

NIGAY, K.G.

ZHDANOV, A.K.; NIGAY, K.G.

Solubilities in the system: potassium chloride-glucose-water at
25° C. Zhur. ob. khim. 26 no.8:2134-2137 Ag '56. (MLBA 10:11)

1. Sredneaziatskiy gosudarstvennyy universitet.
(Systems (Chemistry)) (Potassium chloride) (Glucose)

NIGAY, K.G.

ZHDANOV, A.K.; NIGAY, K.G.

Solubility in potassium chloride-urea-water systems at 25°. Zhur.
ob. khim. 26 no.10:2679-2680 0 '56. (MIRA 11:3)

1. Sredneaziatskiy Gosudarstvennyy universitet.
(Potassium chloride) (Urea) (Solubility)

MAKSIMYCHEVA, Z.T.; NIGAY, K.G.

Alkali metal fluoborates. Solubility in the system $RbBF_4$ - RbF -
 H_2O at 25 . Uzb.khim.zhur. no.2:38-43 '61. (MIRA 14:10)

1. Tashkentskiy gosuniversitet imeni Lenina.
(Rubidium fluoborate) (Solubility)

TALIPOV, Sh.T.; NIGAY, K.G.; ABRAMOVA, E.L.

Extraction-photometric determination of copper in alloys as a
N-acetylanabasine-thiocyanate complex. Zav.lab. 29 no.7:804
'63. (MIRA 16:8)

1. Tashkentskiy gosudarstvennyy universitet im. V.I.Lenina.
(Copper alloys—Analysis) (Complex compounds)

TALIPOV, Sh.T.; NIGAY, K.G.

Use of N-acetylanabasine for the extraction-photometric
determination of titanium. Zhur. anal. khim. 18 no.2:
178-181 F 167. (MIRA 17:10)

1. Lenin State University, Tashkent.

TALIPOV, Sh.P.; MIRA, F.S.; ABRAMOVA, F.L.

Extraction-photometric determination of small amounts of copper
at a N-acetyl-arabosine-thiocyanate complex. Nauch.trudy TashGU
no.263.Khim.nauki no.13:58-62 '64.

(MIRA 18:8)

NIGAI, K.G.; TALIBOV Sh.I.; VANOVA, I.Ya.

Photometric determination of bismuth using
4/2-N-methyl-5-aminobenzimidazole. Nauch.trudy TashGU
no.263. Khim.nauki no.13:63-68 '64.

(MIRA 18:8)

ACCESSION NR: AP4040668

8/0075/64/019/006/0697/0700

AUTHOR: Talipov, Sh. T.; Nigay, K. G.

TITLE: Complexometric titration of thallium (III) with the use of 4-(2-N-methylanabasineazo) resorcinol

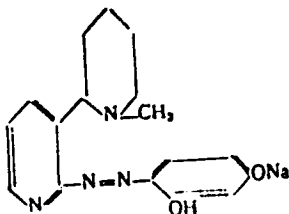
SOURCE: Zhurnal analiticheskoy khimii, v. 19, no. 6, 1964, 697-700

TOPIC TAGS: thallium, bismuth, quantitative analysis, complexometric titration, color reagent, indicator, methylanabasineazoresorcinol, selectivity, complexon III titration

ABSTRACT: 4-(2-N-methylanabasineazo)resorcinol was used as an indicator for the direct visual complexometric titration of Tl (III) in 2N acid solution. The indicator

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ACCESSION NR: AF4040668



crimson in alkali and yellow in acid solution, forms a bright red complex with Tl (III) which breaks down with excess complexon III. Thus at the end point of the direct titration of Tl (III) with complexon III there is a sharp color change from red to yellow. Fe (III), In (III), alkaline metals, Sn (IV), As (V), Ag, and Cr (III) do not affect the determination of Tl (III). The Tl and Bi content of mixtures of these two elements can be determined: the total of Tl (III) and Bi is titrated, and in another portion of the solution the Tl (III) is reduced with sodium sulfite and the Bi is titrated with complexon III with the same indicator; the difference of the two titrations is in the Tl (III) content. Complexometric titration with this indicator is highly selective, rapid, very accurate, and does not require the use of buffered solutions. Orig. art. has: 4 tables, 1 figure

Card 2/3

ACCESSION NR: AP4040668

and 1 formula.

ASSOCIATION: Tashkentkiy gosudarstvennyy universitet im. V. I. Lenina (Tashkent State University)

SUBMITTED: 08Jul63

ENCL: 00

SUB CODE: IC

NO REF SCV: 006

OTHER: 001

Card 3/3

TALOPOV, Sh.T.; NIGAY, K.G.

Complexometric titration of bismuth using 4(2-N-methylanabasineazo)
resorcinol. Zhur. anal. khim. 19 no.7:851-855 '64. (MIRA 17:11)

1. Tashkent State University.

TALIPOV, Sh.T.; ABDULLAYEVA, Kh.S.; NIGAY, K.G.

4(2-N-methylanalasinazo)-resorcinol as an analytical reagent.
Uzb.khim.zhur. 9 no.1:34-37 '65. (MIRA 18:6)

1. Tashkentskiy gosudarstvennyy universitet imeni Lenina.

FOJER Jaroslav, NIGER, Edgar, SEVELA, Miroslaw, OLEJNIK, Udalryk

Experiments on serum transaminase activity in heart diseases.
Polskie arch.med. wewn. 28 no.2:193-199 1958

1. Z III Kliniki Chorob Wewnetrznych Uniwersytetu im. Masaryka
w Brnie. Kierownik: prof. dr med. J. Fojer z Zakladu Chemii
Lekarskiej U.M. Kierownik: prof. dr med. Wagner oraz z II Kliniki
Chirurgicznej U.M. Kierownik: prof. dr med. Havratil. Adres autora:
J.P., III. Vnitřni Klinika Masarykovy Univerzity, Brno, Czechošlowska.

(HEART DISEASE, metabolism

serum transaminase activity, determ. (Pol))

(TRANSAMINASES, in blood

in various heart dis., determ. (Pol))

TERAS, Yu. Kh.; NIGSEN, U. K.

Role of water in the spread of *Trichomonas vaginalis*. Med. paraz.
i paraz. bol. no.6:699-703 '61. (MIRA 15:6)

1. Iz sektora protozoologii (zav. - kandidat meditsinskikh nauk
Yu. Kh. Teras) Instituta eksperimental'noy i klinicheskoy
meditsiny (dir. - kandidat meditsinskikh nauk P. A. Bogovskiy)
Akademii nauk Estonskoy SSR.

(TRICHOMONIASIS)

TERAS, Yu.Kh. [Teraz, J.]; RYYGAS, E.M. [Roigas, E.], kand. med. nauk;
YAAKMEES, Kh.P. [Jaakmes, H.], kand. med. nauk; TOMPEL', Kh.Ya.
[Tompel, H.], kand. med. nauk; NIGESSEN, U.K., kand. med. nauk

Effectiveness of metronidazole (flagyl) treatment of urogenital
trichomoniasis. Akush. i gin. 40 no.5:96-98 S-O '64. (MIRA 18:5)

1. Estonskiy institut eksperimental'noy i klinicheskoy meditsiny (dir. -
prof. P.A.Bogovskiy) AMN SSSR, Tallin.

NIGBY, Fodor Mafod'yevich; SIMKHO, Kh.S., red.; KAYDALOVA, M.D.,
tekh.n.red.

[Lumbering industry] Lesnaya promyshlennost'. Khabarovsk,
Khabarovskoe knizhnoe izd-vo, 1959. 67 p.

(MIRA 14:1)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Khabarovskiy
krayevoy komitet. Otdel propagandy i agitatsii.
(Lumbering)

SHEIN, Anatoliy Ivanovich; NICEY, Fedor Mefod'yevich; REZNIKOV, Yu.,
red.

Karatau. Alma-Ata, Izd-vo Kazakhstan, 1965. 81 p.
(MIRA 18:6)

ACC NR: AP6025615

SOURCE CODE: UR/0413/66/000/013/0060/0060

INVENTOR: Nigin, E. R.

ORG: none

TITLE: A method for drawing a fiber out of a stream of molten inorganic material.
Class 32, No. 183335

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 60

TOPIC TAGS: fiber, inorganic plastic, glass

ABSTRACT: This Author Certificate presents a method for drawing a fiber out of a stream of molten inorganic material such as glass. The stream flows out of the filler apertures of the feeder. To lower the snapping tendency of the fiber and to improve the productivity of the installation, the molten stream is drawn into a fiber and the latter is carried by a moving liquid directed toward the stream of the melt. Water or hydrophobic glues and other liquid materials imparting the desired physical and chemical properties to the fiber may be used as the drawing and carrying liquid.

SUB CODE: 13/ SUBM DATE: 16Nov64

Card 1/1

UDC: 666.1.036:666.189.21

NIGIN, Ye. R.

"Investigation of the Temperature Condition of Turbine Blades in Connection with Material Selection and Strength Calculations." Sub 7 Mar 51, All-Union Order of the Labor Red Banner Power Engineering Inst imeni F. E. Dzerzhinskiy

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

NIGIYAN, A.A.

KUDROV B.A., inzhener; RUDNEV, A.P., inzhener; NIGIYAN, A.A., inzhener.

Improving the accuracy of measurements of electric power. Elek.sta.
25 no.12:35-37 D '54. (MLRA 7:12)

1. Komitet standartov mer i izmeritel'nykh priborov (for Rudnev).
2. Zavod elektroschetnikov (for Nigiyan).
(Electric meters)

ILYUKOVICH, A.M.; NIGIYAN, A.A.

Instrument for determining the torque of a single phase counter
before its final assembly. Izv.tekh.no.4:53-54 J1-Ag '55.

(MLRA 8:10)

1. Mytishchinskiy zavod elektroschetchikov
(Measuring instruments)

SOV/112-57-5-10497

8 (2)

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 138 (USSR)

AUTHOR: Nigiyan, A. A.

TITLE: Line-Production Method of Meter Adjustments
(Potochnyy metod regulirovki schetchikov)

PERIODICAL: Inform.-tekhn. sb. M-vo elektrotekhn. prom-sti SSSR, 1956.
Nr 1 (85), pp 12-17

ABSTRACT: Among known methods of meter adjustment, the most productive is the stroboscopic method in which the disk rotation speed is the adjustable parameter. The adjustment is made at one stroke, without a gradual approximation. The disadvantage of the method is its inapplicability at small loads, as it is difficult to obtain an easily visible stroboscopic pattern with low disk rotation speeds and as the rotation speed is nonuniform within one revolution. The essence of the stroboscopic method of meter adjustment is this: notches are made at regular intervals along the entire disk circumference. If a

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SOV/112-57-5-10497

Line-Production Method of Meter Adjustments

pulsating luminous flux is directed at such a notched disk rotating with constant rpm, a stationary ring of notches will be visible in case the frequencies of light pulsations and notch changes are equal. If these frequencies are unequal, the notch ring will rotate in one or another direction. By adjusting devices, the disk is made to rotate with such a speed that the stroboscopic pattern becomes stationary. A circuit diagram of the stroboscopic outfit is presented in which the light pulse frequency is coordinated with the power fed to the meter, and the operation of the outfit is described. The high accuracy of meter adjustment by the disk stroboscopic method permits not only dividing adjustment operations but also disposing with some of them; labor productivity is increased by 50% and adjustment quality is higher. A comparison is submitted of (1) meter adjustment procedure by the method of the reference meter and spots, and (2) production-line adjustment procedure with divided adjustment operations as permitted by the stroboscopic method.

T. M. V.

Card 2/2

NIGIYEV, M.F.; KARAMZIN, P.V.; ZAYTSEVA, Z.A.

Theory of reactors operating with the recycling system
(on temperature gradient). Azerb. khim. zhur. no.1:
105-110 '64. (MIRA 17:6)

L 01048-67 EWT(1)/EWT(m)/EWP(j)/T IJP(c) WW/GG/RM

ACC NR: AP6019535 (A) SOURCE CODE: UR/0190/66/008/006/0969/0979

AUTHOR: Mikhaylov, G. P.; Borisova, T. I.; Nigmankhodzhayev, A. S.

ORG: Institute of High Molecular Compounds, AN SSSR (Institut vysokomolekulyarnykh soyedineniy AN SSSR)

TITLE: Dielectric relaxation in copolymers of n-butylmethacrylate with styrene

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 969-979

TOPIC TAGS: dielectric property, dielectric material, methacrylate plastic, styrene, COPOLYMER

ABSTRACT: Molecular dielectric relaxation and polarization of copolymers of n-butylmethacrylate with styrene (100-19% styrene) were studied in the 140°-290°C range and at frequencies of 20-5·10⁸ cps. The object of the work was to examine the effect of the methyl groups in the main chain upon the overall dielectric relaxation of a copolymer and to define the principles which govern dielectric relaxation in copolymers at temperatures of 200°C and more above their glass points. It was found that there is a motion of the C=O groups within an n-butylmethacrylate-styrene copolymer in the glass state. As the content of styrene in the copolymer chain increased, both the relaxation time and the activation energy of the kinetic units gradually declined. On the same time, no additivity was found in the cases of the composition dependence of the copolymer's glass points, activation energy of relaxation, and the maximum dielectric

UDC: 678.01:53+678.13+678.744+678.746

Card 1/2

L 01048-67

ACC NR: AP6019535

relaxation angle. These effects are attributed to the decreasing steric interference of the CH₃-groups in the copolymer main chain. At temperatures of 200°C and more, above the respective glass points, dielectric relaxation time and polarization were found to be independent of the copolymers' composition. It was found that the effective dipole moments of the dipole-group polarization were independent of temperature while the dipole-segmental and static field polarizations were found to decrease linearly with temperature. Orig. art. has: 7 figures, 1 table.

SUB CODE: 07,11/

SUBM DATE: 07May65/

ORIG REF: 011/

OTH REF: 007

awm

Card 2/2

USMANOV, Kh.U.; NIGMANEHODZHAYEVA, M.S.

Mechanics of fibres of certain selective varieties of cotton. Trudy
Inst.khim. AN Uzb.SSR no.5:3-22 '54. (MIRA 8:4)
(Cotton)

USMANOV, Kh.U.; NIGMANKHODZHAYEVA, M.S.

Mechanical properties of moist cellulose fibers. Izv. AN Uz. SSR Ser.
khim. nauk no.1:41-47 '57. (MIRA 13:10)

1. Chlen-korrespondent AN UzSSR (for Usmanov).
(Cellulose) (Fibers)

NIGMANKHODZHAYEVA, M.S.; USMANOV, Kh.U.

Deformation of the cotton cellulose by stretching. Dokl. AN Uz.
SSR no.4:35-38 '57. (MIRA 11:5)

1. Chlen-korrespondent AN UzSSR (for Usmanov). 2. Institut khimii
rastitel'nykh veshchestv AN UzSSR.
(Cellulose--Testing)

NIGMANKHODZHAYEVA, M.S.; FISHER, P.Z.

Hydrogen overvoltage on electrically deposited iron-nickel alloys
as dependent on alkali concentration. Dokl. AN Uz SSR no.11:25-29
'57. (MIRA 11:5)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR. Predstavleno
chlenom-korrespondentom AN UzSSR Kh.U. Usmanovym.
(Iron-nickel alloys) (Overvoltage)

NIGMANKHODZHAYEVA, M.S.; USMANOV, Kh.U.

Change of mechanical and thermodynamic properties of cellulose
in cotton plant fiber. Usb.khim.shur. no.4:22-28 '59.

(MIRA 13:1)

1. Chlen-korrespondent AN UzSSR (for Usmanov). 2. Institut
khimii rastitel'nykh veshchestv AN UzSSR.
(Cellulose) (Cotton)

USMANOV, Kh.U.; NIGMANKHODZHAYEVA, M.S.; KHAKIMOV, I.; INOYATOV, N.

Effect of the time of defoliation of cotton plants on the
mechanical and thermodynamic properties of cotton fiber.
Uzb.khim.zhur. no.5:21-26 '61. (MIRA 14:9)

1. Institut khimii polimerov AN Uzbekskoy SSR. 2. Chlen-kor-
respondent AN Uzbekskoy SSR (for Usmanov).
(Cotton)

NIGMAKHODZHAYEVA, M.S., ALIMBEKOV, M., KHAKIMOV, H.Kh.

Study of mechanical and thermodynamical properties of cellulose
in organic solvents.

Report presented at the 13th Conference on high-molecular compounds
Moscow, 8-11 Oct 62

NIGMANOVA, N.H.

Comparative morphological characteristics and yield of some
forms of vine crops. Uzb. biol. zhur. 7 no.3:57-61 '63.
(MIRA 16:9)

1. Tashkentskiy sel'skokhozyaystvennyy institut.

NIGMANOVA, S., nauchnyy sotrudnik

Susceptibility of alfalfa to Ascochyta disease. Zashch. rast. ot
vred. i Bol. 7 no.11:53 N '62. (MIRA 16:7)

1. Institut zashchity rasteniy Uzbekskoy SSR. Tashkent.

NIGMATOV, N.

Respiration of tissue sections of the thyroid gland under
different functional conditions. Vop. biol. i kraev. med.
no.4:337-339 '63. (MIRA 17:2)

NIGMATOV, N.

Respiration of the myocardium in pathology of the heart
g. and. Trudy Inst. Serov. Ekater. Med. no. 5. 1963.

NIGMATULIN, I.N., dotsent, kandidat tekhnicheskikh nauk.

Thermodynamic cycles of combined internal combustion engines.
[Trudy] MVTU no.27:5-46 '54. (MLBA 7:11)
(Gas and oil engines) (Thermodynamics)

NIGMATULIN, I.N., dotsent, kandidat tekhnicheskikh nauk.

**Thermodynamic analysis of indicator diagrams of internal combustion engine performance. [Trudy] MVTU no.27:56-97 '54. (MLRA 7:11)
(Thermodynamics) (Gas and oil engines)**

NIGMATULIN, I.N., kandidat tekhnicheskikh nauk; **BOROVITSKIY, V.I.**, inzhener.

Conversion of high-power two-stroke engines form liquid fuels to
generator gas. [Trudy] MVTU no.35:126-134 '55. (MIRA 9:7)
(Gas and oil engines)

NIGMATULIN, I.N., kandidat tekhnicheskikh nauk.

Real cycles of combined engines. [Trudy] NVTU no.35:155-171 '55.
(Gas and oil engines--Design) (MIRA 9:7)

NIGMATULIN, I.N., kandidat tekhnicheskikh nauk.

Combustion of supplement fuel in the booster chamber of combined engines. [Trudy] MVTU no.35:183-201 '55. (MIRA 9:7)
(Gas and oil engines) (Motor fuels)

NIGMATULIN, I.N., kandidat tekhnicheskikh nauk.

~~Inertia supercharger.~~ [Trudy] MFTU no.51:19-22 '55. (MLRA 9:8)
(Gas and oil engines--Superchargers)

VASILENKO, Aleksey Nikolayevich, kand. tekhn. nauk; DIZZHAKOV, Yevgeniy Vasil'yevich, dots.; ISAYEV, Sergey Ivanovich, kand. tekhn. nauk; KORNEYCHUK, Nikolay Karpovich, kand. tekhn. nauk, dots.; KOFANOV, Vyacheslav Ivanovich; assistent; KRUTOV, Vitaliy Ivanovich, doktor tekhn. nauk, prof.; MIRONOV, Boris Mikhaylovich, kand. tekhn. nauk; NIGMATULIN, Iskander Nigmatulevich, doktor tekhn. nauk, prof.; NOSOV, Mikhail Vasil'yevich, prof.; SAKOYLOV, Mikhail Sergeevich, assistent; SPORYSH, Igor Pavlovich, kand. tekhn. nauk, prof.; KHVOSTOV, Viktor Ivanovich, kand. tekhn. nauk; SHISHOV, Yevgeniy Viktorovich, kand. tekhn. nauk; YUDAYEV, Boris Nikolayevich, kand. tekhn. nauk, dots.; KUTYRIN, I.N., dots., kand. tekhn. nauk, retsenzent; SHVEDOV, A.M., dots., retsenzent; TUPITSYNA, L.A., red.; FUFAYEVA, G.I., red.

[Problems in technical thermodynamics and heat transfer]
Sbornik zadach po tekhnicheskoi termodinamike i teplopere-
dache. [By] A.N.Vasilenko i dr. Moskva, Vysshaya shkola,
1964. 369 p. (MIRA 17:4)

1. Prepodavatel'skiy kollektiv kafedry termodinamiki i teplo-
peredachi Moskovskogo vysshogo tekhnicheskogo uchilishcha
(for all except Kutyrin, Shvedov, Tupitsyna, Fufayeva). 2. Mo-
skovskiy aviatsionnyy institut (for Kutyrin, Shvedov).

38

PHASE I BOOK EXPLOITATION

SOV/5965

Nigmatulin, Iskander N., Doctor of Technical Sciences, Professor

Rabochiye protsessy v turboporshnevykh dvigatelyakh (Operating Processes in Turbopiston Engines) Moscow, Mashgiz, 1962. 314 p. Errata slip inserted. 4000 copies printed.

Ed. of Publishing House: D. N. Ivanov; Tech. Ed.: A. F. Uvarova; Managing Ed. for Literature on Power-Engineering and Metallurgical Construction, Highway, and Hoisting-and-Transporting Machine Building: N. M. Zyuzin.

PURPOSE: This book is intended for engineers concerned with combustion engines. It may also be useful to advanced students at machinery-construction schools.

COVERAGE: The book discusses theoretical problems, requirements, and trends in the field of power plants made of piston engines combined with turbocompressors and gas engines. These power plants, which are of special interest in water and surface trans-

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Operating Processes in (Cont,)

SOV/5965

portation, have the advantage of economy, increased power, and small size and weight when compared with the usual internal-combustion engine. The book gives particular attention to features connected with the compressor and turbine. Two- and four-stroke engines and the operational balance of the component systems are considered. The afterburner heat-calculation method, equations to determine the air-excess coefficient, the maximum and minimum gas temperature, the extent of turbine-operation increases, the combustion-chamber heat intensity, and other parameters are given. The results of experimental investigations of fuel combustion in pulsing streams with admixtures are presented. The book was written to fill a gap in the Soviet literature. No personalities are mentioned. There are 33 references: 28 Soviet (1 translation), 3 English, 1 German, and 1 unidentified.

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9. Calculation of Working Processes in the Piston-Type Component System of the Combined Power Plant	247
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AVAILABLE: Library of Congress

SUBJECT: Mechanical Engineering

Card 4/4

AD/wrc/lde
7/16/62

NIGMATULIN, I.N., prof.

In reply to G.IU. Stepanov. Energomashinostroeniia 9 no.5:46
My '63. (MIRA 16:7)

(Gas and oil engines)
(Stepanov, G.IU.)

NIGMATULIN, I.N., doktor tekhn. nauk, prof.; TSFNEV, V.A., kand. tekhn. nauk

Investigating internal cooling of a two-stroke diesel engine
with crankcase scavenging. Izv. vys. ucheb. zav.; mashinostr.
no.12:95-99 '64. (M.H. 18:3)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.

NIGMATULIN, I.N., prof., doktor tekhn.nauk

Reviews and bibliography. Vest.mashinostr. 45 no.10:85-86
0 '65. (MIRA 18:11)

NIGMATULIN, I.R., inzh.

laying out pattern sections and making allowances in cutting
fleece lined fashion garments from sheep pelts. Nauch.-issl.
trudy NIIMP no.9:89-98 '59. (MIRA 14:5)
, (Fur garments)

N. G. NIGMATULLIN, H.

AUTHOR: Nigmatullin, A., Instructor

27-11-31/31

TITLE: The Mechanizers of Uzbekistan (Uzbekskiyе mekhanizatory);

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, 1957, # 11,
inner page of rear cover (USSR)

ABSTRACT: A short report about the Agricultural Mechanization School at Bukhara (Bukharskoye uchilishche mekhanizatsii sel'skogo khozyaystva) which has trained more than 10,000 mechanizers now successfully working in the country's fields. The article tells about several women operating mechanisms. One of these, Shirinova, has been awarded the Lenin Order and elected delegate to the Supreme Council of Uzbekistan.

AVAILABLE: Library of Congress

Card 1/1

NIGMATULLIN, F.G.

Behavior of certain brands of spring wheat under various
development conditions. Dokl. AN Uz. SSR no.12:45-50 '57.
(MIRA 11:5)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut rasteniyevodstva.
Predstavleno chlenom-korrespondentom AN UzSSR I.A. Raykovym.
(Wheat)

NIGMATULLIN, F. G., Cand Biol Sci. — (diss) "Effects of ^gthe condi-
tions of development and fertilization upon the variability and inhe-
~~ritance~~ ^{ritance} of characteristics in soft and hard wheat." Len,
1958. 18 pp (All-Union Order of Lenin Acad Agr Sci im V. I. Lenin,
All-Union Inst of Plant Cultivation), 100 copies (KL, 15-58, 114)

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NIGMATULLIN, F.G.

Quantitative inheritance in the first and second generations
of soft wheat. Dokl.AN Uz.SSR no.9:51-54 '58. (MIRA 11:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut rasteniyevodstva.
Predstavleno chlenom-korrespondentom AN UzSSR I.A.Raykovoy.
(Wheat) (Genetics)

NIGMATULLIN, F.G.

Formation of ear in spring soft wheat. Agrobiologia no.2:301-303
4-Apr '59. (MIRA 12:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut rasteniyevod-
stva G.Leningrad.
(Wheat)

2101 10V, Ye.O.: NIGMATULLIN, F.G.; RAYKOV, I.A.

Results of the research on the development of program with a focus
ing in the region. Trudy Pam. bna. sta. 1973. 1-2,

M. B. 1-100

NEOMATULIN, Z.C.

Birley operating under all the conditions of the Papers and a re
of its records. To the Pap. M. etc. 1944-16-103.

(MIRA 1944.)

NIGMATULLIN, M.A

Advances in public health in eastern Kazakhstan during the
fifth five-year plan. Zdrav.Kazakh. 17 no.9:3-7 '57.

(MIRA 12:6)

1. Zav.Vostochno-Kazakhstanskim ohlzdnavotdelom.
(KAZAKHSTAN--PUBLIC HEALTH)

KRAMCHANINOV, N.F.; NIGMATULLIN, M.A.

Providing medical service for stockbreeders in range areas. Sov.
zdrav. 17 no.1:35-39 D '58. (MIRA 12:2)

1. Iz Ministerstva zdravookhraneniya Kazakhskoy SSR.
(PUBLIC HEALTH
in Russia (Rus))

NIGMATULLIN, M.A.; KRAMCHANINOV, N.F.

Medical care for cattle breeders on the range. Zdrav. Kazakh. 18
no.1:10-14 '58. (MIRA 13:7)

1. Nachal'nik lechebno-profilakticheskogo upravleniya (for Nigmatullin).
 2. Nachal'nik upravleniya kadrov, Ministerstvo zdravookhraneniya
Kazakhskoy SSR (for Kramchaninov).
- (KAZAKHSTAN—CATTLE BREEDERS—MEDICAL CARE)

NIGMATULLIN, M.A. (Alma-Ata)

Medical care for industrial workers of the Kazakh S.S.R.; on the
40th anniversary of the Kazakh S.S.R. Sov. zdrav. 20 no.9:27-30
'61. (MI:IA 14:12)

1. Nachal'nik Upravleniya lechebno-profilakticheskoy pomoschi
Ministerstva zdravookhraneniya Kazakhskoy SSR.
(KAZAKHSTAN--INDUSTRIAL HYGIENE)

NIGMATULLIN, M.A.

Medical radiological service in the Kazakh S.S.R. Vest. rent. i rad.
36 no. 2:74-75 Mr-Ap '61. (MIRA 14:4)

1. Nachal'nik Upravleniya lechebno-profilakticheskoy pomoshchi
Ministerstva zdravookhraneniya Kazakhskoy SSR.
(KAZAKHSTAN—RADIOLOGY, MEDICAL)

NIGMATULLIN, M.A.; SABRGALIYEVA, G.S.

Attract wider public participation in public health administration.
Zdrav. Kazakh. 22 no.2:3-7 '62. (MIRA 15:4)
(PUBLIC HEALTH)

ACCESSION NR: AR4035559

S/0271/64/000/003/A054/A054

SOURCE: Ref. zh. Avtomat., telemekh. i vy*chisl. tekhn. Av. t., Abs. 3A303

AUTHOR: Nigmatullin, R. G.

TITLE: Realization of quasi-monotonous functions by contact schemes

CITED SOURCE: Uch. zap. Kazansk. un-t, v. 123, no. 6, 1963, 119-128

TOPIC TAGS: quasi monotonous function, Boolean function, contact scheme function realization

TRANSLATION: Quasi-monotonous functions realizable by simple schemes are considered.

A Boolean function f is quasi-monotonous if $|\bar{\alpha}| < |\bar{\beta}|$, where $|\bar{\alpha}| = \sum_{i=1}^n \alpha_i$, 2^{n-1} for the set $\bar{\alpha} = (\alpha_1, \dots, \alpha_n)$, $|\bar{\alpha}| < |\bar{\beta}|$. The class of such functions P_M contains $2^n + 1$ functions. Any f_i out of P_M is monotonous in the conventional sense. A scheme realization of the quasi-monotonous functions is considered in the theorem 1. Theorem 1. Let $\bar{\sigma} = (\sigma_1, \dots, \sigma_n)$ be a definite set for a function f out of P_M , and i_1, \dots, i_r be the numbers of orders of the set σ which contain the units ($1 \leq i_1 < i_2 < \dots < i_r \leq n$). Then, the function f can be realized by this

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ACCESSION NR: AR4035559

iteration: $f = \bigvee_{1 \leq i < l_1} x_i \bigvee_{1 \leq i < l_2} x_i \bigvee_{1 \leq i < l_3} x_i \dots \bigvee_{1 \leq i < l_{r-1}} x_i \bigvee_{1 \leq i < l_r} x_i \dots$ (2)

Example: f out of P_M with a set $\sigma = 01110010110$ with units in the 2nd, 3rd, 4th, 7th, 9th, and 10th orders can be realized by this function

$$f = x_1 \vee x_2 x_3 x_4 (x_5 \vee x_6 \vee x_7 (x_8 \vee x_9 x_{10}))$$

The proof is made by means of breaking up the contacts into the above groups and by considering their modes of operation. One of the consequents of this theorem is the fact that the quasi-monotonous functions are noniterative. Transformation of any f_i out of P_M by means of permutations and inversions yields a new type of quasi-monotonous functions P_M^T . The class P_M^T is realized by noniterative schemes. The scheme is called noniterative when each relay is loaded by only one closing or opening contact. The quasi-monotonous criterion in its new meaning and the method of realization are given in the equivalent theorems 2 and 2*.

Theorem 2. For a function f out of P_2 to be quasi-monotonous, the following condition is necessary and sufficient: in a curtailed disjunctive normal form of the function f, any two conjunctions U_i and U_j with the lengths i and j ($i \leq j$) respectively, have $i - 1$ common factors, these $i - 1$ variables being common to all conjunctions of i long or longer. An iteration formula is given in the theorem 2*.

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ACCESSION NR: AR4035559

It is proven that the theorems 2 and 2* are equivalent; the theorem 2 is proven on the strength of the theorem 1. The strength of the class P_M^T is computed. Two illustrations. Bibliography: 14 titles.

DATE ACQ: 17Apr64

SUB CODE: MA

ENCL: 00

Card 3/3

L 35607-65 EWI(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1) Pd-1
ACCESSION NR: AP5007230

S/0055/65/000/001/0083/0087

27
28
B

AUTHOR: Nigmatulin, R. I.

TITLE: Strong plane explosion on the boundary of two ideal and calorically perfect gases

SOURCE: Moscow. Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 1, 1965, 83-87

TOPIC TAGS: explosion, ideal gas, plane wave, self similar flow, adiabatic flow, shock wave

ABSTRACT: A self-similar solution is obtained for a plane explosion propagating into two different ideal gases located in the semi-infinite space on each side of the plane of explosion. It is assumed that the explosion is instantaneous, very strong, and occurs in a plane, and that the motion is adiabatic. The shock wave propagation is shown to be self-similar in the following nondimensional variable

$$\Pi = r \left(\frac{\rho_{11}}{E_0 a^3} \right)^{\frac{1}{3}}$$

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ACCISSION NR: AF5007230

The shock waves propagate in each gas according to the law

$$r_{12} = \lambda_{12} \cdot \left(\frac{E_1 t^2}{\rho_{12}} \right)^{\frac{1}{3}}$$

$$r_{21} = \lambda_{21} \cdot \left(\frac{E_2 t^2}{\rho_{21}} \right)^{\frac{1}{3}}$$

Sedov's self-similar analysis is shown to apply if the contact surface remains stationary for $t > 0$. Two equations are derived for the energy distribution in both directions of shock wave propagation.

$$\pi(\gamma_1) \sqrt{\rho_{11}} E_1 - \pi(\gamma_2) \sqrt{\rho_{21}} E_2 = 0,$$

$$\alpha(\gamma_1) E_1 + \alpha(\gamma_2) E_2 = E_0.$$

"This work was accomplished under the guidance of Professor Kh. A. Rakhmatulin."
Orig. art. has: 28 equations.

Card 2/3

L 35607-65

ACCESSION NR: AP5007230

ASSOCIATION: Institut mekhaniki, Moskovskiy gosudarstvennyy universitet (Institute of Mechanics, Moscow State University) 0

SUBMITTED: 30May63

ENCL: 00

SUB CODE: ME, TD

NO REF SOV: 001

OTHER: 000

Card 3/3

10

L 12363-63

EWT(m)/BDS

S/081/63/000/005/011/075

50

AUTHOR: Gorokhovskiy V. M., Gorkhovskaya, V. I. and Nigmatullin, R. S.

TITLE: The oscillographic polarography of some organic compounds

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 83, abstract 5B597, Teoriya i praktika polyarogr. analiza, "Shtiintsa", 1962, 63-67)

TEXT: With the aid of the oscillographic polarograph with triangular enolution, oscillographic polarograms (OP) of photographic reagents were obtained with dropping Hg electrode: hydroquinone (I), quinone (II), pyrocatechol (III), resorcinol (IV), hydroxyphenylglycine (V), o- (VI), n- (VII), and m-aminophenols (VIII), methyl VII (IX), 2-aminobenzthiazols (X) and its derivatives, 5,7 diamino-2,3,4,6-tetrazoindolycins (XII) and 5,7 dimethyl-2,3,4-triazoindolycine (XIII). A study was made of the dependence of the height of the peak i_{π} on the rate of scan of potential V in the 30-350 volt/sec interval for I and X, and also the dependence of potential of the peak E_{π} on pH and the magnitude of the potential difference of anode and cathode peaks for I, II, III, VII, XI. I, III, V, VI, VII and IX are reduced reversibly and III and VIII irreversibly. The OP of compound X contains two anode-cathode peaks ($E_{\pi} = 1.1 - 1.2$ v vs SCE) and OP of alkaline solutions

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S/081/63/000/005/011/075 0

L 12363-63

The oscillographic polarography

of I and its derivatives contain new peak ($E_{1/2} = 0.78$ v). It is noted that $i_{1/2}$ of the latter does not depend on v. There are no sharp changes in the capacity current on the OP of compound XI and its derivatives with changes of the potential, but on the OP of compounds XII and XIII such phenomenon is observed. The article discusses the connection between the demonstrated capabilities and the appearance of the reversible anode-cathode peaks. A.E.

[Abstractor's note: Complete translation]

Card 2/2

NIGMATULLIN, R.Sh.

Theory of transient processes in a circuit with an electrochemical
diode. Trudy KAI no. 23:27-49 '63.

1963

BALLOV, Yel.F.; NIGOLIAN, Paul.

Frequency characteristics of the microphone. Title: BALLOV, Yel.F.; NIGOLIAN, Paul.
no. 03:57-63 112.

YERMOLIN, V. I.; NIGMATULLIN, R. Sh.

Electronic device for adjusting and checking the indicators of
BITD-type magnetic induction tachometers. Izv. Vuzovsk. Radiofizika
173 '63. MIRA 19:16

APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001136910017-2

SHANNON, V.L.; STUBBS, H.L.; WIMACILTON, H. J.

Inc 1944 review for measuring lipids moments. Copy 201 no. 211
182-183 183. DATA 17110

NIGMATULLIN, R. Sh.

Theory of the electrochemical diode. Dokl. AN SSSR 150 no.3:
600-603 My '63. (MIRA 16:6)

1. Kazanskiy aviatsionnyy institut. Predstavleno akademikom
A.N. Frumkinym.

(Diodes)

NIGMATULLIN, R. SH.

Electrochemistry

Dissertation: "The Oscillographic Method Applied to Polarography on Solid Electrodes." Cand Phys-Math Sci, *Kazan'* State U, *Kazan'*, 1953. (Referativnyy Zhurnal--*Khimiya*, Moscow, No 3, Feb 54)

SO: SUM 213, 20 Sept 1954

NIGMATULLIN, R. S II.

USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3946

Author : Nigmatullin R.Sh., Shekun L.Ya.

Inst : Kazan' University

Title : Possibility of Utilizing Sinusoidal Voltage in
Quantitative Evaluation of Reversibility of Electrode
Processes

Orig Pub : Uch. zap. Kazanskogo un-ta, 1956, 116, No 1, 95-98

Abstract : Calculation of the shape of curves (I, E) that are obtained on application of sinusoidal voltage to polarographic cell with a Hg-drop electrode; it is assumed that the electrode process (EP) is fully reversible. The curve (I,E) is closed and symmetrical in relation to its center, and consists of two identical branches, approximating in shape the curve that is obtained on application of periodic triangular voltage (Sevcik A., Coll. Czech. Chem. Comm., 1948, 13, 349). Deviations of experimental

Card 1/2

- 187 -

НИМАТИН, Р. Ш.

Category: USSR

B-12

Abs Jour: R Zh--Kh, No 3, 1957, 7692

Author : Gorkhovskiy, V. M. and Nigmatullin, R. Sh.

Inst : Kazan University

Title : The Investigation of Complexes of Copper with Aromatic Acids and Phenols by the Method of Oscillographic Polarography

Orig Pub: Uch. Zap. Kazanskogo un-ta, 1956, Vol 118, No 1, 162-166

Abstract: A dropping-Hg electrode was used to record the oscillograms (O) of the current-voltage curves for Cu^{2+} solutions containing sodium salicylate (I), thiosalicylic acid (II), pyrocatechol (III), sodium p-aminosalicylate (IV), guaiacyl potassium sulfonate (V), sodium acetylsalicylate (VI), and phthalic acid (VII) on a background of NaNO_3 as well as of a Cu^{2+} solution containing no organic substance and of a solution of Cu^+ in the presence of Na_2SO_3 on a background of Na_2SO_4 . The O of Cu^{2+} ions on a background of NaNO_3 is asymmetrical, showing two peaks in the cathodic region and one peak in the anodic region; it is assumed that the irreversible reaction $\text{Cu}^{2+} + e \rightarrow \text{Cu}^+$ (unsym-

Card : 1/2

-25-

11.6.00113691, K. 11

USSR/Physical Chemistry - Electrochemistry.

B-12

- Abs Jour : Referat Zhur - Khimiya, No 6, 25 March 1957, 18739
- Author : Saykina, M.K., and Nigmatullin, R.Sh.
- Title : Investigation of the Reversibility of Electroreduction of Some Organic Stannous Halides Upon a Mercury Dropping Electrode.
- Orig Pub : Uch. zap. Kazanskogo un-ta, 1956, 116, No 1, 167-170
- Abstract : Reversibility of electrode reactions $(C_2H_5)_2SnCl_2$ (I), $(C_2H_5)_3SnCl$ (II) and $(CH_3)_3SnI$ (III) was investigated by the method of oscillographic polarography in buffer solutions with pH 1 and 7, and in 1 n. NaOH. It is shown that the reaction $(C_2H_5)_2Sn^{2+} + 2e \rightleftharpoons (C_2H_5)_2Sn$ in acid solution is reversible. Reduction of (II) and (III) in all solutions which have been examined, as well as reduction of (I) in neutral and alkaline medium are irreversible, and the degree of irreversibility increases with the increase of pH.

Card 1/1

- 323 -

Niamatullin, R. Sh

USSR/Electrochemistry

B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26327

Author : V.F. Toropova, R.Sh. Nigmatullin, Yu.M. Kargin

Inst : Kazan University

Title : To the Question of Application of Oscillo-Polarographic Method to Study of Complex Ions.

Orig Pub : Uch. zap, Kazansk. un-ta, 1956, 116, No 5, 108-112

Abstract : The reversibility (RZhKhim, 1957, 3946) of reduction of Cd^{2+} and Zn^{2+} in non-complex ($NaNO_3$) and complex solutions was studied by the oscillo-polarographic method with sinusoidal voltage at 18° and constant ion strength of solution, which was maintained equal to 1 by addition of $NaNO_3$. The degree of irreversibility was judged by the magnitude of the deviation of the experimental value of ΔE_p (potential differences between the peaks of the anode and the cathode waves) from the theoretical corresponding to a reversible process, and ΔE_p was determined at this occasion at various speeds of the potential changes (α) and extrapolated to the value of $\alpha = 0.005$ v per sec, which corresponded to the conditions of usual polarography. It was shown that the reduction of

Card : 1/2

USSR/Electrochemistry

B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26327

Cd^{2+} from solutions of NaNO_3 , $\text{Na}_2\text{S}_2\text{O}_3$, KCl (0.05, 0.5 and 1M) and thiourea occurred reversibly, and from the solutions of NH_4OH and $\text{K}_2\text{C}_2\text{O}_4$ (0.052 and 0.36 M) occurred irreversibly. Zn^{2+} is reduced irreversibly from all the studied solutions: NaNO_3 , NH_4OH (0.08 and 1.2M), $\text{K}_2\text{C}_2\text{O}_4$ (0.05 M) and NaOH . The irreversibility degree rises with the increase of α . The alteration of NH_4OH concentration in ammonium solutions alters the shape of the anode peak of Cd^{2+} and Zn^{2+} , and the alteration of $\text{C}_2\text{O}_4^{2-}$ in oxalate solutions influences the cathode peak. The concentration of $\text{C}_2\text{O}_4^{2-}$ ions also strongly influences the degree of irreversibility of Cd^{2+} and Zn^{2+} . The authors suppose that the retarded stage is connected with the anode process in ammonium solutions and with the cathode process in oxalate solutions.

Card : 2/2

5(4)

05811

SOV/76-33-10-9/45

AUTHORS: Dobren'kov, G. A., Bankovskiy, R. K., Nigmatullin, R. Sh.

TITLE: On the Use of Capacitance Phenomena on the Mercury Dropping Electrode for Investigating the Chemical Kinetics

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 10, pp 2169-2172 (USSR)

ABSTRACT: The method suggested is applicable in cases in which one of the reacting substances or the reaction product is a surface-active substance with respect to the mercury - electrolyte boundary. In the presence of surface-active substances of the molecular kind in the electrolyte the curves of differential capacitance of the electric double layer vary considerably. These variations may be found in a definite range of the electrode potentials and are characterized by a sharp drop of the capacitance of the double layer. At the limit of the adsorption range the curve of differential capacitance has two distinctly marked maxima (termed desorption peaks) the potentials of which depend on the nature of the adsorbed substance. The latter was found and explained for the first time by A. N. Frumkin

Card 1/4

05811

SOV/76-33-10-9/45

On the Use of Capacitance Phenomena on the Mercury Dropping Electrode for Investigating the Chemical Kinetics

(Refs 1, 2). Variations in the capacitance maxima may, under constant conditions, be used for a determination of the concentration of the surface-active substances. By applying an oscillographic polarograph, it was possible to make investigations on this basis. The authors investigated the decomposition of acetone dicarboxylic acid with a determination of the concentration of the acetone produced in the aqueous solution. The latter is the surface-active substance and effects the occurrence of desorption peaks on the curve of differential capacitance which may be easily seen in the oscillogram (Fig 1) in the form of two maxima ($\varphi = - 0.50$ v and $\varphi = - 1.40$ v). All measurements of the curves of differential capacitance made for the purpose of calculating the reaction rate were carried out at a frequency of 20 cycles on an oscillographic polarograph whose design is similar to a previously described one (Ref 9). Experimental results of the decomposition kinetics of acetone dicarboxylic acid in the presence

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SOV/76-33-10-9/45

On the Use of Capacitance Phenomena on the Mercury Dropping Electrode for Investigating the Chemical Kinetics

of $2n \text{ NaNO}_3$ at 20 C (Table) obtained from oscillographic measurements according to the height of the peaks and the potentials of desorption peaks as well as according to chemical determinations are in good agreement. Since there are many organic compounds which are surface-active at the mercury - electrolyte boundary (alcohol, acids, benzene derivatives, etc), the method suggested offers many possibilities of application for an investigation of the reaction kinetics. There are 3 figures, 1 table, and 10 references, 7 of which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskii institut im. S. M. Kirova
(Institute of Chemical Technology imeni S. M. Kirov).
Aviatsionnyy institut, Kazan'
(Aviation Institute, Kazan')

Card 3/4

05811

SOV/76-33-10-9/45

On the Use of Capacitance Phenomena on the Mercury Dropping Electrode for
Investigating the Chemical Kinetics

SUBMITTED: March 12, 1958

Card 4/4

S/058/61/000/010/033/100
AC01/A101

AUTHORS: Nigmatullin, R.Sh., Valishev, R.M.

TITLE: Measurement of probabilities of spin-lattice transitions in some paramagnetics by the saturation method in pulse operation

PERIODICAL: Referativnyy zhurnal. Fizika, no. 10, 1961, 159, abstract 10V322 (V sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 64-68)

TEXT: The authors present the description and block-diagram of a powerful pulse installation for measuring the time of spin-lattice relaxation (T_1) by the saturation method at room temperature at a frequency of 9,400 Mc. It is possible to measure time T_1 with an accuracy up to 10^{-10} sec. Measurement methods are described, as well as the results obtained in CrCl_3 and various sorts of diphenyl picryl hydrazyl. ✓

L. Sorokina

[Abstracter's note: Complete translation]

Card 1/1

ACCESSION NR: AR4014940

S/0271/63/000/012/A022/A022

SOURCE: RZh. Avt., tel. i vyshisl. tekhnika, Abs. 12A138

AUTHOR: Yermolin, V. I.; Nigmatullin, R. Sh.

TITLE: Electronic instrument for calibrating and testing indicators of EITD
magnetoinductive tachometers

CITED SOURCE: Tr. Kazansk. aviats. in-ta, vyp. 73, 1963, 172-173

TOPIC TAGS: tachometer, magnetoinductive tachometer, tachometer testing,
magnetoinductive tachometer testing, tachometer calibration

TRANSLATION: The authors have developed an instrument for checking indicators which is based on an electronic circuit closely resembling an amplitude and frequency calibration unit. The instrument contains a quartz generator whose frequency is transformed in the frequency divider block into frequencies corresponding to specific indicator scale readings. The selective amplifier isolates the first harmonic from the voltage on the dividers. The resulting signal is applied to a phase converter whose output provides a 3-phase voltage. In checking the smoothness of the start of synchronous operation with respect to variation, the role of the

Card 1/2

ACCESSION NR: AR4014940

specifying generator is played by the phase converter, which, through the introduction of positive feedback, can operate as a 3-phase RC-generator. The synchronism of frequency divider block operation and the control of RC-generator frequencies are realized by means of brightness modulation with the aid of an oscilloscope indicator. The output block feeds two indicator motors. The instrument is intended for industrial use. B.U.

DATE ACQ: 09Jan64

SUB CODE: GE

ENCL: 00

Card 2/2

NIGMATULLIN, R.Sh.

General equation and electric analog of an electrolytic cell with a stationary spherical microelectrode. Dokl. AN SSSR 151 no.6: 1383-1386 Ag '63. (MIRA 16:10)

1. Kazanskiy aviatsionnyy institut. Predstavleno akademikom A.N.Frumkinym.

S/0032/64/030/004/0500/0501

ACCESSION NR: APl033621

AUTHORS: Nigmatullin, R. Sh.; Vyaselev, M. R.; Shatunov, V. S.

TITLE: A device for dipole moment measurements IDM-2

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 500-501

TOPIC TAGS: dipole moment, dielectric constant, measuring device IDM 2, beat frequency method, dimethylformamide, chlorobenzene, phenylhydrazone acetaldehyde

ABSTRACT: An IDM-2 device for determining the dipole moment of molecules is described. The dielectric constant of a dilute solution in a nonpolar solvent is measured in a specially constructed capacitor which consists of two concentric glass cylinders between which the investigated solution is poured. The capacitor plates are ordinary foil wrapped around the outside of the larger cylinder and the inside of the smaller. Hence the special capacitor C_s is a series combination of two capacitors: one formed by the glass cylinders C_c and the other by the filled gap $C_p = \epsilon C_0$, where C_0 is the capacitance of the empty gap. The special capacitor is placed in parallel with a precision variable capacitor. The resultant capaci-

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ACCESSION NR: AP4033621

tance controls the output frequency f_1 of a signal generator. The frequency f_1 is mixed with a constant frequency f_0 stabilized by a quartz resonator, which produces a beat frequency $f_1 - f_0$. The variable capacitor is adjusted until the beat frequency is zero. If the capacitance of the special capacitor C_{s1} with a known control solution and C_{sx} with the investigated solution, the difference of the two is the same as the difference ΔC required in the variable capacitor to produce zero beat frequency for the two cases. Then the dielectric constant of the investigated solution is given by

$$\epsilon_x = \frac{C_c (C_{s1} + \Delta C)}{C_0 [C_c - (C_{s1} + \Delta C)]}$$

The temperature of the special capacitor is thermostatically controlled. Thus the temperature dependence of the dielectric constant can be determined, an example of which is given for dimethylformamide. The dielectric constant can be measured to 0.05% accuracy for $\epsilon = 1 - 3$ and 0.5% for ϵ up to 100. The dipole moment can be computed by the Debye formula for dilute solutions or by the Onsager formula for pure liquids. As an example, the dipole moments of chlorobenzene and phenylhydra-

Card 2/3

ACCESSION NR: AP4033621

zone acetaldehyde (measured in benzene solutions at 25C) were found to be 1.59 and 2.52 respectively. Orig. art. has: 2 equations, 1 diagram, and 2 tables.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan Aviation Institute)

SUBMITTED: 00

DATE ACQ: 28Apr64

ENCL: 00

SUB CODE: *NP*

NO REF SOV: 004

OTHER: 002

Card 3/3

ACCESSION NR: AR4041557

S/0274/64/000/004/A016/A017

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz'. Svodny*y tom, Abs. 4A106

AUTHOR: Bezlov, Ye. F.; Nigmatullin, R. Sh.

TITLE: Frequency-response curves of series RC-line

CITED SOURCE: Tr. Kazansk. aviats. in-ta, vy*p. 73, 1963, 57-63

TOPIC TAGS: frequency response curve, RC line, RC cable, boundary value problem

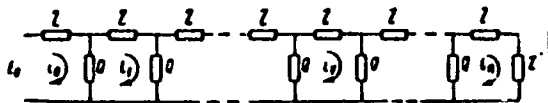
TRANSLATION: During solution of boundary value problems describing processes of diffusion and non-stationary heat transfer with help of electrical models there arises necessity of use of semi-infinite RC-cable. Frequency characteristics of modulus and argument of such cable can be obtained from expression of operational conductivity:

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ACCESSION NR: AR4041557

$$y(p) = \sqrt{\frac{C}{R}} \cdot p \quad (1)$$

Physical realization of RC-cable involves certain difficulties. Possibility is shown of replacement of cable in given frequency range by series RC-line, opened at the end. There is considered a series line consisting of impedances z , Q , z'



(see Figure 1). On the basis of Kirchhoff's laws there is composed a system of equations for it in operator form. System is solved by method proposed by Carslow—Jaeger ("Operation Methods in Applied Mathematics," Publishing House of Foreign Literature, 1948). For RC-circuit when $z' = \infty$, $z = R$, $Q = 1/pC$, operational conductivity of series line is equal to:

$$y(p) = pC \left\{ \frac{[\sinh nQ]}{[\sinh (n+1)Q - \sinh nQ]} \right\}, \quad (2)$$

where $\cosh Q = 1 + (RC/2)p$. Taking in (2) $p = j\omega$, there can be found frequency-response curves of modulus and argument of admittance:

Card 2/4