MOSHCHANSKIY, N.A., doktor tekhn.nauk, prof.; MEDVEDEV, V.M., kand.tekhn. nauk; KAPKIN, M.M., kand.tekhn.nauk; SUDAKOV, V.B., inzh.; KONONENKO, A.S., inzh.

Increasing the stability of reinforced concrete cooling towers. Prom.stroi. 40 no.11:36-39 '62. (MIRA 15:12)
(Cooling towers) (Concrete—Corrosion)

KONONENKO, A.S., kand.tekhn.nauk; PURYSKINA, A.A., inzh.; CHISTYAKOVA, E.K., inzh.

Floors for livestock buildings on a base of gypsum cement-puzzuolanic binder. Stroi.mat. 10 no.12:36-37 D '64.

(MIRA 18:1)

KOM[illegible], A.[illegible], inzh.; [illegible], K.V., inzh.; [illegible], [illegible], inzh.;
VOSKHVAL[illegible], L.[illegible], inzh.; [illegible], [illegible], inzh.

Sand and rubble from the wastes of asbestos crushing plants.
Sbor. trud. Sverd. nauch.-issl. inst. po stroi. no.10:59-78
'63.
(MIRA 17:10)

KULIYEV, A.M.; KONONENKO, A.V.

Some data cn shortening the vegetative period in the cotton plant. Izv. AN Azerb. SSR. Ser. biol. nauk no.1:29-38 '65.

(MIRA 18:5)

KONONENKO, B., agronom-semenovod, zasluzhennyy agronom UkrSSR; GRECHKA, I., starshiy nauchnyy sotrudnik

Let's clear the oats of loose smut. Zashch. rast. ot vred. i bol. 10 no.8:18-19 '65. (MIRA 18:11)

1. Ukrainskiy institut rasteniyevodstva, selektsii i genetiki imeni V.Ya. Yur'yeva.

1. KONONENKO, B.M.; KUCHUMOV, P.V.

2. USSR (600)

4. Corn (Maize)

7. Improving the quality of seed corn, B.M. Kononenko, P.V. Kuchumov, Sel. i sem. 20 no. 5, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

CATEGORY : Cultivated Plants. Fodder Grasses and Root Crops. M

ABS. JOUR. : RZhBiol., No. 3, 1959, No. 11005

AUTHOR : Kononenko, B. M.

INST. : Ukrainian Scientific Research Institute of Plant Growing

TITLE : Growing Elite Seeds of Spring Vetch.

ORIG. PUB. : Byul. Ukr. n.-i. in-ta rastaniyevodstva, selekts. i genet., 1958, No. 2, 19-21

ABSTRACT : The Institute has been conducting the seed-production work with vetch of Khar'kovskaya 134 variety since 1952. In the pure sowings of wide-set rows (the width of 45 cm between the rows) and in the continuous sowings, the yield of vetch in 1954-1956 comprised 7.87 and 8.51 centners/ha; in mixture with oats - 341 centners/ha of vetch and 8.7 centners/ha of oats. The coefficient of the reproduction of vetch was 12.6, 7.1 and 4.7 respectively.

CARD: 1/1

*) Breeding and Genetics.

KONONENKO, D.

Important changes. Zhil.-kom. khoz. 11 no.10:9-10 O '61. (MIRA 15:1)

SHANIN, S.A.; BALABAY, F.I.; KONONENKO, D.F.; MIKULIN, G.I. [Mykulin, H.I.]; BOROVSKAYA, N.V. [Borovs'ka, N.V.]; SHINKEVICH, A.P. [Shynkevych, A.P.]; LIBERZON, L.M.; AMELIN, A.G. [Amelin, A.H.]; BURYAK, K.A.; PECHONKIN, V.V. [Piechonkin, V.V.]; YATSENKO, N.N.; GAL'PERIN, N.I. [Hal'perin, N.I.]; PEBALK, V.L.; CHEKHOMOV, Yu.K.

Inventions and improvements; certificates of inventions. Khim.prom. [Ukr.] no.2:62-64 Ap-Je '65. (MIRA 18:6)

KONONENKO, G.

Portable radio station for passenger cars. Akust. zhur. 6 no.2:60 '60. (MIRA 13:8)
(Radio in automotive transportation)

SEPETYY, N., insh.; KONONENKO, G. [Kononenko, H.], insh.; ADAMENKO, N., insh.; LEYBENZON, Z., insh.

Making tent-type reinforced concrete roofing panels in Kharkov. Bud.mat.i konstr. 2 no.1:16-18 F '60. (MIRA 13:6)

(Kharkov--Concrete slabs)

KONONENKO, G.

Plowed virgin land. Standartizatsiia 29 no.6:21-23 Je '65. (MIRA 18:12)

S/092/60/000/010/001/001/XX
A051/A026

AUTHOR: Kononenko, G.

TITLE: The Oil Pipe Line of Friendship

PERIODICAL: Neftyanik, 1960, No. 10, p. 33

TEXT: In 1959, the X Session of the Council for Mutual Economic Aid adopted a decision to construct an oil pipe line from the USSR to Poland, Czechoslovakia, the GDR and Hungary. The total length of the line, together with its branches, is to be over 4000 km. It starts on the Volga River and will extend to the city of Mozyr' in Byelorussia, where it will branch into two sections: the northern one, leading through Poland and ending in the GDR, and the southern section which will lead to Czechoslovakia and Hungary. The work on the pipe line is mechanized, and each of the five countries involved will supply its share of building materials, equipment and machines. Polish rotary excavators will be used for cutting the trenches with a speed of 60 m/h. The pipes, produced by Soviet, Polish and Czech plants, are made of high-quality steel; their welded seams are tested with isotopes and other modern methods; they are covered with special insulating material and are wrapped in glass wool saturated with asphalt.

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The Oil Pipe Line of Friendship

Electrical methods of protection against corrosion will also be used. The oil pipe line will cross Poland from East to West covering a distance of 700 km. The pipe line will cross the Bug River, with its swampy lowland, then the Narev and Visla rivers, with their many tributaries, and finally the Varta and Obru rivers. The oil supply from the Soviet Union will be doubled after the oil refinery in the city of Plotska started operation. By 1965, in the northern section of the Zheshuvskiy and the north-western section of the Krakov military zones, a new oil-refining district will be developed as part of the oil-chemical industry, for the refining of oil and gas. In the GDR, a raw material base for the oil-chemical industry will be established, thanks to the oil supply from the USSR. After the completion of the first stage of the combine in the city of Schwedt, the refining of oil into various forms of raw material and synthetic fibers, semi-finished and finished products will become possible. The oil pipe line will result in the development of an oil refining industry in the GDR. The cost of the oil supply will be lower for Hungary and Czechoslovakia, as compared to railway transportation. The construction of a 400 km section of the pipe line has been started at Kralevski-Khl'mets, a Slovakian city leading to the oil refinery "Slovnaft" near Bratislava. The "Plynostav-Pardubitse" enterprise is carrying out the construction work of the pipe line in Czechoslovakia, where in addition to Czech machinery, Soviet equipment is also being used such as pipe laying equipment.

KONONENKO, G., insh.

Receiving and transmitting station in the service of the marine. Mor. flot 20 no.11:43 N '60. (MIRA 13:11)
(France--Radio in navigation)

KONONENKO, G.

How to achieve participation of all students. Prof.-tekh.obr. 18 no.12:14-15 D '61. (MIRA 14:12)

1. Direktor tekhnicheskogo uchilishcha No.5, Odessa.
(Teaching)

POMOMAREV, V.D.; BUKETOV, Ye.A.; KONONENKO, G.A.

The recovery of selenium from spent sludge in the manufacture of sulfuric acid. Izv.vys.ucheb.zav.; tsvet.met. 2 no.6:85-92 '59. (MIRA 13:4)

1. Kazakhskiy gornometallurgicheskiy institut. Kafedra metallurgii legkikh i redkikh metallov.
(Selenium) (Sulfuric acid industry--By-products)

PONOMAREV, V.D.; SLUTSKIY, I.Z.; NURMAGAMBETOV, Kh.N.; BUKHMAN, S.V.; KOLOMITSKIY, F.M.; SHEYENKO, F.I.; PUTILIN, Yu.M.; Prinimal uchastiye: KONONENKO, G.A., starshiy laborant.

Thermal and electric balance of eight electrolytic cell types. Izv. vys. ucheb. zav.; tsvet. met. 3 no.5:79-88 '60. (MIRA 13:11)

(Electrolysis--Equipment and supplies)

KONONENKO, G. I.

Mar/Apr 1948

USSR/Engineering
Terminology

"For Clarity of Russian Technical Language," G. I. Kononenko, 2 pp

"Vest Inzher i Tekhn" No 2

Points out that the Soviet scientific language is replete with terms that are not only irrelevant and inaccurate, but not Russian. Makes attempt to dispense with foreign importations and substitute purely Russian words for them.

65T44

KONONENKO, G. I.

Engineering - Study and Teaching

For bolshevik party consciousness in scientific-technical literature. Vest. inzh. i tekh. no. 3, 1948.

9. Monthly List of Russian Accessions, Library of Congress, April 1952. Unclassified.

KONONENKO, G.

Outstanding experience of students of mechanization. Prof.-tekh.obr. 11 no.8:10-12 N '54. (MLRA 8:1)

1. Zamestitel' nachal'nika Odesskogo oblastnogo upravleniya trudovykh reservov.
(Mechanical engineers)

AUTHORS: Grushevoy, S.B., Kononenko, G.I. 119-58-5-4/11

TITLE: Automation in the Food Industry (Avtomatizatsiya v pishchevoy promyshlennosti)

PERIODICAL: Priborostroyeniye, 1958, Nr 5, pp. 12-15 (USSR)

ABSTRACT: First, the situation prevailing in the following branches is discussed:
a) Warehouses
b) Mills
c) Sugar production
d) Confectioneries
e) Distilleries
f) Bread Factories
g) Canned Goods Factories
h) Production of Meat- and Dairy Products
Automation of the food industry is not connected with the production of new foodstuffs but is intended to simplify existing operation processes. Here the problem of accurate dosage and control with respect to edibility is as yet an entirely new and undeveloped field. The devices necessary have as yet to be developed and

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KONONENKO, G. I.

British Exhibition of Scientific and Industrial Instruments.
Mashinostroitel' no.9:41-43 S '60. (MIRA 13:9)
(Moscow--Exhibitions)
(Great Britain--Instruments)

KOHONENKO, G.I., inzh.

Tractors and agricultural machinery of the Peoples Republic of Hungary. Trakt. i sel'khozmash. 30 no. 12:43-44 D '60.
(MIRA 13:12)
(Hungary--Agricultural machinery) (Hungary--Tractors)

KONONENKO, G.I.

Instruments manufactured in Denmark. Priborostroenie no.3:26-28 Mr '61. (MIRA 14:3)
(Moscow--Exhibitions) (Denmark--Electronic instruments)

KONONENKO, G.I.

Japanese equipment for the manufacture of tin cans. Kons.i ov. prom. 16 no.3:43-45 Mr '61. (MIRA 14:3)
(Japan--Tin cans) (Moscow--Exhibitions)

KONONENKO, G.I. (Moskva)

Artificial growing of pearls. Priroda 51 no.1:111-112 Ja '62.
(MIRA 15:1)

(Pearls)

KONONENKO, G.I., inzh.; NATARIUS, N.A., inzh.

Loading and unloading equipment and conveying machinery made in England. Mekh.i avtom.proizv. 15 no.11:56-61 N '61.
(MIRA 14:11)
(Great Britain--Loading and unloading--Equipment and supplies)
(Great Britain--Conveying machinery)
(Moscow--Exhibitions)

KONONENKO, G.I.

Testing machines and devices manufactured in East Germany.
Priborostroenie no.9:31-32 S '62. (MIRA 15:9)
(Germany, East--Testing machines)

KONONENKO, G.I., inzh.; NOTARIUS, N.A., inzh.

Hoisting, conveying and storing machinery. Mekh.i avtom.proizv. 16 no.9:52-54 S '62. (MIRA 15:9)
(Materials handling—Equipment and supplies)

KONONENKO, G.I., inzh.

English instruments and computers. Priborostroenie no.1:26-27 Ja '63. (MIRA 16:2)
(Moscow--Exhibitions)
(Great Britain--Electronic computers)
(Great Britain--Measuring instruments)

KONONENKO, G.I.

Measuring instruments and apparatus at the Japanese Exhibition in Moscow. Izm. tekh. no.12:53-56 D '63. (MIRA 16:12)

ACCESSION NR: AP4044186 S/0119/64/000/008/0028/0031

AUTHOR: Kononenko, G. I. (Engineer)

TITLE: Computers, automatic devices and means at VDNKh (Exhibition of Achievements of National Economy)

SOURCE: Priborostroyeniye, no. 8, 1964, 28-31

TOPIC TAGS: Minsk-2 computer, IPVFU densimeter, GKD-1 gas analyzer, V2-8 digital voltmeter, N-004 oscillograph, ELRU-2M recorder, EASP-S computer

ABSTRACT: A few apparatae are briefly described, and their fundamental characteristics are reported. A Minsk-2 general-purpose computer designed with semiconductor devices and ferrites has an average speed of 5,000--6,000 operations per sec, a 4,096-word internal storage, and a 400,000-word external storage, power supply, 380/220 v, 50 cps, 4 kw. A standardized IPVFU densimeter designed with a ferrodynamic transducer is intended for automatic measurement of the density of a flowing pulp, the instrument operates on the principle of continuously weighing a segment of pulp-filled pipe; inlet pressure, 0.1--1 kg/cm^2; ranges: 1--1.32, 1--1.6, 1--2, 1--2.5 kg/lit. A capillary-

L 6135-65
ACCESSION NR: AP4044186

diaphragm GKD-1 gas analyzer is intended for automatic recording of high concentrations (25—100%) of SO_2, CO_2, H_2, etc.; error, ± 3%; gas consumption, 30 ± 10 lit/hr. An Estonian V2-8 digital voltmeter is intended for measuring d-c voltages within 0.001—1,000 v (three subranges). Its internal resistance: 0.99 Mohms at 20 v, 9.9 Mohms at 200 v. A 20-track light-beam electromagnetic portable oscillograph has tape-transport speeds of 1, 2.5, 10, 25, 100, 250, 1,000, and 2,500 mm/sec. A logical ELRU-2M chart recorder is designed to continuously point-record 6 variables and to perform some simple signalling and operations. A Lithuanian EASP-S special-purpose computer is intended analyzing stationary random processes; its error in correlation analyses is spectral analyses, 8%; its supply: 220 v, 50 cps, 1.8 kw. Other details and equipment manufacturers are given. Orig. art. has: 11 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: IE, DP NO REF SOV: 000 OTHER: 000

Card 2/2

KONONENKO, G.I.

Technological processes for manufacturing solid circuits and contours of thin films abroad. Priborostroenie no.2:31-32, 3 of cover F '64. (MIRA 17:3)

KONONENKO, G.I.

New laboratory equipment at the Exhibition of Achievements of the National Economy in 1964. Zav. lab. 30 no.8:1033-1035 '64. (MIRA 18:3)

KONONENKO, G.I., inzh.

Instruments at the Japanese Industrial Exhibition in Moskow.
Priborostroenie no.12:26-29 D '65. (MIRA 19:1)

KAMENEV, V.M., inzh.; KONONENKO, G.I., inzh.; LEVIN, B.V., inzh.

Organization of the working area and the mechanization of fitting and assembling operations in the manufacture of electric and radio instruments. Priborostroenie no.4: 27-29 Ap '65. (MIRA 18:5)

KONCHENKO, G.M.

Unified system of instruments. Standartizatsiia 29 no. 11: 44-45 N '65 (MIRA 19:1)

KONONENKO, G.R., mekhanik

Defective machinery should not be put on the market. Put' put.khoz. no.9:45 S '59. (MIRA 12:12)

1. Putevaya doroshnaya mashinnaya stantsiya-3 (PDMS-3) st. Rovno, L'vovskoy dorogi.
(Railroads--Equipment and supplies)

LUGININA, I.G.; LUGININ, A.N.; NEYMAN, S.M.; KONONENKO, G.V.

High temperature attachment to a polarizing microscope for studies in the electric field. Izv. AN SSSR. Neorg. mat. 1 no.11: 2044-2046 N '65. (MIRA 18:12)

1. Kazakhskiy khimiko-tekhnologicheskiy institut. Submitted April 26, 1965.

KONONENKO, I.F.

43598. Izucheniye sostoyaniya Zdorov'ya Invalidov Otechestvennoy Voyny Na Ukraine. V. sb. Med-San. Posledstviya Voyny Meropriyatiya Po ikh Likvidatsiil T.11. M. 1948 S. 106-09. Sm. Takzhe No. 42155, 42166.

GENKIN, A.B., (Khar'kov); NATANZON, A.M. professor, zaveduyushchiy; KONONENKO, I.F., dotsent, direktor.

Electrolytic decalcination of pyramids of the temporal bone. Arkh.pat. 15 no.1:54-55 Ja-F '53. (MLRA 6:5)

1. Stolyaringologicheskaya klinika Khar'kovskogo meditsinskogo instituta. (for Natanzon). 2. Khar'kovskiy meditsinskiy institut (for Kononenkov).
(Temporal bone)

KONONENKO, I. F.

USSR/Pharmacology. Toxicology. Cardio-Vascular Drugs. V-5

Abs Jour : Ref Zhur-Biol., No 6, 1958, 28097.

Author : Kononenko I. F.

Inst : Not given.

Title : Therapy of Hypertonia with a Preparation from Bee's Venom.

Orig Pub : Vrachebn. delo. 1956, No 6, 595-598.

Abstract : One hundred hypertonic patients were treated with a preparation from bees venom (1; method of preparation not indicated). 1 was administered subcutaneously or intracutaneously in 3 places between the shoulder blades in a total dose of 0.4-6ml. The course of treatment comprised 12-15 administrations a day. Clinical recovery occurred in 52 patients.

C. Card 1/2

KONONENKO, I. F.

V

COUNTRY : USSR
CATEGORY : Pharmacology and Toxicology. Cardiovascular Agents
ABS. JOUR. : RZhBiol., No. 5 1959, No. 23204
AUTHOR : Kononenko, I. F.; Dubinskiy, A.A.; Pocheptsov,*
INST. : Kharkov Medical Institute
TITLE : On the Hypotensive Properties of the Preparation from Bee Venom in Hypertension
ORIG. PUB. : Tr. Kharkovsk. med. in-ta, 1956, vyp. 37, 134-137
ABSTRACT : A single subcutaneous injection of 0.5 ml of bee venom preparation to patients with hypertension brings about a decrease of blood pressure. This dose of the preparation does not produce side effects and is recommended for the treatment of hypertension.

*V. G.

Card: 1/1

KONOMENKO, I.F., dotsent; POCHEPTSOV, V.G., dotsent

Therapeutic effect of the bee venom preparation melissin in diabetes mellitus. Trudy Khar. med. inst. no.52:133-138 '59. (MIRA 14:11)

(DIABETES) (BEE VENOM)

KONONENKO, I.F., dotsent; POCHEPTSOV, V.G., dotsent

Application of the bee venom preparations melissin in focal pneumonia. Trudy Khar. med. inst. no.52:139-142 '59. (MIRA 14:11)

(PNEUMONIA) (BEE VENOM)

RODIONOV, P.F.; KONONENKO, V.I.

Using the radio wave transmission and charging method in prospecting for deep pyrite bodies of the Urals in the area of Korenolea. Izv. vys. ucheb. zav.; geol. i razv. 8 no.9:135-140 S '65.
(MIRA 18:9)

1. Institut geofiziki Ural'skogo filiala AN SSSR.

S/874/62/ 00/002/012/019
D218/D308

AUTHOR: Kononenko, I.I.

TITLE: The field of a point source of cur ant in a two-layer medium

SOURCE: Akademiya nauk SSSR. Ural'skiy fil al. Institut geofiziki. Trudy. no. 2, 1962. Geofiz cheskiy sbornik, no. 3, 221-228

TEXT: The problem considered is illustra ed in Fig. 1 in which the two horizontal media have different resis ivities ρ and the point source of current is placed at the origin O. Formulas are derived for the potential and the gradient of the p tential at the upper surface with the source in the upper and lowe layer, respectively. The formulas have been used in numerical c lculations for some special cases. It is found that the potential gradient curves for two-layer and isotropic media are not similar. The absolute values of the potential gradient in the two-layer medi m is larger or smaller as compared with the isotropic medium, depe ding on whether ρ_1/ρ_2 is greater or less than unity. The change in the amplitude

Card 1/2

The field of a point source ...

depends both on the thickness of the upper layer and the ratio of the resistivities of the two layers. Points corresponding to extrema of the potential gradient are displaced relative to the epicenter of the source, particularly when the source is in the lower medium and the upper medium has a much higher conductivity. Tables and graphs are reproduced for the possible interpretation of field data with the aid of these calculations. There are 6 figures and 2 tables.

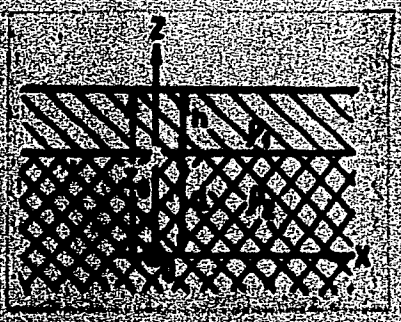

Fig. 1.

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S/874/62/000/002/015/019
D218/D308

AUTHORS: Kononenko, I.I. and Rodionov, P.P.

TITLE: Field of a point source of current placed at a depth in a two layer medium with a vertical separation boundary

SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut geofiziki. Trudy. no. 2, 1962. Geofizicheskiy sbornik, no. 3, 243-253

TEXT: The problem considered is illustrated in Fig. 1 where the two media have resistivities ρ_1 and ρ_2 and the point source of current is located at the origin O. Formulas are given for the potential and the gradient of the potential at the surface and these are then used in numerical calculations with $\rho_1 = 1$, $I/2\pi = 1$ and $z_o = 1$ and different values of $k = (\rho_2 - \rho_1)/(\rho_2 + \rho_1)$ and α. Results of the calculations show that the field in this type of medium differs appreciably from the field in the case of an isotropic medium. The results have been found to be useful in the

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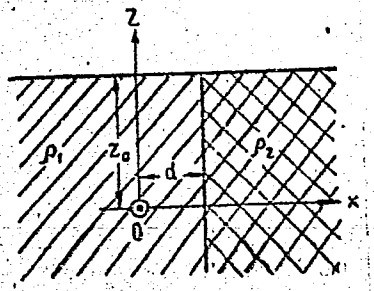
S/874/62/000/002/015/019
D218/D308

Field of a point source ...

interpretation of the geoelectric structure in the Ural'. There are 8 figures.

Fig. 1



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KONONENKO, I.I.

Field of an imbedded current source in a layered medium. Trudy Inst. geofiz.UFAN SSSR no.3:143-148 '65. (MIRA 18:8)

KONONENKO, I.I.; LEGA, G.A.; RODIONOV, P.F.

Practice in resistance logging in a pyrite deposit of the Southern Urals. Trudy Inst.geofiz.UFAN SSSR no.3:187-194 '65.
(MIRA 18:8)

S/874/62/000/002/016/019
D218/D308

AUTHORS: Kononenko, I.I. and Rodionov, P.F.

TITLE: The field of a point source located at a depth in the presence of a vertical plate

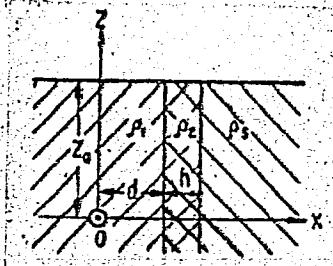
SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut geofiziki. Trudy. no. 2, 1962. Geofizicheskiy sbornik, no. 3, 255-266

TEXT: The problem considered in illustrated in Fig. 1 in which the medium in the lower half-space consists of three vertical layers with resistivities ρ_1, ρ_2 and ρ_3. The point source, which is supplied with a constant current I, is placed at the origin 0. Numerical calculations were carried out of the potential and the potential gradient for $\rho_1 = \rho_3 = 1$, $I/2\pi = 1$ $z_0 = 1$ and $h = 0.25\ z_0$. The calculations were based on series expansions for these quantities which are reproduced in this paper. A substantial number of curves illustrating the numerical calculations is reproduced. It was found that the presence of the vertical plate has a considerable effect on

Card 1/2

the distribution of the potential due to the point source. In the medium 1 in which the source is placed, the potential is reduced or increased depending on whether the coefficient $k_{12} = (\rho_2 - \rho_1)/(\rho_2 + \rho_1)$ is smaller or larger than zero. In the medium 3, the field is always reduced by the presence of a plate. Where $k_{12} = \pm 1$ the potential in medium 3 is zero. Points with maximum values of the potential (zero gradient) are always displaced in the direction of the X-axis by the introduction of the intermediate plate. In the Y direction the point with the maximum potential is not displaced. An example of the application of these results to the interpretation of field measurements is given. There are 8 figures.

Fig. 1



Card 2/2

VAR'YEV, V.I.; MITYUSHKIN, V.G.; KONONENKO, I.V.

Experience in the operation of power supplying plants in a factory.
Koks i khim. no.11:59 '63. (MIRA 16:12)

1. Yasinovskiy koksokhimicheskiy zavod.

YERMINOV, I.M.; MIKHAYLOV, G.G.; KONOMENKO, K.F.

Organization of spare part production at the Osipenko Road Machinery Plant. Stroi. i dor. mashinostr. 3 no. 7:29-31 Jl '58. (MIRA 11:8)

(Osipenko--Road machinery industry)

KONONENKO, K.I.
~~KONENKO K. I.~~

7. Use of Detector Characteristics for Determining Plasma Parameters

"Detector Properties of a Gas Discharge Plasma," by K. I. Kononenko (Khar'kov University) Uch. Zap. Kharkovsk. Un-ta (Scientific Notes of Kharkov University) 1955, 64, pp 191-197 (from Referativnyy Zhurnal -- Fizika, No 10, 56, Abstract No 29191)

Elementary theory of square detecting of a plasma detector is presented. The detector consists of a disk-probe introduced into the plasma, receiving a direct and alternating current. The magnitude of the rectified current is determined by the second derivative d^2I/dv^2 of the probe characteristics and is proportional to the square of the amplitude of the alternating current, and it also depends on the plasma density, the electron temperature and the direct potential in the probe. Measurements were carried out in frequencies of 50-6,000 mc. The possibility of using detector characteristics for determining plasma parameters is indicated, and the advantages of this method as compared to probes of Langmuir and Mott-Smith is pointed out. It is shown how by means of the detector characteristic the distribution function of electron velocities may be directly determined.

SUM.1287

Card : 1/1

KONENKO, K.I.; RUTGAYZER, V.D.

"Study of Gas Discharge Plasma by the Detector Characteristics Method," by K. I. Kononenko and V. D. Rutgayzer. Uch. Zap. Khar'kovsk Un-ta (Scientific Notes of Kharkov University), 1955, 64, pp 199-202 (from Referativnyy Zhurnal -- Fizika, No 10, Oct 56, Abstract No 29192)

Plasma parameters were measured simultaneously by means of a probe, following the method of detector characteristics suggested by Kononenko (see preceding abstract) and by usual method of Langmuir and Mott-Smith. The measurements were carried out by tubes filled with neon at pressures of 0.1 and 1 mm Hg or filled by vapors. Detector characteristics at various frequencies appeared to be identical. The measurements satisfied the "law of square detecting," because the amplitude of the alternating current was chosen sufficiently small. Discrepancies between measurement results using detector or statical characteristics for determining the space potential did not exceed 9%, the electron temperature not over 1.6% and the electron density not over 26-68%. The greatest advantage of the detector characteristics consists in the possibility of obtaining easily the distribution function of electron velocities. In the Hg plasma at a 160 ma current the electron distribution was close to Maxwellian while at 10 ma a sharp deviation from Maxwellian distribution was noticed.

SUM. 1287

SOV/58-59-5-11106

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 170 (USSR)

AUTHORS: Kononenko, K.I., Sobol', G.A.

TITLE: The Influence of Some Factors on the Detector Effect of Gas-Discharge Plasma

PERIODICAL: Nauk. zap. Melitopol'sk. derzh. ped. in-t, 1957, Vol 4, pp 255 - 272 (Ukr., Russ. résumé)

ABSTRACT: Using the detector-response method, the authors investigated experimentally the influence of various factors on the detector effect in the plasmas of glow, arc, and high-frequency discharges in Ne, Ar, Hg vapors and their mixtures. They studied the influence of the electrical mode of discharge, gas pressure, frequency of the signals being detected, and position and orientation of the probe. They established the existence of optimum values for the discharge current, potential at the discharge, and gas pressure, at which the detector effect is greatest. They point out the possibility of designing a plasma frequency-meter (at weak discharge currents), as well as a plasma voltmeter for measuring UHF voltages.

L.L. Pasechnik

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SOV/58-59-5-11107

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 170 (USSR)

AUTHORS: Sobol', G.A., Kononenko, K.I.

TITLE: On the Process of Detection and the Sensitivity of the Plasma Detector

PERIODICAL: Nauk. zap. Melitopol'sk. derzh. ped. in-t, 1957, Vol 4, pp 273 - 279 (Ukr.; Russ. résumé)

ABSTRACT: Using the detector-response method, the authors studied experimentally the phenomenon of detection in a gas-discharge plasma. They submit a formula for the detector sensitivity of the plasma, from which it is possible to determine the influence of various factors (the charge concentration in the plasma, the temperature of the electron gas, the ionization frequency, the kind of gas, etc.) on the phenomenon of detection. They point out the possibility of using the detector-response method to determine the intensity of ionization.

L.L. Pasechnik

Card 1/1

06479

AUTHOR: Kononenko, K.I. SOV/141-1-5-6-23/28

TITLE: The Detector Characteristics of the Gas-discharge Plasma at the Frequency of 10^4 Mc/s

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Vol 1, Nr 5-6, pp 179 - 180 (USSR)

ABSTRACT: It has been shown earlier (Refs 1-3 - the author, and V.D. Rutgayzer) that the average rectified current ΔI in a gas discharge tube used as a detector is given by:

$$\Delta I = \frac{\partial^2 I_3}{\partial U_3^2} \left(\frac{U_\sim}{2} \right)^2 \qquad (1)$$

where I_3 is the probe current,

V_3 is the static probe voltage, and

$U_\sim$ is the voltage applied to the tube.

The formula was checked experimentally by means of a special detector tube which was tested in the circuit described in

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The Detector Characteristics of the Gas-discharge Plasma at the Frequency of 10^4 Mc/s

earlier work (Ref 1). The results are shown graphically in Figure 1. Curve 1 in the figure was taken at a constant high-frequency voltage, while U_3 was varied. Curve 2 represents the calculated detector characteristic which was obtained by a double differentiation of the static probe characteristic (Curve 3). By comparing these curves it is seen that the experimental characteristic is qualitatively determined by the curvature of the static probe characteristic. This indicates that at cm waves the frequency has no effect on the shape of the detector characteristic.
There are 1 figure and 4 Soviet references.

Card 2/3

Khar'kov Aviation Inst.

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S/141/59/002/06/011/024
E192/E382

AUTHOR: Kononenko, K.I.

TITLE: The Method of Probe Characteristics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 6, pp 927 - 930 (USSR)

ABSTRACT: It was shown earlier by the author (Ref 1) that the probe characteristics permit the determination of the principal parameters of a gas discharge plasma such as: the potential, temperature and density. Further, on the basis of the probe characteristics it is possible to determine the velocity distribution function for the electrons. On the basis of the Boltzmann law the probe characteristic of negatively charged flat probe can be represented as:

$$I = \frac{e_o N v}{4} e^{-eV/kT} = I_o e^{-e_o V/kT} \qquad (1)$$

where I is the probe current,
e_o is the charge of an electron,
v is the average electron velocity,
V is the probe potential with respect to the plasma,

Cardl/4

k is the Boltzmann constant,
T is the electron temperature and
N is the plasma density.

By assuming that the detection characteristic of the probe obeys the square law, the detector current is expressed by:

$$\Delta I = \frac{\partial^2 I}{\partial V^2}\left(\frac{V_\sim}{2}\right)^2 \qquad (2)$$

where $V_\sim$ is the amplitude of the alternating voltage which is being detected. By employing Eq (1), the detector current can be expressed by Eq (3), where B is defined by Eq (4). On the other hand (Ref 2), the distribution function can be represented by Eq (5). Consequently, ρ is given by Eq (6), where F is defined by Eq (7). The distribution function can therefore finally be expressed by:

The Method of Probe Characteristics

$$\rho = \frac{e_o}{k}\sqrt{\frac{8m}{\pi k}}\,NT^{-3/2}\,Ve^{-e_oV/kT} \qquad (8)\ .$$

This function has a maximum at the point defined by Eq (9). Consequently, the electron temperature can easily be found from Eq (10), where the potential corresponds to the maximum of the distribution function. The density of the plasma can be determined from Eq (11). It is seen, therefore, that by taking a detector characteristic and plotting the distribution function by employing Eq (6), it is possible to determine the temperature by means of Eq (10) and the plasma density by means of Eq (11). The detector characteristic can also be expressed by Eq (14), where A is a constant. This function has a maximum at the point defined by Eq (15). Comparison of Eqs (9) and (15) leads to Eq (16). The detector characteristic can further be expressed by Eq (22), which does not contain any experimental constants.

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The Method of Probe Characteristics

It is seen, therefore, that the detector characteristic is expressed in terms of the basic parameters of the plasma. The potential V in Eq (22) is equal to the potential of the probe with respect to the anode (or any other electrode) less the potential of the plasma. There are 5 references, 1 of which is German and 4 are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: June 5, 1959

S/141/60/003/02/022/025
E192/E382

AUTHORS: Kononenko, K.I. and Kosinov, G.A.

TITLE: Attenuation of Decimetre Waves in Gas-discharge Plasma

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol 3, Nr 2, pp 338 - 340 (USSR)

ABSTRACT: The attenuation of decimetre waves propagating along a two-conductor line immersed in the plasma of a steady-state gas gasdischarge was measured experimentally as a function of the plasma density and the wavelength. The experimental equipment used in the measurement is shown in Figure 1. A magnetron was used as the oscillator. The measuring line was passed through a gas-discharge tube filled with saturated mercury vapours. The length of the line inside the tube was ℓ = 330 mm, the distance between the conductors being d = 29 mm. The radius of the conductors was ρ 1.5 mm and the diameter of the discharge tube was D = 120 mm. The measurements were made at the following wavelengths: 52, 68, 76 and 86 cm. The attenuation coefficient in nepers as a function of the plasma density is represented in Figures 2 and 3, where Curves 1 show the experimental values. The

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Attenuation of Decimetre Waves in Gas-discharge Plasma

attenuation coefficient α for the plasma can be evaluated theoretically from the formula:

$$\alpha = \left[0.5\ \omega\ L\ \left(-\omega C + \sqrt{\sigma^2 + \omega^2 C^2}\right)\right]^{1/2} \qquad (1)$$

where L, C, ε and σ are defined by Eqs (2). These formulae were used to plot the theoretical values of α ; these are represented by curves 2 in Figures 2 and 3. By comparing the theoretical and the experimental results of Figures 2 and 3, it is seen that the theory gives satisfactory results. There are 3 figures, 1 table and 2 Soviet references.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: May 27, 1959

Card 2/2

VC

L 6535-66 EWT(1)/EPA(s)-2/ETC/EPF(n)-2/EWG(m)/EPA(w)-2/EWA(m)-2 IJP(c)
ACC NR: AP5026713 AT SOURCE CODE: UR/0141/65/008/005/0972/0976

AUTHOR: Kononenko, K. I. 44,55

ORG: Kharkov State University (Khar'kovskiy gosudarstvennyy universitet) 44,55 B

TITLE: Two detection mechanisms in a gas-discharge plasma 21, 44, 55

SOURCE: IVUZ. Radiofizika, v. 8, no. 5, 1965, 972-976

TOPIC TAGS: gas discharge plasma, superhigh frequency, glow discharge

ABSTRACT: The detector effect was studied in the plasma of a glow discharge. In the first mechanism, in which probes are used, a plasma detector detects superhigh-frequency (SHF) oscillations owing to the presence of a nonlinear "plasma-probe" segment. A second detection mechanism involves a direct interaction of the SHF field with a definite volume of plasma. Formulas are derived which relate the detector current with the average SHF power for the positive column of the glow discharge and its Faraday dark space. A comparison of the experimental and calcu-

UDC: 533.9

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ACC NR: AP5026713

lated data on the detector current showed that the derived formula of the detector characteristic

$$\Delta I = I_0(e^{\mu W} - 1)$$

obtained for a detector of the second type, is at least qualitatively correct. This formula (where ΔI is the detector current, I_0 the discharge current, μ the absorption coefficient, and W the power absorbed by the plasma) is of interest because it determines the nature of relationship between the SHF power acting on the plasma and the magnitude of the detector current. Whereas a detector of the first type (with probes) permits measurement of the strength of the SHF field, a detector of the second type is useful for measuring power. In this sense, these two types of detectors complement each other. Orig. art. has: 2 figures, 16 formulas.

SUB CODE: ME/ SUBM DATE: 07Sep63/ ORIG REF: 006/ OTH REF: 000

nw
Card 2/2

ACC NR: AP6000572 SOURCE CODE: UR/0109/65/010/012/2273/2275

AUTHOR: Kononenko, K. I.; Movchan, S. P.; Yatsenko, A. I.

ORG: none

21
B

TITLE: One method for reducing gas-discharge-plasma noise

SOURCE: Radiotekhnika i elektronika, v. 10, no. 12, 1965, 2273-2275

TOPIC TAGS: noise, discharge plasma

ABSTRACT: An experimental proof is offered that the reduction of ion density in the near-cathode region of a gas discharge results in a reduction of current-caused noise, i.e., of fluctuation of voltage across the cathode-probe gap, such phenomenon corresponding to this formula: $(I)_{eq}^2 = \left\{\frac{4kT}{R} + 4\cdot\frac{I^2}{N}\frac{\nu(\omega^2+3\nu^2)}{(\omega^2+\nu^2)^2}\right\}$; the formula was advanced by S. Kojima and K. Takayama (Phys. Rev., 1950, 80, 5, 907). A 60-mm long 10-mm diameter gas-discharge tube with Mo electrodes was filled with pure Ne at 16 torr. A negative bias of −1—15 v was applied to the grid. The noise was investigated at frequencies up to 40 Mc. It was found that: (1) The gas-discharge noise level decreases by 4 times with the decreasing of the grid bias down to −15 v; (2) The noise power is proportional to the discharge current. Orig. art. has: 3 figures and 2 formulas.

SUB CODE: 09 / SUBM DATE: 25Dec64 / ORIG REF: 003 / OTH REF: 003

Card 1/1 nst

UDC: 621.385:621.391.828

KONONENKO, L. F.

23359 za ekonomiyu syr'ya, za otlichiuyu produktsiyu! tekstil. prom-st', 1949, No. 6, c. 4-5

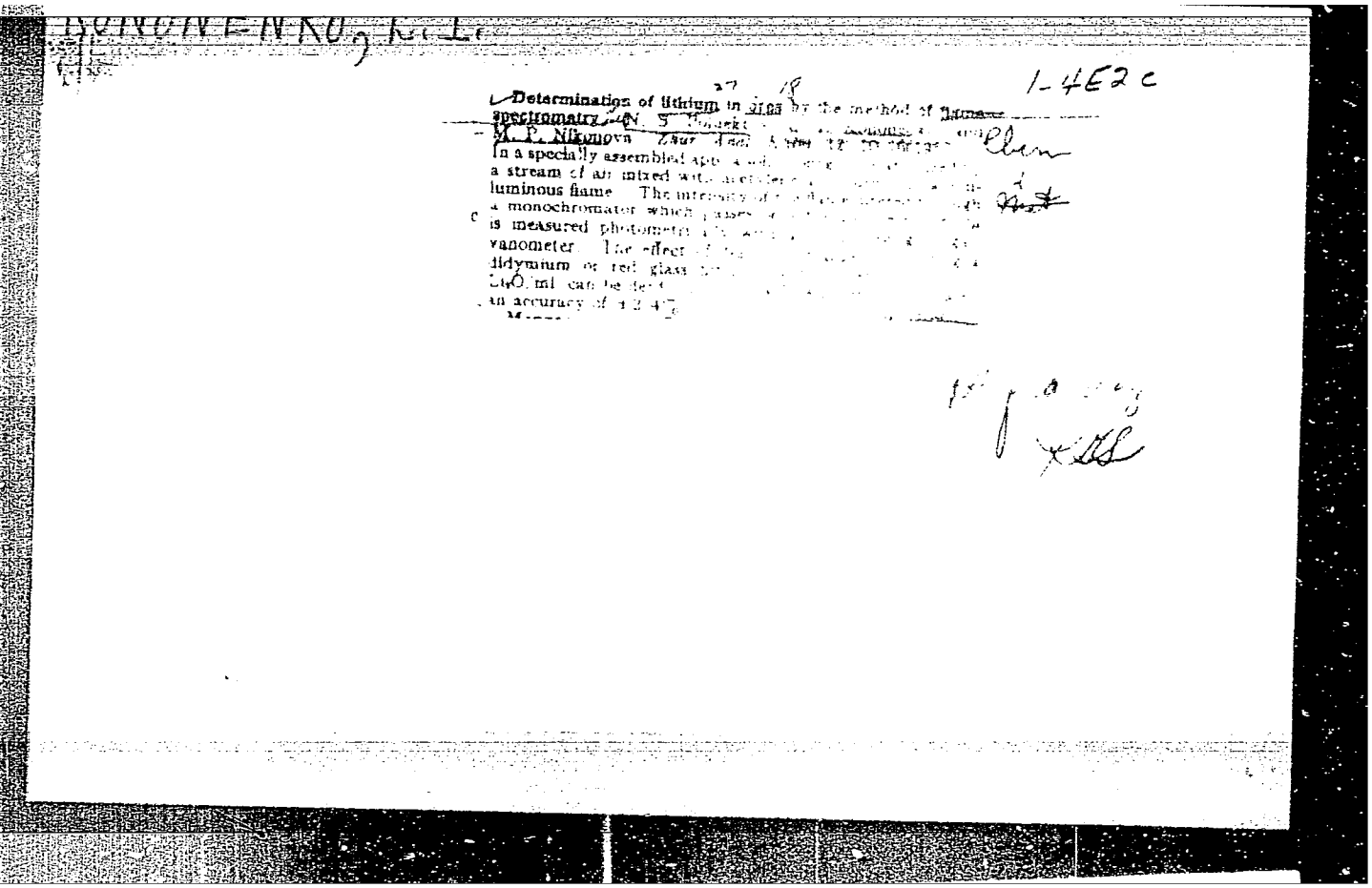
SO: LETOPIS NO. 31, 1949

ISTOMINA, T.I., starshiy nauchnyy sotrudnik, insh.; Prinimali uchastiye: KONONENKO, L.F., insh.; YEVDOKIMOVA, V.B., tekhnik

Searching for optimum parameters in the preparation of warp for cloth weaving. Tekst.prom. 21 no.12:29-31 D '61. (MIRA 15:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut sherstyanoy promyshlennosti (for Istomina, Yevdokimova). 2. Kupavinskaya fabrika (for Kononenko).

(Weaving)
(Textile machinery)



Determination of lithium in ... by the method of flame ... spectrometry
... N. S. ...
M. P. Nikonova
... In a specially assembled apparatus ... a stream of air mixed with ... luminous flame. The intensity of ... a monochromator which passes ... is measured photometrically ... vanometer. The effect ... didymium or red glass ... 0.0 ml can be ... an accuracy of ...

KONOVENKO, L.I

AUTHOR: POLUYEKTOV, N.S., KONOVENKO, L.I., SURICHAN, T.A., 32-6-6/54

TITLE: Complexometrical Titration of Zirconium and Hafnium. (Kompleksometricheskoye titrovaniye tsirkoniya i gafniya-Russian).

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 660-661 (U.S.S.R.)
Received 7/1957 Reviewed 8/1957

ABSTRACT: In the present paper it issaid that complexometrical titration of zirconium and hafnium is usually used in the case of pH=1,5-2,5 with the application (as indicator) of eriochromzianin, chromatosurol or sulphophenolasechromotropic acid. Inverse titration is carried out by the application of trivalent iron in the presence of salicylic acid or benshydroxam acid with pH -sphere 3-7 or by bismuth salts in the presence of tiogarn with pH = 2,0.The amperometric determination of the end of titration is practised. Titration in a highly hydrochloric sphere makes this method more specific. In this case iron(II), trium, titan, tin(IV) molybdenum, niobium, aluminum, calcium, bismuth, copper, nickle, germanium, mercury etc. no longer disturb titration. Iron(III) disturbs and must therefore be previously regenerated, e.g. by means of hydroxilamine boiling. Vanadium also has a disturbing effect. Also tantalium compounds disturb titration because tantalic acid precipitation absorbs the zirconium compounds with the indicator. The same effect is produced by tungsten. Strong oxidising means and regenerators destroy reactively, the presence of nitrate ions in the solution is therefore impossible. Among other

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SOV/75-13-4-3/29

AUTHORS: Poluektov, N. S., Kononenko, L. I., Lauer, R. S.

TITLE: Photometric Determination of Tantalum, Boron, Indium, and Rhenium in Extracts (Ekstraktsionno-fotometricheskoye opredeleniye tantala, bora, indiya i reniya)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 396-401 (USSR)

ABSTRACT: Recently suggested methods for the determination of a series of metals are based on the photometric determination of colored extracts $A_n.Me.X_m$ (A- organic dye; Me - metal to be determined; X - halogen). These extracts contain the metal to be determined as salt of a complex halogen acid with a basic dye. The same dye is a suitable reagent for a number of metals, the necessary selectivity is obtained by selection of the halogen, the acidity of the solution and other reaction conditions. When elaborating new extraction-photometric methods, the existing parallels between the extractability of simple or complex halogen acids according to the oxonium-mechanism (Ref 8) and that of salts of organic bases have to be considered. Thus the complex chlorides of metals which can be extracted as salts of organic bases are extracted by diethyl ether or other oxy-

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gen containing solvents, whereas simple or complex acids of elements which can be extracted according to the oxonium-mechanism are also extracted by solvents that do not contain an organically bound oxygen (arsonium-compounds). For elements, the acids of which can be extracted according to the oxonium-mechanism or as salts of arsonium-compounds, conditions can be found under which the same acids can also be extracted as salts of organic dye bases. Acids which are difficult to extract according to the oxonium-mechanism can, however, not be extracted by dyes. Thus As(III), Sb(III), Ge(IV), Te(IV), and other substances which can be extracted by diethyl ether from a hydrochloric solution (Ref 14) cannot be extracted by benzene as salts of rhodamine under similar conditions. This is due to the fact that the concentration of the rhodamine base is much lower than the concentration which can be attained with the solvent in the extraction according to the oxonium-mechanism. In order to demonstrate their line of thought, the authors elaborated new extraction-photometric methods for determining tantalum, boron, indium, and rhenium. Tantalum and boron are extracted by benzene in the presence of hydrofluoric acid as salts of the methyl violet; the determination of the colored solutions

Photometric Determination of Tantalum, Boron, Indium, and Rhenium in Extracts

after the extraction was carried out on photoelectric colorimeters of the type ФЭК-М. Indium can be extracted in the presence of hydrobromic acid as salt of the rhodamine C by benzene; and rhenium can be extracted by ethyl acetate from a neutral solution as a per-rhenate of methyl violet. The determination of the colored solutions of both of these elements was carried out on "Pulfrich"-photometers. The procedure used in these four determinations is described in detail and a list of interfering foreign ions and errors of determination is given. There are 3 figures, 6 tables, and 21 references, 5 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR, laboratorii v g. Odesse (Institute of General and Inorganic Chemistry, AS Ukr SSR, Odessa Laboratories)

SUBMITTED: March 4, 1957

SOV/75-13-4-3/29

Photometric Determination of Tantalum, Boron, Indium, and Rhenium in Extracts

1. Boron--Determination 2. Indium--Determination 3. Rhenium--Determination
4. Tantalum--Determination 5. Dyes--Applications 6. Halogens--Applications
7. Photometry--Applications

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5(2)
AUTHORS: Poluektov, N. S., Kononenko, L. I. SOV/32-25-5-7/56

TITLE: Determination of Rhenium in Molybdenites With the Colorimetric Method (Opredeleniye reniya v molibdenitakh kolorimetricheskim metodom)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, pp 548-550 (USSR)

ABSTRACT: The present paper gives a description of a colorimetric rhenium determination based on the use of a catalytic reaction with tin chloride (I) and sodium tellurate (II) (Refs 9, 10). (I) does not effect the reduction of (II) in acid solutions. In the presence of perrhenates, however, (I) has a catalytic effect upon the reaction Na_2TeO_4 + $3\ SnCl_2 + 8\ HCl \longrightarrow Te + 3\ SnCl_4 + 2\ NaCl + 4\ H_2O$, in which connection elemental tellurium is formed. The amount of Te formed as well as the color intensity of the solution increases with time and further depend on the concentration of the reagents, on temperature, etc. Under observance of the conditions prescribed, the method under review allows up to 0.001 γ Re to be determined colorimetrically

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after 20 hours (in the case of 0.01 γ Re, a waiting time of from 1 to 1.5 hours will be sufficient). Molybdenum, which gives the same reaction, may be "masked" by tartaric acid, or it may be extracted as oxyquinolate with chloroform. The separation from the principal amount of Mo takes place by roasting with a $CaO + Ca(NO_3)_2$ mixture, in which connection Mo remains unsolved as Ca-molybdate in water dissolution, while Re remains in solution up to 92-94%, as was found by the aid of Re^{186}. Sodium tellurate, which is required for the analysis of molybdenites is prepared from elemental Te according to a method described. The course of analysis is given and shows inter al that colorimetric measurement takes place with a photocolorimeter FEK-M, and the Re content is determined with an equation on the basis of the extinction of the solution. Analytical results obtained with molybdenites and molybdenum concentrations (Table 1) as well as from ores with Rhenium content (Table 2) are given. There are 2 tables and 10 references, 6 of which are Soviet.

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5(2)

AUTHORS: Kononenko, L. I., Poluektov, N. S.

SOV/32-25-9-8/53

TITLE: Colorimetric Determination of Zirconium in Ores Containing Phosphates

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1050-1053 (USSR)

ABSTRACT: A colorimetric method, based upon a previously described method (Ref 1), for the determination of zirconium, was elaborated, intended, however, for ores containing phosphates. Zirconium is separated as the phosphate, the phosphate dissolved in oxalic acid, and zirconium is precipitated with NaOH as the hydroxide. The latter is dissolved in hydrochloric acid and a colorimetric determination with arsen azo, or alizarin red is made. The completeness of phosphate precipitation and Zr was investigated by means of Hf^{181} (as it reacts like Zr), and it was found that Zr as the phosphate precipitates up to 95-98% only with an acidity of the medium above 3.5n HCl (Table 1). The degree of separation of Zr from tantalum and niobium was investigated by means of Ta^{182} and Nb^{95} and it was found that

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Colorimetric Determination of Zirconium in Ores Containing Phosphates

the separation from Nb is complete, whereas a part of Ta dissolves with Zr, without, however, disturbing the Zr determination since Trilon B is used (Table 2). For the purpose of colorimetric determination a green and orange-colored filter should be used in the colorimeter of the type FEK-M, which does not have a yellow filter. An orange-glass OS-12 may be used. Zr determinations of ore samples were carried out according to the course of analysis mentioned (Table 3), with certain Zr quantities being added to the samples (Table 4). It was possible to determine of from a few hundredths to 2 per cent ZrO_2 in the samples. There are 4 tables and 4 references, 2 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry of the Academy of Sciences, UkrSSR)

KONONENKO, L.I.; POLUEKTOV, N.S.

Determination of small quantities of zirconium in ores. Trudy Kom. anal. khim. 12:132-141 '60. (MIRA 13:8)
(Zirconium) (Colorimetry)

5.5310

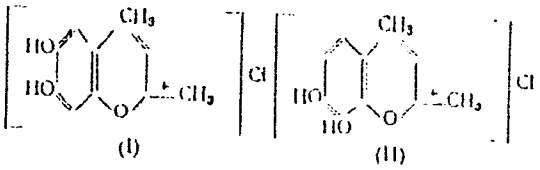
77750
SOV/75-15-1-12/29

AUTHORS: Kononenko, L. I., Poluektov, N. S.

TITLE: Photometric Determination of Germanium Using o-Dihydroxychromenols

PERIODICAL: Zhurnal analyticheskoy khimii, 1960, Vol 15, Nr 1, pp 61-68 (USSR)

ABSTRACT: The four compounds given were synthesized and tested as reagents for spectrophotometric determination of germanium:



(I)

(II)

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Photometric Determination of Germanium Using o-Dihydroxychromenols

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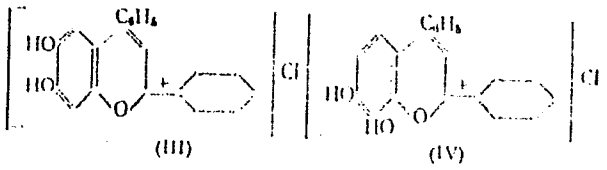

(III) (IV)

6,7-dihydroxy-2,4-dimethylbenzopyrillium chloride (I)
7,8-dihydroxy-2,4-dimethylbenzopyrillium chloride (II)
6,7-dihydroxy-2,4-diphenylbenzopyrillium chloride (III)
7,8-dihydroxy-2,4-diphenylbenzopyrillium chloride (IV)

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Photometric Determination of Germanium Using o-Dihydroxychromenols

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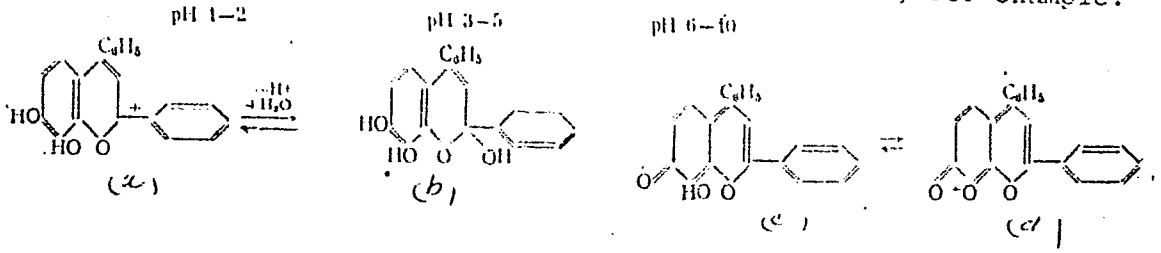
Depending on pH, they produce different colors due to the formation of different ionic forms, for example:



(a) Cation of IV, orange-red; (b) base or, (c) dehydrated base of IV, blue; (d) anion of dehydrated base of IV, violet.

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Acid germanium solutions (0.1N HCl) produce color changes with the above reagents (see Table 2).

Table 2. Color change of acid dyes solution on addition of germanium

Reagent	color in 0.1N HCl	color after addition of germanium
I	pale yellow	bright yellow
II	orange	red
III	yellow	orange red
IV	orange	dark green

They produce similar color also on addition of the following elements: Zr, Hf, Ti, Th, Mo, W, V, Ta, Nb, and Sn. The reagents (I, II, III, IV) were obtained according to the method of Bulow, C., Sicherer,

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Photometric Determination of Germanium Using o-Dihydroxychromenols

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W., Ber., 34, 3916 (1901). Reagents I and II form colored complexes with Ge, which are soluble in water. Reagents III and IV form colored complexes with Ge, insoluble in water, but the complexes can be held in the solution by the addition of gelatin. Conditions of the complex formation, stability of the color, effect of time and acid concentration on the optical densities of the colored Ge complexes were studied. The optical densities were measured using SF-4 spectrophotometer or FM-1 photometer, also photoelectric colorimeter FEK-M can be used. Other details and results of the experiments are shown in the tables and figures which follow.

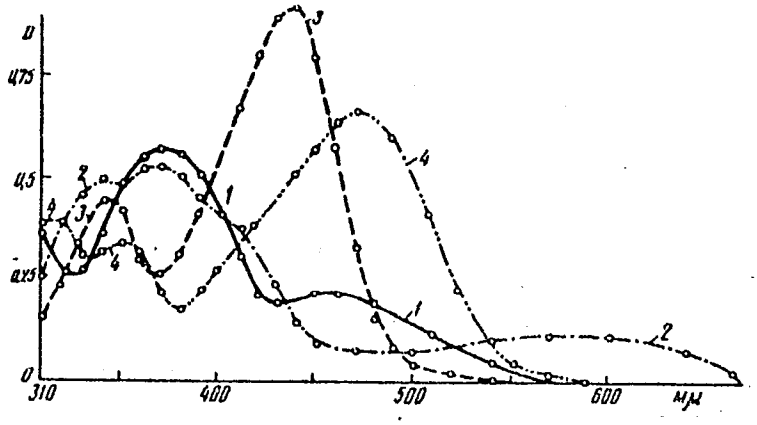

Fig. 2. Absorption curves of solutions: compound III (1); complex of III with Ge(2); compound IV (3); complex of IV with Ge (4).

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(a)	(b)	(c)	(d) (e)	(d) (f)	(g)	(h)
I	420	0,1 —0,6	(i)	—	1	100
II	500—530	0,05—0,2	(j)	—	2	100
III	500	0,1 —0,6	(k)	0,5 ml	0,1	25
IV	600—630	0,05—0,2	(l)	0,5 ml	1	40

Table 3. Conditions of germanium determination using compounds I, II, III, IV (a) reagent; (b) wavelength (μm); (c) optimum concentration of HCl (N); (d) amount of reagent added for 10 ml of solution; (e) reagent; (f) 1% gelatin solution; (g) sensitivity of the method in γ (in 10 ml solution); (h) maximum of Ge γ (in 10 ml of solution, obeying Beer's law; (i) 2 ml of 0.2% aqueous solution; (j) 0.5 ml of 1% aqueous solution, 0.5 of 0.2% aqueous solution;

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(Caption to Table 3 continued)

(k) 0.5 ml of 0.2% alcoholic solution; (m) 0.5 ml of 0.2% alcoholic solution.

Table 4. Conditions of determination of composition of the colored compounds of Ge with reagents I,II, III, IV. (a) reagent; (b) total concentration of the component, M; (c) acidity of the solution based on HCl N, (d) alcohol concentration, %; (e) gelatin concentration, %.

(a)	(b)	(c)	(d)	(e)
I	$2 \cdot 10^{-2}$	0,5	—	—
II	$2 \cdot 10^{-2}$	0,1	—	—
III	$2 \cdot 10^{-3}$	0,1	1,0	0,04
IV	$2,5 \cdot 10^{-3}$	0,2	1,0	0,04

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Photometric Determination of Germanium Using o-Dihydroxychromenols

77750
SOV/75-15-1-12/29

A study of the composition of Ge complexes with I, II, III, and IV show that the ratio, Ge:reagent, in the above complexes is 2:1, respectively. The conditions of complex formation and their apparent constants are given in Table 5. It was found that the most sensitive reagent for photometric determination of Ge is compoind III, which in 0.1N HCl changes color from yellow to orange red; 0.1-25 γ of Ge can be determined in 10 ml of solution. The effect of interfering elements can be eliminated by the use of different masking agents (complexon III, H_2O_2, phosphoric acid).

There are 5 figures; 7 tables; and 7 references, 1 U.S., 1 French, 1 German 4 Soviet. The U.S. reference is: Newcombe, H., McBryde, W. A. E., Barlett, J., Beamish, F. E., Analyt. Chem., 23, 1023 (1951).

ASSOCIATION: Odessa Laboratories of the Institute of General and Inorganic Chemistry of Academy of Sciences Ukrainian SSR (Institut obshchey i neorganicheskoy khimii AN USSR, Laboratorii v Odesse)

SUBMITTED: June 30, 1958

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Photometric Determination of Germanium Using o-Dihydroxychromenols

77750
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(Key to Table 5 con't)

reagent and at stoichimetrical ratio; (i) $K_{formation}$ (calculated according to formula: $K'_{formation} = \frac{1-K}{4K^3 c^2} = \frac{1}{K_{dissociation}}$; (J) molar extinction coefficient.

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S/073/60/026/002/012/015
B023/B067

AUTHORS: Kononenko, L. I. and Poluektov, N. S.

TITLE: Application of o-Dihydroxy Chromenols for the Colorimetric Determination of Zirconium and Hafnium

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 2, pp. 246-253

TEXT: To examine the applicability of dihydroxychromenols for the colorimetric determination of zirconium and hafnium the authors studied four representatives of this group

6,7-dihydroxy-2,4-dimethyl benzopyranol chloride
7,8-dihydroxy-2,4-dimethyl benzopyranol chloride
6,7-dihydroxy-2,4-diphenyl benzopyranol chloride
and 7,8-dihydroxy-2,4-diphenyl benzopyranol chloride

The authors found that these reagents are less efficient than arsenazo and alizarin red produced earlier as to the specifity of determination. 6,7-dihydroxy-2,4-diphenyl benzopyranol, however, has a higher sensitivity

Application of o-Dihydroxy Chromenols for the Colorimetric Determination of Zirconium and Hafnium

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and therefore may be used for detecting zirconium and hafnium traces. The colored zirconium and hafnium complexes contain two molecules of the reagent bonded to one metal atom (zirconium or hafnium). The authors determined the apparent formation constants of zirconium and hafnium complexes as well as the molecular extinction coefficients according to the following equation: $MeO^{2+} + 2HA \rightleftharpoons MeOA_2 + 2H^+$ and according to the formulas $K_{formation} = \frac{1-\alpha}{4\alpha^3 \cdot C^2}$; $\varepsilon = \frac{E}{C \cdot l}$, where α denotes the degree of dissociation of the complex with stoichiometric ratio of the components, C - concentration of metal ions, E - maximum extinction value, ε - molar extinction coefficient, and l length of the bulb. The authors proved that the reagents described can also be used for determining zirconium in phosphate ores if zirconium is first isolated as phosphate. Table 3 shows the values of the apparent formation constant of the four reagents. There are 8 figures, 5 tables, and 20 references: 10 Soviet, 1 US, and 1 Japanese.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR, laboratoriya v Odesse (Institute of General and Inorganic Chemistry AS UkrSSR, Laboratory in Odessa)

Card 2/3

KONONENKO, L. I.

Cand Chem Sci - (diss) "Studies in the use of colored reactions for quantitative determination of zirconium (hafnium)." Odessa, 1961. 16 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Odessa State Univ imeni I. I. Mechnikov); 260 copies; price not given; list of author's works on pp 15-16 (16 entries); (KL, 10-61 sup, 207)

POLUEKTOV, N.S.; KONONENKO, L.I.

Spectrophotometric study of carbonate complexes of rare earth elements. Zhur.neorg.khim. 6 no.8:1837-1842 Ag '61. (MIRA 14:8)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Rare earth carbonates--Spectra)

S/032/62/028/007/001/011
B179/B101

AUTHORS: Kononenko, L. I., and Poluektov, N. S.

TITLE: Complexometric determination of Hf in an Hf-Zr mixture

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 7, 1962, 794 - 796

TEXT: Direct titration of Hf in an Hf-Zr mixture with trilon is described, thereby contrasting with L. Ottendorfer (Chemist-Analyst, 48, no. 4, 97, 105 (1959)). Sulfonaphthol azoresorcin (4-sulfo-2-hydroxy naphthalene-1-azo-4'-1',3'-dihydroxy benzene) or picramin azochromotrope were used as indicators, making it possible to carry out the titration in the presence of disturbing foreign ions (up to 200-250 mg SO_4^{2-}, 100 mg Sn(II), Sn(IV), Fe(II). In the Hf(Zr) - trilon complex there is 1 atom of metal in 1 molecule of trilon. In mixtures containing 2.5 - 98% Hf the latter could be determined with a maximum error of ± 0.5%. There are 2 tables.

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KONONENKO, L.I.; POLUEKTOV, N.S.

Complexometric determination of hafnium in a mixture with zirconium. Zav.lab. 28 no.7:794-796 '62 (MIRA 15:6)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Hafnium--Analysis) (Zirconium--Analysis)

KONONENKO, L.I., POLUEKTOV, N.S.

Phenanthroline complexes of rare earth elements in solutions.
Zhur. neorg. khim. 7 no.8:1869-1873 Ag '62. (MIRA 16:6)

(Rare earth compounds)
(Phenanthroline)

OSTRYANINA, A.D.; KONONENKO, L.I.

Functional state of the adrenal cortex in strains of mice with greater or smaller predisposition to cancer. Fiziol. zhur. [Ukr.] 9 no.4:544-547 Jl-Ag '63. (MIRA 17:10)

KONONENKO, L. I.

2

The Second All-Union Conference on the Preparation and Analysis of High-Purity Elements, held on 24-28 December 1963 at Gorky State University im. N. I. Lobachevskiy, was sponsored by the Institute of Chemistry of the Gorky State University, the Physicochemical and Technological Department for Inorganic Materials of the Academy of Sciences USSR, and the Gorky Section of the All-Union Chemical Society im. D. I. Mendeleyev. The opening address was made by Academician N. M. Zhavoronkov. Some 90 papers were presented, among them the following:

L. I. Kononenko, R. A. Vitkun, and N. S. Poluektov. Fluorescence determination of Eu microimpurities in rare-earth elements.

(Zhur Anal Khim, 19 No 6, 1964 p. 777-9)

KONONENKO, L.I.; LAUER, R.S.; POLUEKTOV, N.S.

Extraction-fluorimetric determination of europium and terbium. Zhur. anal.khim. 18 no.12:1468-1474 D '63. (MIRA 17:4)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR, Laboratorii v Odesse.