kand. geol.-miner. nauk, red.; KOLOMENSKIY, N.V., doktor geol.-miner. nauk, prof., red.; MAKEYEV, Z.A., doktor geol.-miner. nauk, red.; POL'SHIN, D.Ye., kand. tekhn. nauk, red.; POPOV, I.V., doktor geol.-miner.-nauk, prof., red.; PRIKLONSKIY, V.A., prof., red. [deceased]; RUBINSHTEYN, A.L., doktor geol.-miner. nauk, prof., red.; SERGEYEV, Ye.M., doktor geol.-miner. nauk, prof., red.; FADEYEV, P.I., kand. geol.-miner. nauk, red.; ZOLOTOV, P.F., red. izd-va; ASTAF'YEVA, G.A., tekhn. red.

[Materials on the engineering and geological properties of rocks and methods for their study] Inzhenerno-geologicheskie svoistva gornykh porod i metody ikh izucheniia; materialy. Moskva, Izd-vo Akad. nauk SSSR, 1962. 362 p. (MIRA 15:5)

1. Soveshchaniye po inzhenerno-geologicheskim svoistvam gornykh porod i metodam ikh izucheniya, Moscow, 1957. 2. Chlen-korrespondent Akademii nauk SSSR (for Priklonskiy). 3. Moskovskiy gosudarstvennyy universitet (for Sergeyev). 4. Laboratoriya gidrogeologicheskikh problem Akademii nauk SSSR (for Kotlov). 5. Kafedra "Osnovaniya i fundamenty" Moskovskogo instituta inzhenerov vodnogo khozyaystva (Rubinshteyn).

(Rocks) (Engineering geology)

NOVIKOV, I.T.; NEPOROZHNIY, P.S.; GINZBURG, S.Z.; BELYAKOV, A.A.; ERISTOV, V.S.; VOZNESENSKIY, A.N.; IVANTSOV, N.M.; BOROVOY, A.A.; TERMAN, I.A.; ALEKSANDROV, B.K.; YURINOV, D.M.; NOSOV, R.P.; MIKHAYLOV, A.V.; NICHIPOROVICH, A.A.; ABELEV, A.S.; PROSKURYAKOV, B.V.; MENKEL', M.F.; KRITSKIY, S.N.; BELYY, L.D.

Mikhail Evgen'evich Knorre. Gidr. stroi. 32 no.5: My '62. (MIRA 15:5)

(Knorre, Mikhail Evgen'evich, 1876-1962)

KONYAROVA, L.P.; NEYSHTADT, L.I.; LYKOSHIN, A.G.; KARPYSHEV, Ye.S.; BOROVOY, A.A., red.; BELYY, L.D., doktor geol.-miner. nau, red.; BUL'DYAYEV, N.A., tekhn. red.

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BELYY, Leonid Dmitriyevich; POPOV, I.V., prof., retsenzent; SERGEYEV, Ye.M., prof., retsenzent; ZNAMENSKIY, N.V., red.izd-va; UL'YANOVA, O.G., tekhn. red.

[Theoretical fundamentals of mapping for purposes of engineering geology] Teoreticheskie osnovy inzhenerno-geologicheskogo kartirovaniia. Moskva, Izd-vo "Nauka," 1964. 166 p. (MIRA 17:1)

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AUTHOR: Gorbis, Z. R.; Belyy, L. M.; Shumakov, I. K.

ORG: Institute of Technology im. M. V. Lomonosov, Odessa (Tekhnologicheskiy institut)

TITLE: Study by radioactive methods (tracer particles) of the particle residence time in countercurrent gas suspensions

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 1, 1966, 48-53

TOPIC TAGS: heat exchange, gas flow, drag coefficient, trace analysis

ABSTRACT: The size of various devices which use the principle of dragged gas suspension depends to a significant degree on the residence time of solid particles (reacting, exchanging heat, etc.) in the operating zone of the instrument. Consequently, the authors used the tracer method for a very precise and simple estimate of the particle residence time in a free or dragged gas suspension. Helical screen inserts within the suspension extend by as much as one order of magnitude the particle residence time in a counterflow gas suspension and allow control of various possible types of solid particle motion (rolling, rolling-falling, fluidization with and without falling, etc.). A complete evaluation of the efficiency of the

Card 1/2 UDC: 541.182.2/.3

L 05424-67

ACC NR: AP6024638

present method of mechanical drag generation requires more data on thermodynamics and heat transfer of such systems. Orig. art. has: 4 formulas and 4 figures.

SUB CODE: 07,20/ SUBM DATE: 08Feb66/ ORIG REF: 003

Card 2/2

KAZANSKIY, V.M.; BELYY, L.N.

Automatic recording of the drying rate curves for dispersed bodies. Inzh.-fiz. zhur. 7 no.12:66-70 D '64 (MIRA 18:2)

1. Tekhnologicheskiy institut pishchevoy promyshlennosti, Kiyev.

BELYY, M.; PIGULEVSKIY, L.

Pushing barges on the Dnieper-Bug Canal and on the Pripet River. Rech. transp. 22 no.5:45-46 My '63. (MIRA 16:8)

1. Starshiy dispetcher Pinskogo uchastka Verkhne-Dneprovskogo parokhodstva (for Belyy). 2. Nachal'nik tekhnicheskogo otdela Pinskogo sudostroitel'nogo i sudoremontnogo zavoda (for Pigulevskiy).

(Dnieper-Bug Canal--Towing)
(Pripet River--Towing)

BELYY, M.

Meter of the time of equipment operation. Mashinostroitel' no.11:11 N '63. (MIRA 16:11)

BELYY, M. I., CAND TECH SCI, "~~INVESTIGATION~~ OF ELECTRICAL MEASURING INSTRUMENTS WITH RECTILINEAR TRANSPOSITION OF THE MOBILE SYSTEM." BAKU, 1961. (COM ~~FOR~~ HIGHER AND SEC SPEC ED OF THE COUNCIL OF MINISTERS AZSSR. AZERBAYDZHAN INST OF PETROLEUM AND CHEM IMENI M. AZIZBEKOV). (KL-DV, 11-61, 217).

BELKY, M.I.; MAKAROV, N.N.

Electric device for automatic recording of functional relationship curves. Priborostroenie no.11:9-11 N '61. (MIRA 14:10)
(Magnetic recorders and recording)

BELYY, M.I.; MAKAROV, N.P.

Ferrodynamic rectangular coordinate vector-measuring device. Izm.tekh. no.11:43-44 N '61. (MIRA 14:11)
(Magnetic instruments)

BELYY, M.I.

Electric compensation device for remote measurements of displacements. Izm.tekh. no.8:17-19 Ag '62. (MIRA 16:4)
(Electric instruments)

BELYY, M.I.

Magnetoelectric recording instrument with a forward frame shift.
Izm.tekh. no.5:36-37 My '63. (MIRA 16:10)

BELYY, M.I.

Nonsontact transformer end switch. Privorostroenie no.12:26 D'63. (MIRA 17:5)

BELYY, M.I., kand. tekhn. nauk

Noncontact ferrodynamic end switch. Mekh. i avtom. proizv. 17 no.4:46-47 Ap '63. (MIRA 17:9)

BELYY, M.I.

Noncontact ferromagnetic track switch. Stan. i instr. 34 no.8:31 Ag '63. (MIRA 16:10)

ACCESSION NR: AP4045920 S/0119/64/000/009/0021/0022

AUTHOR: Bely*y, M. I. (Candidate of technical sciences)

TITLE: Computer without moving elements

SOURCE: Priborostroyeniye, no. 9, 1964, 21-22

TOPIC TAGS: magnetic computer, no moving element computer

ABSTRACT: The instrument consists of two identical magnets (see Enclosure 1). Hollow split ferromagnetic cylinder 1 includes shaped bar 2. Coils 3 and 4 are excited by a commercial-supply or higher frequency. The coils are so connected that their magnetic fluxes cancel each other; coil 5 is not excited under no-signal conditions. Signal coils 6 and 7 strengthen the flux of one and weaken the flux of the other exciting coil. The emf in coil 5 is proportional to the voltage applied to the signal coils; its phase also depends on the signal-voltage phase. To eliminate distortion of the signal due to the excitation flux, two identical magnets with 180°-

Card 1/3

ACCESSION NR: AP4045920

shifted fluxes and appropriate connection of coils are used. By selecting the configuration of the airgap, the desirable law of the emf in coil 5 can be obtained. Orig. art. has: 1 figure and 6 formulas.

ASSOCIATION: none

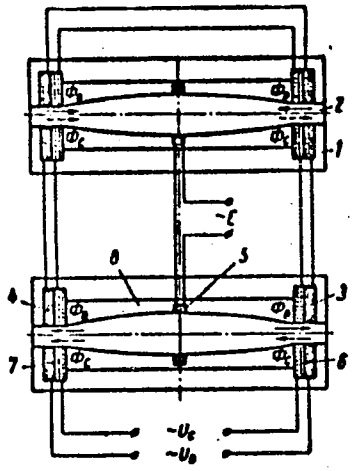
SUBMITTED: 00 ENCL: 01

SUB CODE: DP NO REF SOV: 005 OTHER: 000

Card 2/3

ACCESSION NR: AP4045920

ENCLOSURE: 01



A computer without moving elements

Card 3/3

BELYY, Mikhail Izrailevich, kand.tekhn.nauk, dotsent; GORDEYEV, Nikolay Grigor'yevich, student IV kursa

Study of nonuniform magnetic circuits with distributed parameters. Izv.vys.ucheb.zav.; elektromekh. 8 no.7:748-755 '65. (MIRA 18:8)

1. Fiziko-matematicheskiy fakul'tet Ul'yanovskogo pedagogicheskogo instituta.

L 64157-65

ACCESSION NR: AR5004561 S/0196/64/000/011/A007/A007
538.26

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 11A71

AUTHOR: Belyy, M. I.

TITLE: Calculation of linear magnetic circuits with uniformly distributed parameters

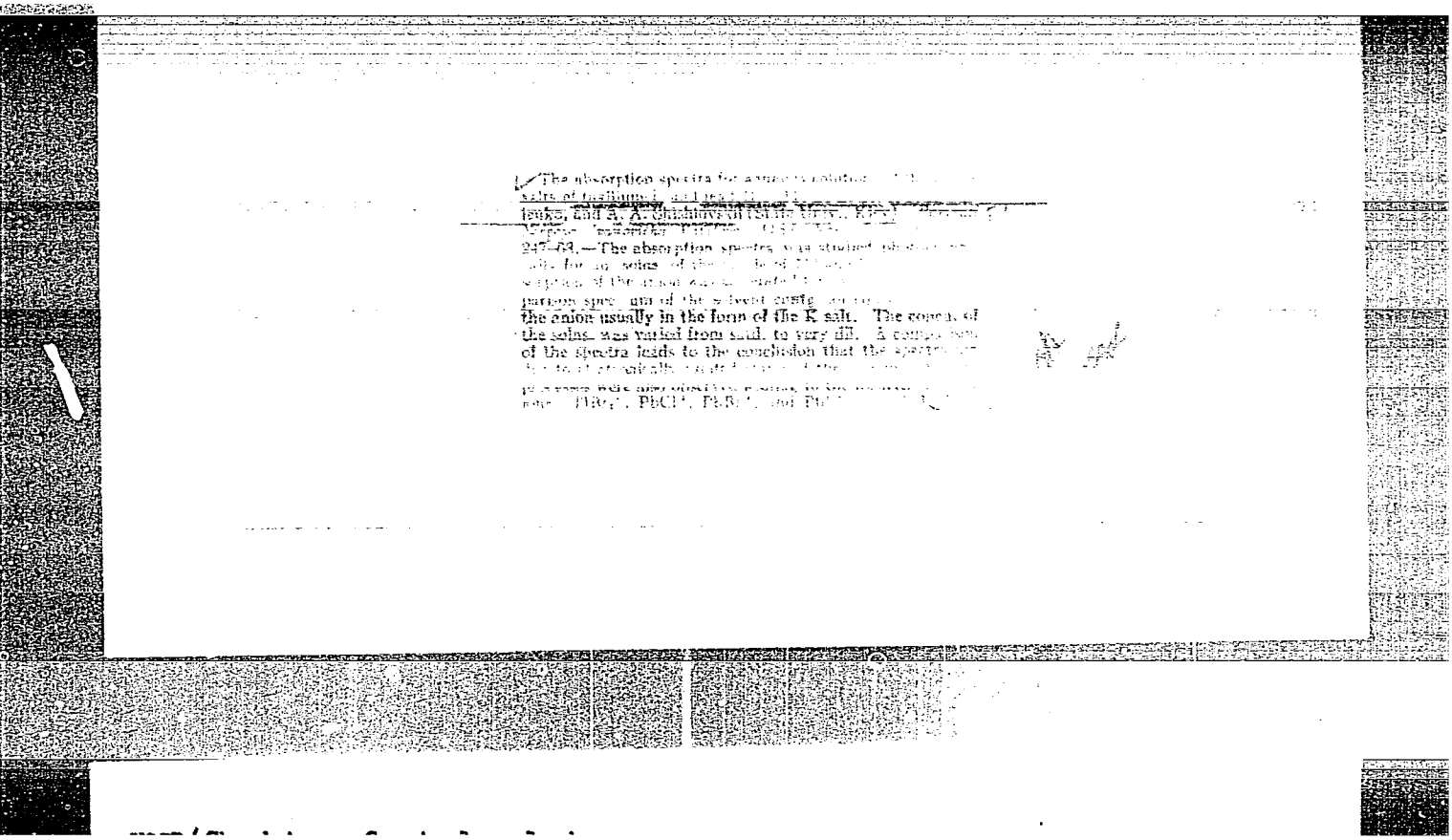
CITED SOURCE: Uch. zap. Ul'yanovskiy gos. ped. in-t, v.18, no. 1, 1963, 3-10

TOPIC TAGS: magnetic circuit, magnetic circuit design, ferrodynamic instrument

TRANSLATION: A method is considered for calculating straight- [illegible] magnetic circuits having a fixed airgap. The method can be [illegible] ferrodynamic recorders with linear travel of their movable [illegible]
Bibliography: 5 titles.

SUB CODE: EE, EM ENCL: 00

Card 1/1



Belyy, M.Yu.

K

USSR/Optics

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10430

Author : Belyy, M.U., Shishlovskiy, A.A.
Inst : Not Given
Title : Effect of Solvent in Temperature on the Absorption of Solutions of Lead Salts.

Orig Pub: Nauk. zap. kiivsk. un-t, 1955, 14, No 8, 127-136

Abstract: An investigation was made of the absorption spectra of ions of Pb in solutions of water, ethyl alcohol, methyl alcohol, isopropyl alcohol, glycerine, acetonitryl, ethyl ether (each containing 1 -- 5% water) in the region from 200 to 300 millimicrons. The salt $Pb(ClO_4)_2$ was used. The maximum absorption of the Pb^{2+} ions in the transition from water to any other solvent shifts towards the longer waves (208 - 220 millimicrons). The maximum shift is observed in glycerine and methyl alcohol. The shape of the absorption band of the Pb^{2+} ion is retained for all solvents, and the value of

Card : 1/3

USSR/Optics K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10430

log k changes from 3.98 to 3.88 (k is the absorption coefficient). When the solvent is diluted with water, the band changes gradually into the absorption spectrum of the hydrated Pb^{2+} ion. The absorption band of the alkali associate of Pb^{2+} in a glycerine solution and of the chlorine and bromine associates in 50% aqueous solution of glycerine shifts towards the longer waves and broadens. The absorption spectra of chlorine, bromine, and alkali solutions of lead were investigated at temperature from 20 to 98° and from -2.5 to -14°. For chlorine and bromine solutions of lead, there is a lowering and broadening of the band with increasing temperature, and a narrowing and rising of the band with decreasing temperature. The spectra of the alkali solutions change little with changing temperature. It is concluded that aqueous solutions of the salts $Pb(ClO_4)_2$ contain hydrated ions ClO_4 and Pb^+. The formations of the associates (Terenin A.N., Uspekhi fiz. nauk, 1937, 17, No 1) and transfer of energy does not take place. The shift of the max-

Card : 2/3

USSR/Optics K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10430

imum of absorption upon change of solvent is explained by the electrostatic action of the molecules of the solvent on the Pb^{2+} ion. From the data of the temperature measurements it is concluded that the weak associates of Pb^{2+} with the anions Cl , Br , and OH are not strong, and a role is played in their formation by the ions of the nearest order and partially of the farther order around the ion Pb^{2+}. It is concluded that the change in the absorption with changing temperature is not the result of the smearing of the energy levels, but of the weakening of the bond between the ions of the associates. The strongest associates are formed in alkali solutions, next in low-concentrated solutions, and then in strongly concentrated halide solutions of lead. This is confirmed by the presence of luminescence in chlorine solutions of lead.

Card : 3/3

BELYY, M.U. [BILYI, M.U.]

Determining the composition of A_m^- and A_mB_n type complex compounds. (MIRA 11:4)
Nauk povid. KDU no.1:17-18 '56.
(Complex compounds)

BELYY, M.U. [BILYI, M.U.]

Polarimetric analysis of the G component in penicillin. Nauk povid. KDU no.1:18-19 '56. (MIRA 11:4)
(Penicillin--Optical properties)

B-4

USSR/ Physical Chemistry - Molecule. Chemical bond

Abs Jour : Refetat Zhur - Khimiya, No 4, 1957, 10872

Author : Belyy M.U., Gudymenko K.F.
Inst : Academy of Sciences USSR — Kiev State U im. T. G. Shevchenko, Gor'kiy Pedagog. Inst, Kiev
Title : Luminescence and Absorption of Solutions of Tin Salts

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 5, 579-582

Abstract : Investigation of luminescence and absorption of solutions of tin salts depending on concentration of Sn^{2+} and of the acid (Hcl, H_2SO_4). Luminescence spectrum of solutions of tin salts in HCl of different concentration consists of two bands with λ (maximum) = 470 and 495 mμ, in H_2SO_4 with λ (maximum) = 550 and 615 mμ. Solutions of $SnSO_4$ in concentrated H_2SO_4 show brilliant luminescence which persists in air and on prolonged exposure to light. Solutions on dilute H_2SO_4 retain the capacity to glow only in a clo- [illegible] oxidation in the air to $Sn(SO_4)_2$ more rapidly with

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 10872

tin salts is caused by divalent tin cathion, the excited state of which is that of a triplet (^3P). It is assumed that luminescence of solutions of divalent tin salts is associated with the presence of two external s-electrons.

BELYY, M.U.

PRIKHOT KO, A.F

24(7) P3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Candidate of Physical and Mathematical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., A. Ye., Candidate of Physical and Mathematical Sciences, and Glauberman, Candidate of Physical and Mathematical Sciences.

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SOV/32-24-9-11/53

AUTHORS: Gudymenko, K. F., Belyy, M. U., Skachko, M. A.

TITLE: The Luminescence Method for the Checking of Alkaline Baths for Tinning (Lyuminestsentnyy metod kontrolya shchelochnykh vann luzheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 9, pp 1066-1067 (USSR)

ABSTRACT: The reduction of tin from the tetravalent to the divalent state constitutes one of the main disadvantages of the baths mentioned in the title. Therefore, a speedy, sensitive method for the determination of minimum quantities of divalent tin is of particular importance. Sn^{2+}-ions can luminesce in some solvents, whereas Sn^{4+}-ions do not possess this property. On the basis of this fact, the present method has been evolved. Baths of the following composition were investigated: 10 g/l free base, 6,8 g/l sodium acetate, and 90 g/l sodium stannate. The luminescence was produced by means of ultraviolet light of 200-250 mμ wave length, directed through a quartz lens onto the cuvette containing the solution to be tested. Prior to determination, the test samples taken were diluted with sulfuric acid. A diagram for the automatic control of the checking process is

The Luminescence Method for the Checking of Alkaline Baths for Tinning

given. There are 2 figures and 2 references, which are Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko (Kiyev State University imeni T. G. Shevchenko)

Belyy, M. K.

24(8) PHASE I BOOK EXPLOITATION SOV/2809

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk

Termodinamika i stroyeniye rastvorov; trudy soveshchaniya... (Thermodynamics and Structure of Solutions; Transactions of the Conference Held January 27-30, 1958) Moscow, Izd-vo AN SSSR, 1959. 295 p. 3,000 copies printed.

Ed.: M. I. Shakhparonov, Doctor of Chemical Sciences; Ed. of Publishing House: N. G. Yegorov; Tech. Ed.: T. V. Polyakova.

PURPOSE: This book is intended for physicists, chemists, and chemical engineers.

COVERAGE: This collection of papers was originally presented at the Conference on Thermodynamics and Structure of Solutions sponsored by the Section of Chemical Sciences of the Academy of Sciences, USSR, and the Department of Chemistry of Moscow State University, and held in Moscow on January 27-30, 1958. Officers of the conference are listed in the Foreword. A list of other reports also read at the conference, but not included in this book, is given. Among the problems treated in this work are: dielectric and thermodynamic properties of various mixtures, spectroscopic analysis, etc. References accompany individual articles.

BELYY, M.U. [Bilyi, M.U.]

Conditions for the appearance of luminescence in solutions of inorganic salts. Visnyk Kyiv.un.no.2.Ser.fiz.ta khim. no.1:49-52 '59. (MIRA 14:8)

(Luminescence)

24(7) SOV/48-23-1-13/36

AUTHORS: Avramenko, V. G., Belyy, M. U.

TITLE: Investigation of the Absorption and Luminescence of Thallium Solutions (Issledovaniye tsentrov pogloshcheniya i lyuminestsentsii rastvorov talliya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, pp 66 - 69 (USSR)

ABSTRACT: Shishlovskiy, Kondilenko (Refs 1,2), Pringsheim (Prinsgeym) and Vogels (Fogel's) (Ref 3) studied the luminescence of thallium ions in solution and found the principal maximum at 370 mμ. In the case of chlorine excess this maximum was shifted toward the light blue and on the addition of bromine toward the green. These phenomena were explained by the production of complexes in the solution. In the present paper the authors intended to give a comprehensive enumeration of the complexes formed in haloid solutions of thallium as well as an explanation of the spectral characteristics of the individual complexes. The method of investigation was devised by one of the authors (Ref 6). It requires constant ionic concentrations of the solutions. For that reason,

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the authors used aqueous thallium chloride solution ($c=2.10^{-4}$ mol/l + 3.06 mol/l $NaClO_4$) and thallium bromide ($c=1.3.10^{-4}$ mol/l + 2.7 mol/l $NaClO_4$) as initial substances. The absorption spectra of various additions of LiCl and NaBr are illustrated in figures. In the spectra a marked shift of the maximum is visible on the addition of LiCl (c> 1.088 mol/l). The spectral curves possess intersections through which the curves of the complex Tl_mCl_n pass. These curves correspond to those calculated for the TlCl and $TlCl_4^{3-}$ complexes. In the case of thallium bromide the investigation was complicated by strong absorption of bromine, but the complexes TlBr and $TlBr_3^{2-}$ could be determined also here. All complexes contain two bands which correspond to the transitions of the cation thallium, the level of which was deformed due to affiliation of the halogen ion. In the luminescence spectrum the band of the hydrogenated thallium is shifted in the case of the complexes. The shift is equal for both complexes TlCl and $TlCl_4^{3-}$. Furthermore, the

authors tabulated the distance $\Delta\nu$ of the bands of the absorption and luminescence spectrum. The distance is almost equal for Tl^+ and TlCl and differs little for TlBr. According to these results the authors assume that the luminescence spectrum of haloid solutions of thallium is determined by the nature of the complexes TlCl and TlBr. There are 3 figures, 1 table, and 7 references, 5 of which are Soviet.

24(7) SOV/48-23-1-14/36

AUTHOR: Belyy, M. U.

TITLE: Determination of the Composition of Polymers in Solutions of Coloring Agents by Means of Absorption and Luminescence Spectra (Opredeleniye sostava polimerov v rastvorakh krasiteley po spektram pogloshcheniya i lyuminestsentsii)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, pp 70 - 73 (USSR)

ABSTRACT: In many solutions, especially in solutions of coloring agents new bands appear with increasing concentration of the substances. This is ascribed to the formation of associates with a certain composition in the solutions. In the present paper a method is devised which permits the determination of the concentration and composition of the above associates as well as the calculation of the absorption spectra of certain associates. For the equilibrium reaction applies: $mA \rightleftarrows A_m$. On the basis of the Lambert-Beer Law and the Law of Mass Action

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$\frac{(c-mx)^m}{x} = K$ (1), $D = \varepsilon \varkappa l + \varepsilon_0 (c-mx) l$ (2), where c denotes the concentration of the substances, x the concentration of polymers, ε_0 and ε the absorption coefficients of the components A and A_m, D the optical density and l the thickness of the absorbent layer. ε and m are obtained by substituting the quantity x for three different concentrations (c_1, c_2, c_3) from (2) into (1). m is obtained from the equilibrium reaction provided the solutions are selected in such a way that $(D_1-D_1')(D_3-D_3') = (D_2-D_2')^2$. For checking the method applied, the rhodamine solutions 6Zh-extra in water were used which already have been defined well (Fig 1). The measurements were carried out by F. Ya. Boroda, Diploma Candidate. The absorption curve of dimers was calculated and compared to the absorption curves of various concentrations (Fig 2). The theoretical curve is virtually identical with that of the concentrated solution. It

follows from this that in concentrated solutions only dimers are present. Even if an extinction or formation of luminescence is observed, the composition and concentration of the polymers produced in the solution can be determined according to the luminescence intensity and a modification of the concentration. The latter method, however, can be applied only if the extinction of luminescence is not caused by migration.

BELYY, M.U.[Bilyi,M.U.]; RUD'KO, B.F. [Rud'ko, B.F.]

Effect of temperature on the luminescence and absorption spectra of solutions of heavy metal salts. Part 1: Study of solutions of lead and thallium salts. Ukr. fiz. zhur. 5 no.6:799-808 N-D '60. (MIRA 14:3)

1. Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko.
(Lead salts—Spectra) (Thallium salts—Spectra)

BELYY, M.U.; RUD'KO, B.F.

Temperature studies of the luminescence of halide solutions of heavy metals. Izv.AN SSSR.Ser.fiz. 24 no.5:582-586 My '60. (MIRA 13:5)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Halides--Optical properties)

S/048/61/025/003/043/047
B104/B203

AUTHORS: Belyy, M. U., Okhrimenko, B. A., and Rud'ko, B. F.

TITLE: Recombination luminescence of Sn^{4+} in aqueous solution of LiCl and HCl at low temperatures

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 3, 1961, 426-428

TEXT: This paper was read at the 9th Conference on Luminescence (Crystal Phosphors) in Kiyev, June 20-25, 1960. It is known that the optical characteristics of alkali-halide crystal phosphors and certain concentrated solutions have much in common: the absorption spectra are in practical agreement, and the luminescence spectra have also certain correspondences. Hence, the authors conclude that a study of concentrated halide solutions containing heavy metal ions might help to clarify absorption and luminescence mechanisms. It has been found earlier that a red luminescent band could be observed in a solution of Sn^{++} in LiCl(HCl) on reduction of temperature. The luminescence spectrum of this solution at the temperature of liquid oxygen consists of a blue band (λ_{max} = 440 mμ)

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and a red band (Curve 3 of the figure). The present paper deals with the origin of this band. It was found to have three maxima: 585 mμ, 605 mμ, and 635 mμ. Further, it was stated that these two bands were excited in different parts of the absorption spectrum: the blue one at the absorption maximum of 226 mμ, and the red one in the region of two distinct maxima at 262 mμ and 276 mμ. Fig. 1 shows the absorption and luminescence spectra of two solutions. It was found that the absorption spectra of these solutions did not shift on reduction of temperature, only undergoing a slight contraction and elevation of the bands. It was further shown that the absorption spectra of the two solutions had a distinct maximum at 226 mμ, and two less distinct maxima at 260 mμ and 276 mμ. The luminescence spectrum of the solution Sn^{4+} + LiCl(HCl) had only a red band. It is assumed that the longwave absorption maximum of the solution Sn^{++} + LiCl(HCl) is caused by the transitions $^1S_0 \longrightarrow {}^3P_{0,1,2}$. This, however, also clarifies the triplet structure of the red luminescent band of Sn^{++}. The similar structure of the red luminescent band of Sn^{4+} solutions is explained by the same transitions in the Sn^{2+} ion as above,

Recombination luminescence of...

since they also give a red luminescent band of the Sn^{4+} ion. This interpretation is confirmed by the agreement of maxima of the excitation spectrum calculated from formula

$$I_{люм} = I_0 \frac{\alpha C_0 C_x K_x}{K_x C_x + K_0 C_0} \{1 - e^{-(K_x C_x + K_0 C_0)d}\}, \quad (1)$$

with the ones found experimentally. Here, $I_{люм}$ and I_0 are the intensity of luminescence and the intensity of the exciting light, α is the probability of a recombination of an electron and of an Sn^{4+} ion, K_x, K_0, C_x, and C_0 are absorption coefficients and concentrations of the Cl^- and Sn^{4+} ions, and d is the thickness of the absorbing layer. It was shown that $I_{люм}$ reached a maximum at $K_0/K_x = C_x^2/C_0^2$. In a subsequent discussion, Ch. B. Lushchik dealt with electron transitions causing absorption in activated crystals. There are 1 figure and 2 Soviet-bloc references.

ASSOCIATION: Kafedra optiki Kiyevskogo Gos. universiteta im.T. G. Shevchenko (Department of Optics of the Kiyev State University imeni T. G. Shevchenko)

BELYY, M.U. [Bilyi, M.U.]; OKHRIMENKO, B.A.

Adsorption and luminescence of haloid solutions of thallium and lead ions of different valence. Ukr.fiz.zhur. 6 no.6:730-734 N-D '61. (MIRA 16:5)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko.
(Thallium—Spectra) (Lead—Spectra) (Halides)

BELYY, M.U.

STRUCTURE AND PHYSICAL PROPERTIES OF MATTER IN A LIQUID STATE reports read at the 4th Conference convened in KIYEV from 1 to 5 June 1959, published by the publishein House of KIYEV University, KIYEV, USSR, 1962

33434
S/048/62/026/001/010/018
B117/B102

24.3500 (1137, 1138, 1144)

AUTHORS: Belyy, M. U., Gorban', I. S., and Shishlovskiy, A. A.

TITLE: Photoluminescence of heavy-metal halides and semiconductor crystals

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 103 - 112

TEXT: 1. Photoluminescence of heavy-metal halides. It has been found at the Kiyevskiy gos. universitet im. T. G. Shevchenko (Kiyev State University imeni T. G. Shevchenko) that luminescence in alkali halide crystal luminophores takes place even without any ion association. Unlike Tl, Pb, and Sn the discovered luminescence of tellurium, antimony, and bismuth halides is observable at low temperatures only. An optical method developed by the authors themselves [Abstracter's note: details not given] was applied to determine the composition of the complexes forming in thallium and lead halide solutions, and the respective absorption spectra were calculated. Each type of complex is shown to have its own absorption spectrum. The shape of the absorption band is equal for each

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complex, and this points to one and the same absorption center, namely, the heavy-metal cation. With the exception of the thallium ion, heavy-metal cations are not luminescent in the hydrated state. However, if halogen ions are introduced into the aqueous solution, a luminescence characteristic of the metal salt concerned is brought forth. Complexes of differing compositions have the same luminescence spectrum in the heavy metal concerned. Their absorption spectra, however, differ noticeably as to wavelength. Unlike the luminescence spectra they are hardly affected by temperature. On a drop of temperature, the luminescence spectrum first shifts toward the longwave, and then sharply toward the shortwave range. The change of direction coincides with vitrification. The luminescence yield of the solutions examined grows sharply with a drop of temperature, and on the passage from one halogen to another it decreases in the following sequence: Cl^-, Br^-, I^-. In acid media it is noticeably decreased by shortwave-ultraviolet irradiation. It has been found that luminescence is caused by s-electrons. As for thallium and lead halide solutions, also d-electrons are probably involved. A comparison between absorption and luminescence spectra of liquid solutions and between alkali halide crystal phosphors similar in composition revealed great similarity

Photoluminescence of heavy-metal...

between their absorption and luminescence centers. 2. Photoluminescence of semiconductors. The authors' investigation chiefly yielded quantitative data regarding the absolute values of the absorption coefficients and the relative energy distribution in the emission spectra, thus permitting the interpretation of the latter. Cu_2O, PbI_2, SiC, and HgI_2 crystals were examined. It has been found that the character of photoluminescence in semiconductors is determined by the characteristics of optical transitions related to light absorption. The particular character of the structure of natural energy states in crystals manifests itself in that the energy distribution in the photoluminescence spectrum in straight forbidden and oblique transitions is determined by local centers. In the case of a longwave edge structure due to straight allowed transitions, a natural radiation of crystals is observable besides the luminescence of local centers. Intense natural radiation occurs only if exciton transitions are of high probability and the local centers are not too concentrated. A study of optical properties of some semiconductors showed that the exciton structure of the absorption spectrum can be observed under certain conditions, namely, at low

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Photoluminescence of heavy-metal...

temperatures and on sufficiently large crystals. Based on the properties of the longwave edge fine structure, a classification and a description of the character of optical transitions are possible. The energy distribution in the emission spectrum and its dependence on the wavelength of excitation are strongly influenced by the character of natural energy states of crystals, and especially by the exciton processes taking place in the latter. There are 7 figures, 3 tables, and 22 references: 16 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: P. W. Baumeister, Phys. Rev., 121, 2, (1961); G. G. Macfarlane a. oth., J. Chem. Phys. Solids, 9, 388 (1959). Phys. Rev., 108, 6 (1957); C. D. Clarc, J. Chem. Phys. Solids, 9, 481 (1959).

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Card 4/4

ACCESSION NR: AR4032173 S/0058/64/000/002/D049/D049

SOURCE: Ref. zh. Fiz., Abs. 2D392

AUTHOR: Bely*y, M. U.; Kushnirenko, I. Ya.

TITLE: Luminescence and absorption of tellurium salts in concentrated aqueous solutions of HCl and LiCl

CITED SOURCE: Sb. Fiz. shchelochnogaloidn. kristallov. Riga, 1962, 164-167

TOPIC TAGS: tellurium, tellurium chloride solution, absorption spectrum, spectrum long wave displacement, luminescence, absorption maximum, luminescence band, level transition

TRANSLATION: The absorption spectrum of solutions of $TeCl_4$ + + HCl(LiCl) was investigated as a function of the concentration of the Cl^- ions. A long-wave displacement of the spectrum with increas-

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ACCESSION NR: AR4032173

ing concentration, and the appearance of three clearly pronounced absorption maxima at large Cl^- concentration at room temperature is established. At liquid-oxygen temperature (104°K) the maxima are more pronounced. The solutions do not luminesce at room temperature. At 104°, following excitation with a SVDSH-1000 lamp through a UFS-1 filter, a bright yellow-red glow is observed. The spectrum has four bands, the relative intensities of which depend on the wavelengths of the exciting light. Analysis shows that each absorption maximum corresponds to its own emission band, and the absorption maximum with the longest wavelength corresponds to two bands. The absorption and luminescence bands are related with the transitions between the Te^{4+} levels, deformed by the influence of the environment.

DATE ACQ: 31Mar64 SUB CODE: PH ENCL: 00

Card 2/2

BELYY, M.U.; KUSHNIRENKO, I.Ya.

Luminescence of solutions of arsenic, gallium, and selenium halides. Izv. AN SSSR Ser. fiz. 27 no.5:661-665 My '63. (MIRA 16:6)

1. Kafedra optiki Kiyevskogo gosudarstvennogo universiteta imeni T.G. Shevchenko.

(Halides—Spectra)