

FEDOR, R.

Oils in high-voltage electrical engineering. p. T99.

Vol. 43, no. 10, Oct. 1954
ELEKTROTECHNICKY OBZOR
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

FEDOR, R.

A 110 kV oil pressure pipe-type cable

P. 476 (Elektrotechnicky Orzor) Vol. 46, No. 9, Sept. 1957, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

ROZSYPAL, D.; FEDOR, R., inz.

High-voltage cables with aluminum coating. Elektrotechnik 18 no.2:
50-51 F '63.

1. Nova hut Klementa Gottwalda, n.p., Kuncice (for Rozsypal).
2. Vyskumny ustav kablov a izolantov, Bratislava (for Fedor).

SLANINKA, Pavel, inz.; FEDOR, Robert, inz.

Impedance of steel conduits used for protective grounding.
Elektrotechnik 19 no.11:311-314 N '64.

1. Research Institute of Cables and Insulators, Bratislava.

ABROYAN, I.A.; LAVROV, V.P.; FEDORA, I.G.

Angular dependence of secondary emission coefficients of KBr
under bombardment by potassium ions. Fiz. tver. tela 7 no. 12:
3660-3662 D '65 (MIRA 19:1)

1. Leningradskiy politekhnicheskij institut imeni Kalinina.

FEDORAKO, B. I.

29167 Proizvoditel'nost' nekotorykh drevesnykh porod v polezashchitnykh nasazhdeniyakh Shingak-Kul'skogo agrolesomeliorativnogo opytnogo polya. Trudy Bashkir. Nauch.--issled. polevod. stantsii, T. III, 1948 (kolon-titul: 1947), s. 427-44-- Bibliogr: 10 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 39, 1949

IL'ICHEV, D. A., FEDORAKO, B. I.

Poplar - Bashkirya.

Growing poplar in Bashkirya. Les. khoz. 5. no. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1953, 2 Uncl.

69-212

531.559.8:531.311.3:631.1
 Fedorako, B. I. Bor'ba s pyl'evymi buriami v stepakh zapadnogo Predural'ia. [Combating dust storms on the steppes of the Western Urals.] *Priroda*, Moscow, 43(9):96-97, Sept. 1954. 3 figs. DLC—Methods of combatting erosion caused by dust storms in the alkaline soil zone in Bashkir A.S.S.R. by means of forest belts, proper crop rotation and grass sowing, begun after the intense dust storms of 1935 and 1940, are described and results obtained discussed. It was observed that 3-5 year old belts curb winds and cause the formation of dust banks near the tree belts which in turn favor the development of additional root systems and promote the growth of young trees. The usefulness of protective forest belts and improved agricultural techniques was proven when a series of dust storms occurred in Bashkir A.S.S.R. due to the passage of a strong cyclone. The young tree belts resisted the dust storm from eroded areas. *Subject Headings:* 1. Dust storms 2. Soil erosion attenuation 3. Shelter belt effects 4. Bashkir, A.S.S.R.—A.M.P.

Bashkir agric. inst.

USSR / Forestry. Forest Cultures

K-5

Abs Jour: Ref Zhur-Biol., No 10, 1958, 43961

Author : Fedorako, B. I., Aleksandrov, M. A.

Inst : Bashkirsk Agricultural Institute

Title : Pine Cultures on Steep Slopes

Orig Pub: Tr. Bashkirsk. s.-kh. in-ta, 1956, 7, 294-295

Abstract: The results of experimental plantings show that pine cultures do well on the badlands of the hilly heights of Eastern Ural foothill country even on steep southern slopes. The valuation indices of the cultures are given. - V. I. Yerusalimskiy

Card 1/1

Country : USSR

M

Category: Cultivated Plants. Fruits. Berries.

Abs Jour: RZhBiol., No 22, 1958, No 100453

Author : Fedorako, B. I.

Inst : Bashkir Agricultural Institute

Title : Introduction of Apple Tree in Field Shelterbelt Plantings.

Orig Pub: Tr. Bashkirsk. s.-kh. in-ta, 1957, 8, No 2,
233-242

Abstract: No abstract.

Card : 1/1

M-157

USSR / Forestry. Forest Crops;

K-5

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72832.

Author : Fedorako, B.^I; Yenikejev, G.
Inst : Not given.
Title : A Green Oasis in the Steppe.

Orig Pub: S. kh. Bashkirii, 1957, No 10, 40-41.

Abstract: An experimental plot concerning steppe afforestation, located near the Shingak-Kul' Station, and created by the Bashkir Forest Experimental Station in 1932, is described. Experimental plots of the arboretum contain up to 200 species and forms of tree-shrub species. Poplar hybrids which were isolated by the BFES have special importance and are noted for high productivity and resistance to drought. The successful growth in height is noted of black poplar, birch, Siberian larch and pine.

Card 1/2

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72832.

Abstract: Carbonate soils under the influence of forest vegetation lean heavily on the side of leaching.
-- L. V. Nesmelov.

Card 2/2

FEDORAKO, B. I.

COUNTRY : USSR
CATEGORY : Forestry. Forest Cultures.
ABS. JOUR : Ref Zhur -Biologiya, No. 5, 1959, No. 20163
AUTHOR : Fedorako, B.I.
INST. :
TITLE : Field Shelter Belts in Bashir SSR.

ORIG. PUB.: Izv. kh-vo, 1958, No.5, 24-29

ABSTRACT : In 1958 24 thousand hectares of field shelter forest plantings were set up in the republic. In the kolkhozes where maintenance is kept up of the plantations, the woody species, especially birch, larch, poplar, elm, etc. grow rapidly, the strips are formed with good structure and significantly help to boost productivity. The tall forest belts with poplar occupy an area of more than 7 thousand ha. The average wood yield boost per 1 ha. in the belts :

REF: 1/2

COUNTRY :
TITLE :

REF. JOURN.: Ref. Zhur -Biologiya, No. 5, 1959, No. 20163

Author :
INST. :
CITY :

ORIG. PUB.:

ABSTRACT : with poplar reach 30.2 - 37.1 m³, in 10-14 year old strips with birch and elm 4.9 - 11.5 cubic meters. In setting up shelter belts it is recommended that larch, European white birch, Southern poplar, pine spruce, Siberian apple, serviceberry and golden currant be introduced in the future. --D.I. Doryabin

CARD : 2/2

VAKHRUSHEV, G.V., prof. red.; GIRFANOV, V.K., kand. sel'skokhoz. nauk, zasluzhennyy deystel' nauki BASSR, red.; KUCHEROV, Ye.V., kand. sel'skokhoz. nauk, otv. red.; KHANISLAMOV, M.G., kand. sel'skokhoz. nauk, red.; FEDORAKO, B.I., kand. sel'skokhoz. nauk, red.; POROYKOV, Yu.D., red.; KOBYAKOV, I.A., tekhn. red.

[State and problems of the protection of nature in Bashkiria; materials] Sostoianie i zadachi okhrany prirody v Bashkirii; materialy. Ufa, Akad. nauk SSSR, Bashkirskii filial, 1960. 167 p. (MIRA 14:5)

1. Nauchnaya konferentsiya po okhrane prirody Bashkirii, 1st, Ufa, 1960. 2. Zamestitel' predsedatelya Prezidiuma Bashkirskogo filiala AN SSSR (for Girfanov). 3. Predsedatel' komissii po okhrane prirody Bashkirskogo filiala AN SSSR i predsedatel' respublikanskogo otdeleniya obshchestva okhrany prirody (for Kucherov)

(Bashkiria--Natural resources--Congresses)

KUCHEROV, Ye.V., kand.sel'skokhoz. nauk (Ufa); FEDORAKO, B.I., kand.
sel'skokhoz. nauk (Ufa)

Snowdrops during the leaf-falling season. Priroda 52 no.8:
127-128 Ag '63. (MIRA 16:9)
(Snowdrops)

KUCHEROV, Ye.V.; FEDORAKO, B.I.

Scientific conference on the efficient use of plant resources of the
Southern Urals, December 10-11, 1963. Bot. zhur. 49 no.8:1230-1233
Ag '64. (MIRA 17:11)

1. Institut biologii Bashkirskogo gosudarstvennogo universiteta, Ufa.

FEDORAVA, A.Y.

Practical work in agriculture, Politekh, obuch. no.1:52-56 Ja '57.
(MIRA 10:4)

1. Iz opyta raboty Shilovskoy sredney shkoly Ryzanskoj oblasti.
(Agriculture--Study and teaching)

LASHKEVICH, A.M.; TERENT'YEVA, A.A.; IVANOVA, L.S.; BORODULINA, M.A.;
VELICHENKO, I.N.; NIKULENKO, V.S.; KONSHINA, T.I.; SHAKHOVA, T.P.;
NYASHINA, A.A.; YASINSKAYA, Z.A.; AGAL'TSEVA, N.B.; SEL'MENSKAYA,
Ye.G.; KRETSMER, V.L.; KONONOVICH, L.K.; FEDORAYEVA, A.M.; TKACHUK,
L.Ya.; VYATKINA, G.A.; SLOUSHCH, V.S.; RACHINSKAYA, L.N.; PORTNAYA,
R.Yu.; KARAKOVSKAYA, E.M.; POKROVSKAYA, M.A.; KORNEVA, A.I.;
YERHOVA, K.F., *otv. red.*; Primal uchastiye KAMANOV, M.I., *red.*;
LAGAREVA, A.P., *otv. za vypusk*; NIKITINA, I.P., *tekhn. red.*

[Economy of Novosibirsk Province; collection of statistics] Narodnoe
khoziaistvo Novosibirskoi oblasti; statisticheski sbornik. Novo-
sibirsk, Gosstatizdat TsSU SSSR, 1961. 331 p. (MIRA 15:6)

1. Novosibirsk. Oblastnoye statisticheskoye upravleniye. 2. Na-
chal'nik Statisticheskogo Upravleniya Novosibirskoy oblasti (for
Yershov). 3. Zamestitel' nachal'nika Statisticheskogo Upravleniya
Novosibirskoy oblasti (for Kamanov).

(Novosibirsk Province--Economic conditions)

HAVIAR, V.; FEDORCAK, M.; HODZOVA, O.; KUSA, O.; LUKNAROVA, O.

Effect of heparin on tissue respiration of the myocardium.
Bratisl. lek. listy 45 no.11:671-675 15 D '65.

1. II. interna klinika Lek. fak. Univerzity Komenskeho v Bratislave (veduci prof. MUDr. V. Haviar) a Fakultna transfuzna stanica v Bratislave (veduci doc. MUDr. M. Hrubisko, CSc.).

Country : CZECHOSLOVAKIA

V

Category: Pharmacology. Toxicology. Anti-Infection Agents.

Abs Jour: RZhBiol., No 6, 1959, No 27846

Author : Niederland, T.R.; Mezes, V.; Fedorcakova, A.

Inst : -

Title : The Change of Activity of Hyaluronidase in vivo
in Repeated Introduction of Salicylates.

Orig Pub: Bratisl. lekar. listy, 1957, 2, No 10-11, 600-606

Abstract: Five-day-long introduction of salicylates (I) to rabbits led to a decrease of hyaluronidase activity, which was less from a dose of 0.23 g/kg of I than from a dose of 0.69 g/kg. During the first and second day, this effect was most expressed. In subsequent days, its decrease was observed. - From the authors' resume.

Card : 1/1

V-37

FEDORCAKOVA, A.

CZECHOSLOVAKIA/Pharmacology and Toxicology. Hormonal.
Preparations. V

Abs Jour: Ref Zhur-Biol., No 19, 1958, 89940.

Author : Niederland, T.R.; Mezes, V.; Fedorcakova, A.;
Krizko, J.

Inst : -

Title : Effect of Prolonged Administration of ACTH, Cortisone,
and Phenyleinchonic Acid upon Hyaluronidase Activity
in Vivo.

Orig Pub: Casop. lekaru coskych, 1958, 97, No 6-7, 180-183.

Abstract: In experiments on rabbits (by application of the
intradermal test), cortisone depressed hyaluroni-
dase activity most strongly and durably. Inter-
phan (phenyleinchonic acid) was less active.

Card : 1/2

USTAV PRE VSEOBECNU a klinicku biochemiu
v-35 Lek. Fak. KOMENSKÉHO UNIV.
V. BRATISLAVE

BRIXOVA, Eva; FEDORCAKOVA, Annamaria; BACHLEDOVE, Elena; KOLESAR, Pavol.

Changes of residual proteins and of tyrosin in rat liver after application of carbon tetrachloride. Biologia 16 no.1:47-50 '61.
(EEAI 10:7)

1. The 3d Medical Clinic, the Scientific Laboratory of Pharmacobiochemistry of the Komensky University and the Slovak Institute of Postgraduate School of Medicine, Department of Laboratory Diagnosis, Bratislava.

(PROTEINS) (TYROSINE) (CARBON TETRACHLORINE)
(LIVER)

NIEDERLAND, T.R.; FEJORCAKOVA, A.; BRIXOVA, E.; BACHLEDOVA, E.; Technicka
spolupraca: GRAUSOVA, T.; BELAJOVA, H.

Changes in the concentration of liver and kidney proteins
during the chronic and chronic-intermittent administration
of salicylates. Bratisl. lek. listy 2 no.11:655-659 '63.

1. III. int.klinika Lek. fak. Univ. Komenskeho v Bratislave;
vedouci: prof. MUDr. T.R.Niederland, DrSc.

*

GVOZDJAK, J.; NIEDERLAND, T.R.; BACHLEDOVA, E.; TOMIK, F.; FEDORCAKOVA, A.;
KRAMAR, T. Technical assistance: KAPLANOVA, M.

Experimental cardiomyofibrosis produced by diet (ECFD). I. Changes
in carbohydrate metabolism of the myocardium in dynamic develop-
ment. Cor. vasa 6 no.2:153-158 '64.

Experimental cardiomyofibrosis produced by diet (ECFD). II.
Changes in lipid metabolism in the myocardium. Ibid.:159-163
'64.

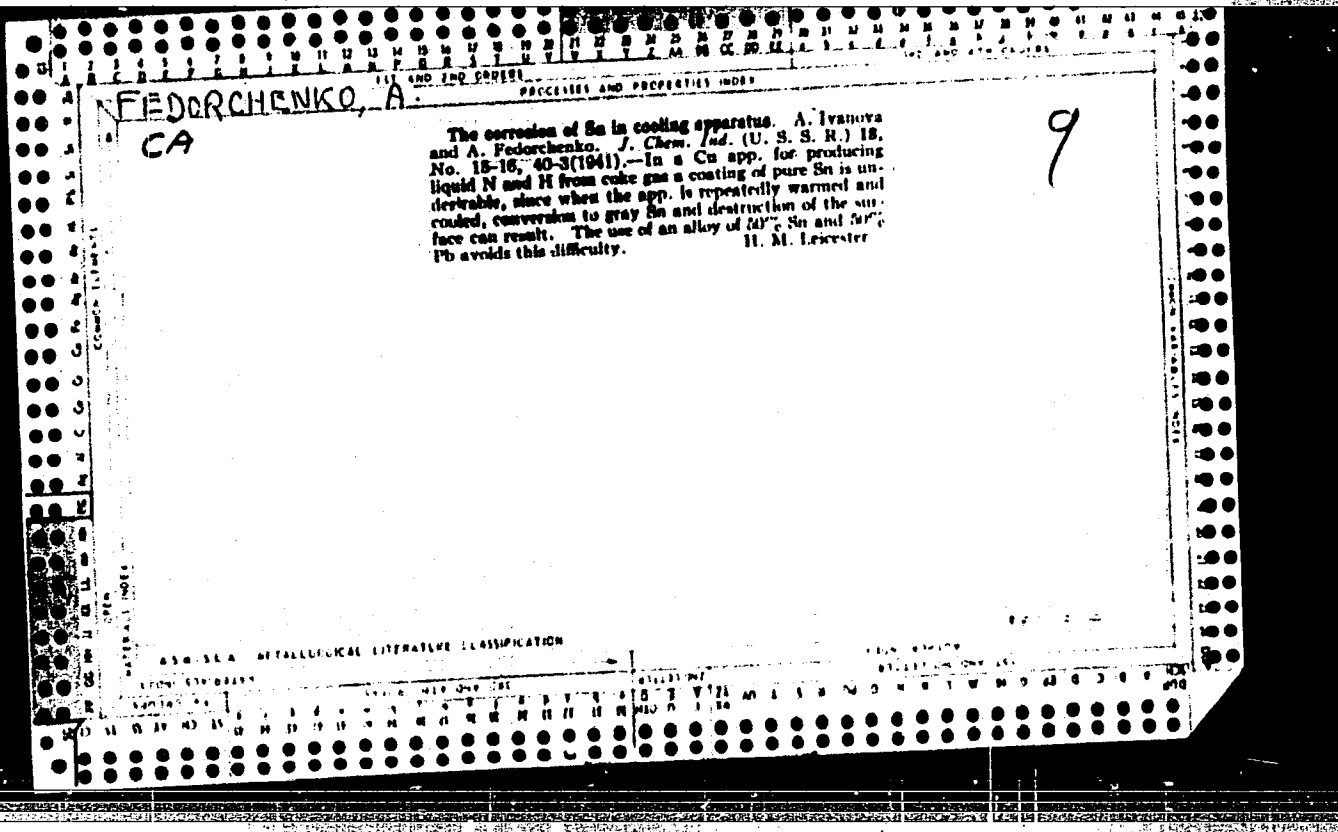
1. Research Laboratory of Pharmacobiochemistry, IIIrd Internal
Clinic, Faculty of Medicine, Kosensky University, Bratislava,
Czechoslovakia.

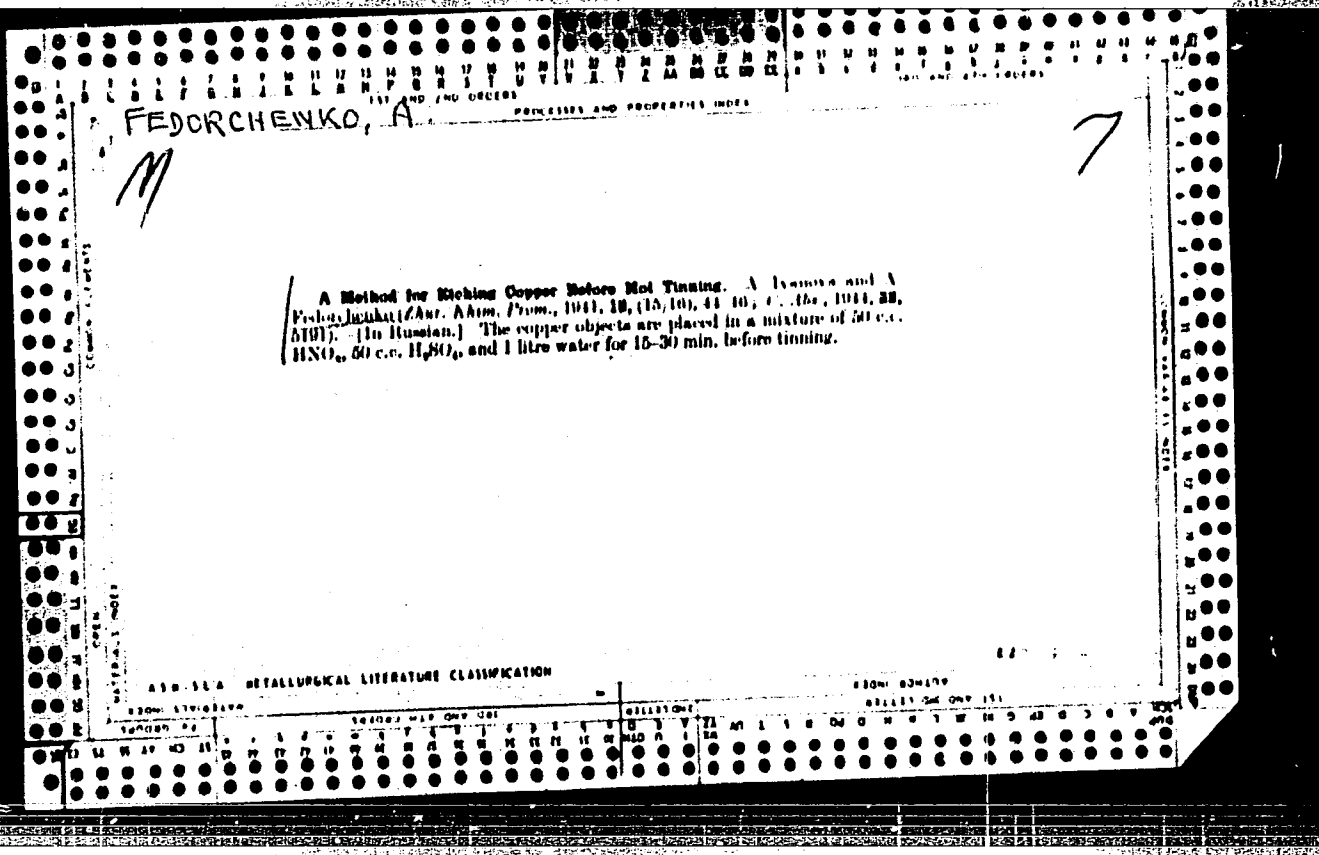
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GVOZDJAK, J.; FEDORCAKOVA, A.; BACHLEDOVA, E.; NIEDERLAND, T.R.;
Technicka spolupraca: KAPLANOVA, M.; RADICOVA, L.

On biochemical changes of the rat myocardium in late ontogenesis
during experimental cardiomyofibrosis. Bratisl. lek. listy 45
no.6:334-338 30 S '65.

1. III. interna klinika Lek. fak. Univerzity Komenskeho v Brati-
slave (veduci prof. MUDr. T.R. Niederland, DrSc.).





LOSKUTOV, V.; FEDORCHENKO, A.

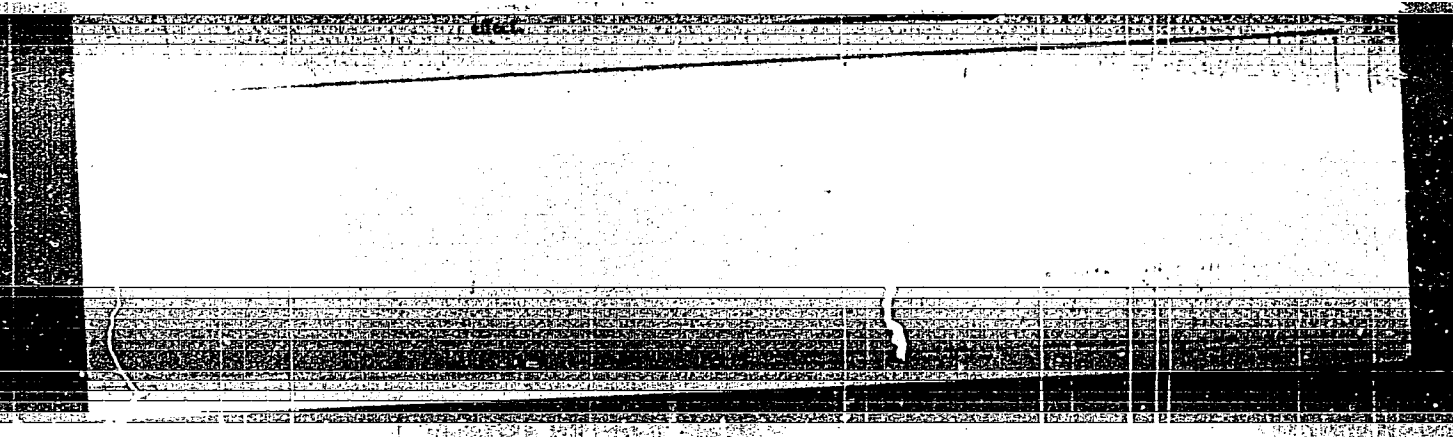
For wide use of devices for the establishment of technical
standards. Sots.trud 5 no.2:87-92 P '60. (MIRA 13:6)
(Production standards) (Measuring instruments)

FEDORCHENKO, A. M.

~~Interaction of a hole with lattice vibrations in a homogeneous crystal~~
~~State Univ. Zhur. B. 1959~~
 (1959). The authors are made for a diamond lattice. A wave equation is established for the case when a two-electron covalent bond is replaced by a single-electron bond. It is shown that a simple calculation of this new state would give a 2-fold energy picture and a distribution of holes. The introduction of local states of large radius (polarons) of small radius is not leading to probable results. However, the general interaction of holes with the lattice can be considered as a scattering on acoustical and optical vibrations and solved by a perturbation method. It is shown that hole mobility in this case must be proportional to $T^{-1/2}$ at low temps. and to $T^{-1/4}$ at high temps. where the scattering on optical vibrations is predominant. Another consequence of the theory is the 2-fold increase of the coeff. for the ~~Wiedemann~~ ~~Nernst-Ettingshausen effect~~ at high temps. and an increase in the const. in the formula for the thermoelectric

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APPROVED FOR RELEASE: 03/20/2001

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FEDORCHENKO, A. M.
ZHMUDSKIY, A. Z. [Zhmuks'kiy, O. Z.]; FEDORCJENKO, A. M.

Line intensity distribution following the reflection of wide
X-ray beams. Nauk povid. KDU no. 1:35-36 '56. (MIRA 11:4)
(X-ray spectroscopy)

FEDORCHENKO, A.M.

Canonical averaging in the theory of nonlinear oscillations
[with summary in English]. Ukr.mat.zhur. 9 no.2:220-224 '57.
(MLRA 10:7)

(Mathematical physics)

FEDORCHENKO, A. M. Cand Phys-Math Sci -- (diss) "Method of canonic
averaging in nonlinear mechanics." Kiev, 1958. 5 pp (Kiev State Univ
im T. G. Shevchonko. Phys Faculty), 150 copies (KL, 52-58, 98)

AUTHOR: Fedorchenko, A.M. SOV/41-10-2-8/13
TITLE: On the Motion of a Heavy Asymmet. Gyroscope With a Vibrating Fulcrum (O dvizhenii tyazhelogo n. simmetrichnogo giroskopa s vibriruyushchey tochkoj opory)
PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1958, Vol 10, Nr 2, pp 209-218 (USSR)
ABSTRACT: With the aid of the canonical average method described by the author in [Ref 1] he investigates a quickly rotating asymmetric gyroscope with a vibrating fulcrum. By series expansions with rather extensive calculations a certain averaged motion is determined, The discussion of the obtained formulas shows that the averaged motion is identical with the motion of a symmetric gyroscope with a certain moment of inertia in a certain field of forces. Possible cases of resonance are discussed, whereby the frequency ratio 1:2 is said to be the most dangerous. There is 1 figure, and 1 Soviet reference.

1. Gyroscopes--Motion
2. Gyroscopes--Mathematical analysis

Card 1/1

16(1)

AUTHOR:

Fedorchenko, A.M.

SOV/41-11-2-8/17

TITLE:

On Radial and Vertical Oscillations in Circular Accelerators
With Alternating-Gradient Focusing

PERIODICAL:

Ukrainskiy matematicheskiy zhurnal, 1959, Vol 11, Nr 2,
pp 192-198 (USSR)

ABSTRACT:

The method of canonical averaging investigated by the author
[Ref 1] is applied to the radial and vertical oscillations of
a charged particle around its path of equilibrium. In the

oscillation equation $\frac{d^2q}{d\theta^2} + f(\theta)q = 0$, $\theta = \omega_0 t$, ω_0 path frequency,

$f(\theta)$ is assumed to be of the form $f(\theta) = f_0 + \sum_n a_n e^{in\omega_1\theta} + \sum_n b_n e^{in\omega_2\theta}$.

After an extensive calculation the frequency of the averaged
motion is determined up to the fifth approximation. The behavior
of stability of the particle is investigated. The treated example
shows that the method for nonlinear oscillations proposed in
[Ref 1] is suitable also for the treatment of linear equations
with variable coefficients.

There are 2 references, 1 of which is Soviet, and 1 American.

SUBMITTED:
Card 1/1

October 21, 1957

26589

S/185/60/005/003/004/020
D274/D303

24,6300

AUTHOR:

Fedorchenko, A.M.

TITLE:

An exact solution for Schrödinger's equation of spin motion in a non-stationary magnetic field

PERIODICAL:

Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 3, 1960, 327-331

TEXT:

The magnetic field is described by

$$H_z = H_0, H_x = H \cos \omega t, H_y = H \sin \omega t. \tag{1}$$

Schrödinger's equation for spin motion in a magnetic field is

$$i\hbar \frac{\partial \Psi}{\partial t} = - (\hat{\mu}H) \Psi, \tag{2}$$

where $\hat{\mu}$ is the operator of the magnetic moment of a particle. The problem is directly related to the theory of nuclear magnetic resonance. The operator of a vector quantity which depends on the

Card 1/5

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An exact solution...

state of a particle with mechanical moment j , can be expressed by

$$\hat{\mu} = 2\mu\hat{j},$$

thereupon Eq. (2) becomes

$$i\hbar \frac{\partial \Psi}{\partial t} = [-\mu H_0 \hat{j}_z - 2\mu H(\hat{j}_x \cos \omega t - \hat{j}_y \sin \omega t)] \Psi. \quad (3)$$

Introducing the operators \hat{j}_+ and \hat{j}_- (as linear combinations of \hat{j}_x and \hat{j}_y) one obtains

$$i\hbar \frac{\partial \Psi}{\partial t} = [-\mu H_0 \hat{j}_x - \mu H(\hat{j}_+ e^{i\omega t} + \hat{j}_- e^{-i\omega t})] \Psi. \quad (4)$$

The solution of Eq. (4) is sought in the form

$$\Psi = \sum_{m=-j}^{+j} a_m^j e^{im\omega t + i\omega t Y_{jm}} \quad (5)$$

where Y_{jm} are the eigenfunctions of the operators \hat{j}^2 and \hat{j}_z . Substi-

Card 2/5

26589

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D274/D303

An exact solution...

tuting Eq. (5) in Eq. (4) and using known formulas, one obtains a system of algebraic equations for the coefficients a_m^j

$$[m(\mu H_0 - \eta \omega) - \alpha \eta] a_m^j + \mu H \sqrt{(j-m+1)(j+m)} a_{m-1}^j + \mu H \sqrt{(j+m+1)(j-m)} a_{m+1}^j = 0, \quad (6)$$

$m = -j, \dots, +j.$

The functions

$$P_{mk}^j(\cos \theta) = \frac{(-1)^{j-k}}{2^j(j-k)!} \sqrt{\frac{(j-m)!(j+k)!}{(j+k)!(j+m)!}} (1-\mu)^{\frac{m+k}{2}} (1+\mu)^{\frac{m-k}{2}} \times \frac{d^{j+m}}{d\mu^{j+m}} [(1-\mu)^{j-k}(1+\mu)^{j+k}] \quad (\mu = \cos \theta)$$

known from group theory, yield

$$\sqrt{(j-m)(j+m+1)} P_{k,m+1}^j + \sqrt{(j+m)(j-m+1)} P_{k,m-1}^j + 2 \frac{k+m \cos \theta}{\sin \theta} P_{km}^j = 0 \quad (7)$$

Card 3/5

26589

S/185/60/005/003/004/020
D274/D303

An exact solution...

where $m, k = -j, \dots, +j$. System (7) is analogous to (6); hence and a_{mk}^j can be found: algebraic system (6) has the solution

$$a_{mk}^j = P_{km}^j \left(\frac{\omega_0 - \omega}{\sqrt{(\omega_0 - \omega)^2 + 4\frac{\mu^2 H^2}{\gamma^2}}} \right)$$

for

$$\alpha = k \sqrt{(\omega_0 - \omega)^2 + 4\frac{\mu^2 H^2}{\gamma^2}}$$

where $k = -j, \dots, +j$. Taking into consideration the initial conditions $\Psi(0) = Y_{jm}$, one obtains the solution of Eq. (4) in the

form

$$\Psi(t) = \sum_{m=-j}^{+j} \sum_{k=-j}^{+j} P_{mk}^j P_{km}^j e^{i\alpha t + ik \sqrt{(\omega_0 - \omega)^2 + 4\frac{\mu^2 H^2}{\gamma^2}} t} \cdot Y_{jm} \quad (11)$$

This equation can be considerably simplified by using a formula (for the function P_{mk}^j) given in I.M. Gel'fand, R.A. Minlos, Z.Ya.

Card 4/5

An exact solution... 26589

S/185/60/005/003/004/020
D274/D303

Shapiro (Ref. 2: Predstavleniye gruppy vrashcheniya i gruppy Lorentsa: ikh primeneniye (Representation of the Rotation Group and of the Lorentz Group; Their Application) GIFML, 1958). Finally, one obtains the solution of Schrödinger's equation in the form

$$\Psi(t) = \sum_{m=-j}^{-j} e^{i(m+m')\beta + im\omega t} P_{mm}^j(\cos\vartheta) Y_{jm}. \quad (16)$$

where the angles ϑ and β are found from formulas given. There are 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Kyivskyy derzhavnyy universytet im. T.G. Shevchenka (Kiev State University im. T.G. Shevchenko)

SUBMITTED: October 16, 1959

Card 5/5

FEDORCHENKO, A.M. (Kiyev)

One dynamic method for increasing the stability of a rapidly
rotating symmetrical gyroscope. Prikl. mat. i mekh. 25
no.5:938-940 S-G '61. (MIRA 14:10)
(Gyroscope)

FEDORCHENKO, A.M.

Problem concerning the separation of rising waves according to
amplification and disappearance. Radiotekh. i elektron. 7 no.8:
1455-1457 Ag '62. (MIRA 15:8)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Electronics)

24.2300
9.9000

37265
S/057/62/032/005/012/022
B163/B102

AUTHOR: Fedorchenko, A. M.

TITLE: Transformation of a transverse electromagnetic wave into a longitudinal one at a dielectric - plasma interface

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 5, 1962, 589-592

TEXT: The refraction and reflection of a plane monochromatic wave at the interface between an isotropic dielectric with dielectric constant ϵ_1 and a quasi-neutral plasma are studied theoretically. The collective plasma motions are described by a system of linearized non-relativistic hydrodynamic equations and the Maxwell equations; the motion of the positive ions is ignored. The results are given by the following equations:

$$(21) \frac{E_{\parallel}}{E_{\perp}^i} = - \frac{2(\epsilon - 1) \cos \varphi \sin \theta \sqrt{\epsilon_1}}{\Delta}; \quad (22) \frac{E_{\perp}^t}{E_{\perp}^i} = \frac{2 \sqrt{\epsilon_1} \cos \theta_0 \cos \varphi}{\Delta};$$

Card 1/3

S/057/62/032/005/012/022
B163/B102

Transformation of a transverse ...

$$(23) \frac{E_p^r}{E_p^i} = \frac{(\sqrt{\epsilon} \cos \varphi - \sqrt{\epsilon_1} \cos \theta) \cos \theta_0 + \sqrt{\epsilon_1} (\epsilon - 1) \sin \theta_0 \sin \theta}{\Delta}, \text{ where}$$

$$\Delta = (\sqrt{\epsilon} \cos \varphi + \sqrt{\epsilon_1} \cos \theta) \cos \theta_0 - \sqrt{\epsilon_1} (\epsilon - 1) \sin \theta_0 \sin \theta.$$

In these equations, the subscript p denotes an electric vector in the plane of incidence, and s denotes an electric vector perpendicular to the plane of incidence. E is the amplitude of the longitudinal wave in the plasma. The superscripts i, r, and t denote incident, reflected, and transmitted waves respectively. v_0 is the adiabatic velocity of sound in the

electron gas, ϵ the dielectric constant of the plasma. The meaning of the angles φ , φ' , θ , θ_0 is illustrated in Fig. 1. Fig. 2 shows the ratio

$|E_{||}^t/E_p^i|$ as a function of the angle of incidence for the following sets of parameters: Curve 1: $c/v_0 = 2 \cdot 10^2$; $\epsilon_1 = 4$; $\epsilon = 0.04$. Curve 2: $c/v_0 = 2 \cdot 10^2$; $\epsilon_1 = 4$; $\epsilon = 0.2$. Curve 3: $c/v_0 = 2 \cdot 10^2$; $\epsilon_1 = 2$; $\epsilon = 0.04$.

With increasing angle of incidence, the transmitted transverse wave is

Card 2/4

Transformation of a transverse ...

S/057/62/032/005/012/022
B163/B102

11

soon transformed into a surface wave. The most effective angle for the excitation of a longitudinal wave is about 10° . There are 2 figures. The English-language reference reads as follows: A. H. Kritz, D. Mintzer, Phys. Rev., 117, 382, 1960.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiyev State University)

SUBMITTED: March 27, 1961 (initially)
October 1, 1961 (after revision)

Card 3/4

ACCESSION NO: AP3000234

8/0185/63/008/005/0555/0339

AUTHOR: Fedorchenko, A. M.

TITLE: On the problem of excitation of longitudinal waves in plasma.

SOURCE: Ukrayins'kyi fizychnyy zhurnal, v. 8, no. 5, 1963, 555-559

TOPIC TAGS: microwave-plasma interaction, energy flow vector

ABSTRACT: An expression for the energy-flow vector of longitudinal waves in plasma has been investigated in connection with the transformation of transverse microwave energy into longitudinal electric waves on the interface of dielectric plasma. This could be amplified by means of an electron beam and then again transformed into a transverse wave, thus providing an amplifier in the millimeter range. The calculation of energy flow was based on a system of equations which describe the electromagnetic field in plasma and the collective motion of the plasma itself in a hydrodynamic approximation. It

Card 1/2

ACCESSION NR: AP3000234

was found that only a small portion of the energy of the incident electromagnetic wave is transformed into longitudinal wave energy. The excitation of longitudinal waves in plasma could be enhanced in two ways: first, by increasing the temperature of the plasma, in which event, however, the adiabatic velocity of sound v sub 0 in an electron gas approaches c and the formulas are not valid, since only nonrelativistic plasma has been investigated; second, by increasing ϵ , i.e., by selecting an exciting-wave frequency Ω which will exceed plasma frequency Ω sub ρ by as much as possible, in which case, however, if the difference between Ω and Ω sub ρ is more than 10-15% a marked extinction of longitudinal waves will ensue. Orig. art. has: 19 formulas and 1 figure.

ASSOCIATION: Kiyivskiy derzhavnyveraitet im. T. G. Shevchenku
(Kiev State University)

SUBMITTED: 22Sep62

DATE ACQ: 18Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 002

OTHER: 001

Card 2/2

FEDORCHENKO, A.M.

Convective and absolute instability. Radiotekh. i elektron. 9
no.4:754-756 Ap '64. (MIRA 17:7)

FEDORCHENKO, A.M.

Separation of building-up waves into amplifying and
vanishing ones. Radiotekh. i elektron. 11 no.1:82-88
Ja '66. (MIRA 19:1)

1. Submitted September 14, 1964.

L 36201-66

ACC NR: AP6011450

SOURCE CODE: UR/0109/66/011/004/0693/0698

48

AUTHOR: Fedorchenko, A. M.

B

ORG: Kiev State University (Kiyevskiy gosudarstvennyy universitet)

TITLE: One efficient method of generating difference frequency by a nonlinear medium

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 693-698

TOPIC TAGS: gas discharge plasma, electron beam

ABSTRACT: A plasma-electron-beam system is considered. If two signals with frequencies ω_1 and ω_2 are applied to a plasma, its nonlinearity is responsible for occurrence of a longitudinal field with a difference frequency $\omega = \omega_1 - \omega_2$; the difference-frequency wave will be amplified, thanks to the kinetic energy of the beam. The analysis is based on the differential equations that describe the

Card 1/2

UDC: 533.925

L 36201-66

ACC NR: AP6011450

motions of the cold plasma and the beam in a hydrodynamic approximation. The maximum conversion of the beam power into the difference-frequency power takes place at $\Omega_{\max} = \sqrt{\omega_p^2 + \omega_j^2}$, where ω_p and ω_j are the Langmuirian frequencies for plasma and beam, respectively. Orig. art. has: 48 formulas.

SUB CODE: 20 ~~AV~~ / SUBM DATE: 15Dec64 / ORIG REF: 000 / OTH REF: 001

Card 2/2 *llb*

L 25503-66 EPF(n)-2/EWT(l)/ETC(f)/EWG(m) IJP(c) AT

ACC NR: AP6011390

SOURCE CODE: UR/0057/66/036/003/0460/0465

76.
B

AUTHOR: Kotsarenko, N.Ya.; Fedorchenko, A.M.

ORG: Kiev State University im. T.G.Shevchenko (Kiyevskiy gosudarstrennyy universitet)

TITLE: Stationary fields and currents induced in a plasma by a strong high frequency field

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 3, 1966, 460-465

TOPIC TAGS: ionized plasma, magnetohydrodynamics, nonlinear effect, nonlinear plasma, electric field, hf field, induced current

ABSTRACT: The authors discuss in "quasilinear approximation" the stationary charge and current distribution induced in a plasma by a high frequency field. The nonlinear effect involved in the calculation is the average force on the electrons proportional to the gradient of the square of the high frequency electric field. Yu.A. Berezin, T.I.Gutkin, S.N.Lofovskiy, and T.R.Soldatenko (ZhTF,34,448,1964) have given similar calculations, but the present authors object to the assertion of Berezin et al. that the plasma can be treated as neutral in the zeroth approximation. The present calculations are based on the magnetohydrodynamic equations for the motion of the electrons of a cold plasma. The effect of collisions of the electrons with the surrounding particles is taken into account by a term in the equation of motion representing a retarding force proportional to the velocity. These equations are approximately

2

Card 1/2

UDC: 533.9

L 25503-66

ACC NR: AP6011390

solved by a perturbation procedure dependent on the smallness of the parameter eE/mf^2L , where e and m are the electron charge and mass, E is the applied high frequency electric field, f is its frequency, and L is a length characterizing the inhomogeneity of the field. The high frequency motions of the electrons are eliminated from the solution by averaging over time, and equations are derived from which the steady state charge and current distribution induced in the plasma by the action of a given high frequency field can be calculated. The forms to which these equations reduce for an isotropic plasma and for a strongly magnetized plasma are given and a specific example is worked out in each case: the charge and current distributions induced in a cylinder of isotropic plasma by E-waves propagating on the surface and those induced in an infinite magnetized plasma by electromagnetic waves propagating transversely to the magnetic field are calculated. Orig. art. has: 44 formulas.

SUB CODE:

20

SUBM DATE:

13Feb65

ORIG. REF:

004

OTH REF:

002

Card

2/2

cc

I 45986-66 EWT(d)/T IJP(c)
ACC NR: AP6028601

SOURCE CODE: UR/0057/66/036/008/1323/1328

AUTHOR: Fedorchenko, A.M.

ORG: Kiev State University im. T.G.Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Application of the Laplace transformation in two variables to the derivation of a criterion for spatial amplification and cutoff

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 8, 1966, 1323-1326

TOPIC TAGS: mathematic method, mathematic transformation, Laplace transform, wave propagation, wave amplification, dispersion equation, COORDINATE SYSTEM

ABSTRACT: The author discusses the stability of waves propagating along the z axis of a Cartesian coordinate system x, y, z and satisfying an equation of the form

$$\frac{\partial f_i}{\partial z} + \sum_{j=1}^n \alpha_{ij} \frac{\partial f_j}{\partial t} + \sum_{j=1}^n \beta_{ij} f_j = 0; \quad i = 1, 2, \dots, n,$$

where t is the time, the f's are the components of the wave function, and the α 's and β 's are constants, although in principle they might involve operators acting on the transverse coordinates x and y. The values of the f's at z = 0 are specified for all positive times as boundary conditions. The f's are subjected to a double Laplace transformation in t and z and, the transformed wave components are found to satisfy a

UDC: 538.56

Card 1/2

L45986-66

ACC NR: AP6028601

set of inhomogeneous linear algebraic equations. The inhomogeneous terms in these equations are the transforms of the boundary values at $z = 0$, and the coefficients involve the transformation parameters (which represent the frequency and the wave number). The nature of the roots of the dispersion equation defined by these algebraic equations is discussed and the i 's are expressed in terms of those roots and the boundary conditions by inverting the Laplace transformation. It is shown that if the dispersion equation has a root for which the phase velocity at infinite frequency is positive, the waves will increase in amplitude as they propagate (spatial amplification) provided the frequency is such that the imaginary part of the wave vector is positive. This criterion is said to be analogous but not obviously equivalent to that of P.A. Sturrock (Phys.Rev., 112,5,1488,1958) and to be equivalent to a criterion previously derived by the author (Radiotekhnika i elektronika, No.1, 1966) from a causality argument. Orig. art. has: 17 formulas and 1 figure.

SUB CODE: 20 SUBM DATE: 24Apr65 ORIG.REF: 005 OTH REF: 001

Card 2/2 pb

I. 45985-56 EWT(1) IJP(c) GG/AT

ACC NR: AP6028602

SOURCE CODE: UR/0057/66/036/008/1327/1332

AUTHOR: Fedorchenko, A.M.ORG: Kiev State University im. T.G.Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Conversion of a transverse electromagnetic wave to a longitudinal wave at the boundary between a plasma and a dielectric

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 8, 1966, 1327-1332

TOPIC TAGS: mathematic method, mathematic transformation, Laplace transform, boundary value problem, electromagnetic wave, longitudinal wave, plasma wave, electromagnetic wave reflection, electromagnetic wave refraction, dielectric, ionized plasma

ABSTRACT: The author (ZhTF, 32, vyp.5, 589, 1962; Ukr. fiz.zhurn., 8, No.5, 555, 1963) and A.Hessel, N.Markuvitz and J.Shmous (IEEE Trans, 12, No.1, 130, 1964; IRE Trans., 10, No.1, 48, 1922) have discussed in the hydrodynamic approximation the conversion of a transverse electromagnetic wave into a longitudinal plasma wave at a plasma - dielectric boundary. In all those calculations, the condition $v_n = 0$ was imposed at the plasma - dielectric boundary, where v_n is the normal component of the electron velocity. In more recent work of the author (Radiotekhnika i elektronika, 11, No.1, 1966; ZhTF, 36, No.8, 1323, 1966/ see Abstract AP6028601/ there has been developed a new technique involving Laplace transformations in both the space and time variables for treating analogous boundary value problems. In the present paper the Laplace trans-

Card 1/2

UDC: 533.9

45938-55

ACC NR: AP6028602

formation technique is employed to calculate the intensities of the reflected wave, the refracted transverse wave, and the transmitted longitudinal wave that arise when an electromagnetic wave is incident at an arbitrary angle on the boundary between a dielectric and a plasma. The incident wave is assumed to be polarized with the electric vector in the plane of incidence. The simplifying assumptions employed in the author's earlier work are used also in the present paper. The results of the present calculations agree with those of the earlier ones when and only when the dielectric constant D of the dielectric is unity. It is concluded from this that the boundary condition $v_n = 0$ is correct only when $D = 1$. The maximum conversion of the incident transverse waves to longitudinal waves occurs when $\sin^2 i = d/D$, where i is the angle of incidence and d is the dielectric constant of the plasma. Orig. art. has: 52 formulas and 1 figure.

SUB CODE: 20 SUBM DATE: 15May65 ORIG. REF: 004 OTH REF: 002

Card 2/2 pb

L 10457-67 EWT(1) IJP(c) AT

ACC NR: AP6023879

SOURCE CODE: UR/0109/66/011/007/1325/1327

AUTHOR: Kotsarenko, N. Ya.; Fedorchenko, A. M.ORG: Kiev State University im. T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet)TITLE: Isolation and amplification of the difference frequency in a plasma-beam system

SOURCE: Radiotekhnika i elektronika, v. 11, no. 7, 1966, 1325-1327

TOPIC TAGS: electron plasma, electron beam, plasma electron oscillations

ABSTRACT: A. M. Fedorchenko examined a method of difference-frequency generation in a plasma-beam system where two electromagnetic waves propagated in the same direction (Rad. i elektronika, 1966, v. 11, no. 4, 693). The present article considers the same system in which the two waves propagate in opposite directions. The second approximation is used in the analysis, which proves that the system can be used for generation of the difference frequency and also for SHF mixers. In principle, a solid-state plasma is also applicable; it would have an advantage of higher attainable frequency and a disadvantage of short relaxation time (10^{-10} to 10^{-12} sec). Orig art. has: 18 formulas.

SUB CODE: 20, 09 / SUBM DATE: 04Oct65 / ORIG REF: 001 / OTH REF: 005

Card 1/1

UDC: 621.371.18

ACC NR: AP 7001300

SOURCE CODE: UR/0057/66/036/012/2107/2110

AUTHOR: Kotsarenko, N.Ya.; Fedorchenko, A.M.

ORG: Kiev State University im. T.G.Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Concerning the stationary distribution of plasma in the field of a strong electromagnetic wave

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 12, 1966, 2107-2110

TOPIC TAGS: plasma electromagnetic wave, isotropic plasma, magnetoactive plasma, electron density, nonlinear effect, mathematic physics, standing wave

ABSTRACT: The authors discuss the distribution of electrons in a plasma in the presence of a standing electromagnetic wave. The motion of the plasma ions is neglected, and that of the electrons is treated in the hydrodynamic approximation. The steady electric field induced in the plasma by the standing waves is introduced on the basis of earlier work of the authors (ZhTF, 36, 460, 1966); it is proportional to the time average of the vector product of the electron velocity and the magnetic field strength. It is assumed that the steady field is strong, and the electron pressure is neglected. There is presented and discussed a solution of the quasilinear self-consistent equations derived on the basis of the above simplifying assumptions. It is shown that the electron density is decreased in the regions of high field strength. The authors also discuss the solution to the analogous problem for the case

Card 1/2

UDX: 53.39

ACC NR: AP 7001300

when there is present an external longitudinal magnetic field. In the case of an ordinary standing wave the behavior of the electron density is qualitatively the same as in an isotropic plasma. In the case of an extraordinary standing wave the behavior of the electron density depends on the ratio of the wave frequency to the Larmor frequency, when this ratio exceeds unity the electron density distribution is qualitatively the same as in an isotropic plasma, but when this ratio is less than unity the electron density is increased in the regions of high field strength. For very high field strengths the equations give a negative electron density; this is ascribed to the fact that the electron pressure is not negligible in regions of very low electron density. Orig. art. has: 16 formulas and 2 figures.

SUB CODE: 20

SUBM DATE: 15Nov65

ORIG. REF: 004

Card 2/2

FEDORCHENKO, A.V.

How to get heterosic seeds of cucumbers. Politekh.obuch.
no.6:49-50 Je '59. (MIRA 12:12)

1. Gribovskaya ovoshchnaya selektsionnaya opyt'naya stantsiya.
(Cucumbers)

FEDORCHENKO, E.
6706

FEDORCHENKO, E. Pribor Dlya Obtochki Opornogo Kol'tsa Parovogo Krana Pk-6.
L'vov, 1954. (4) s.; 1 L. Chert. 21 sm. (MPS SSSR. L'vovskaya Zh. D. Tekhn.
Otd. Dorogi, Dor. Dom Tekhniki i Dor NITO. Inform.-Tekhn. pis'mo NO. 13) .400
Ekz. B. Ts.-Sost. Ukazan v Kontse Teksta.-(54-15647 Zh) 621.873-81 and 621.941

SO: Knizhnaya Letopis 'N^o .6, 1955

FEDORCHENKO, G.

Spectrophotometry of the H α line at different heliographic latitudes. *Astron. tsir. no.133:10-12 Ja '53.* (MIRA 6:6)

1. Kievskiy Gosuniversitet imeni T.G. Shevchenko, Kafedra Astronomii.
(Spectrum, Solar)

GORDELADZE, Sh.G.; FEDORCHENKO, G.L.

Photographic and photored magnitudes of 1,100 stars in a region with
the center $\alpha=18^{\text{h}}53^{\text{m}}$, $\delta=+15^{\circ},5$ (1950). Izv. Glav. astron. obser. AN
URSR β no. 2:112-131 '61. (MIRA 14:5)
(Stars—Magnitudes)

KOLESNIK, I.G.; FEDORCHENKO, G.L.

Investigating the photometric center correction of the double
astrograph at the Main Astronomical Observatory of the Academy
of Sciences of the Ukrainian S.S.R. Izv.Glav.astron.obser.
AN USSR 4 no.1:88-95 '61. (MIRA 14:10)
(Astronomical instruments--Testing)

VOROSHILOV, Vladimir Ivanovich; GORDELADZE, Shalva Georgiyevich;
KOLESIK, Lidiya Nikolayevna; LUKATSKAYA, Frina Iosifovna;
FEDORCHENKO, Galina Leonidovna; KHEYLO, Ernest Sergeyevich;
MEL'NIK, T.S., red. izd-va; RAKHLINA, N.P., tekhn. red.

[Catalog of photographic, photovisual and photo red magnitudes of
22000 stars] Katalog fotograficheskikh fotovizual'nykh i foto-
krasnykh velichin 22000 zvezd. Kiev, Izd-vo Akad. nauk USSR, 1962.
173 p. charts. (MIRA 15:7)

(Stars--Catalogs)

~~FEDORCHENKO, G.I.~~

Three-color photometry of stars in an area with the center at
 $\alpha = 18^{\text{h}}59^{\text{m}}$, $\delta = +15^{\circ}.3$. Izv. Glav. astron. obser. AN URSR
4 no.2:113-127 '62. (MIRA 15:11)

(Photometry, Astronomical)

FEDORCHENKO, G.I.

Catalog of the spectral classes of 1717 stars in an area with the
center at $\alpha = 19^h$, $\delta = + 15'$. Izv. Glav. astron. obser. AN URSSR
4 no.2:134-152 '62. (MIRA 15:11)
(Stars--Catalogs) (Stars--Spectra)

FEDORCHENKO, G.L.

Interstellar absorption of light in the region with center
 $\alpha = 19^{\text{h}}03^{\text{m}}$, $\delta = +15^{\circ}.3$. Izv. Glav. astron. obser. AN USSR 5
no.1:128-136 '63. (MIRA 16:6)
(Milky Way) (Stars--Spectra)

L 16304-65 EWP(c)/EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pr-4 IJP(c)
ACCESSION NR: AP4045900 MJW/JD S/0021.64/000/009/1168/1172

AUTHOR: Fedorchenko, I. M. (Academician AN UkrSSR); Draykov, D. A. (Deceased)
Afanas'yev, V. P.; Filatova, N. O.; Khimich, G. S.; Filatova, N. O.

TITLE: Investigation of the wear of sintered powder materials in
different gaseous media 18 18

SOURCE: AN UkrRSR. Dopovidi, no. 9, 1964, 1168-1172 B

TOPIC TAGS: sintered powder material, iron powder material, bronze
powder material, friction coefficient, wear 18 27

ABSTRACT: Sintered powder materials, two on an iron powder base and
two on a bronze powder base, were subjected to friction and wear
tests in air, nitrogen, argon, and helium. The counterbody was
nitrided 18Kh18N9T [AISI 321] steel hardened to 75 HR; testing was
done at a specific pressure of 245·10 n/m² and a sliding speed vary-
ing from 0.5 to 10.5 m/sec. The test results showed that the ambient
gaseous medium has a significant bearing on the mechanism of wear,
friction coefficient, and temperatures of the friction surfaces of
all the sintered materials tested. The friction temperature and wear

Card 1/2

L 16304-65

ACCESSION NR: AP4045900

were such lower in air than in gaseous nitrogen, argon, or helium. Under identical operating conditions, the wear rate of sintered iron-powder materials was appreciably higher than that of the bronze-powder materials. The value of the friction coefficient and its time-dependent changes at a constant speed were determined by the processes which occur on the friction surfaces, and which, in turn, depend on the ambient medium. At a constant sliding speed, the effect of the specific pressure on the friction coefficient is independent of the ambient gaseous medium. Orig. art. has: 3 figures.

ASSOCIATION: Institut problem materialoznavstva AN USSR [Institute of the Problems of the Science of Materials AN USSR]

SUBMITTED: 25Jan64

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 001

Card 2/2

FUGINA, L.I.; FEDORCHENKO, I.M.; PONOMARENKO, N.Ye.

Effect of the graphite content on the antifriction properties
of metal-graphite materials. Porosh. met. 5 no.9:53-58 S '65.
(MIRA 18:9)

1. Institut problem materialovedeniya AN UkrSSR.

S/147/60/000/02/020/020
E191/E481

AUTHORS: Shevelev, A.S. and Fedorchenko, G.P.

TITLE: The Summation of Errors in the Machining of Components ✓

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, Nr 2, pp 177-180 (USSR)

ABSTRACT: Variable systematic errors and random errors in machining cause dimensional scatter. In a steady production process the distribution of errors approximates either the normal or the Maxwell distribution. The summation of two independent errors with different distributions is considered. One-dimensional error (typical example is the size of a shaft machined on a capstan lathe) has a normal distribution and the other error (typical example is the error due to the setting up of components in a self-centering chuck) has a Maxwell distribution. The distribution of the sum of two errors is derived by means of the theory of probability. The result is shown in Fig 1. In practice, a certain manufacturing risk (scrap) is accepted. The percentage of components for which the total error exceeds a certain value is derived. (Eq (5)). ✓/B

Card 1/2

S/147/60/000/02/020/020
E191/E481

The Summation of Errors in the Machining of Components

If for a given manufacturing risk the associated limiting total error is defined in terms of a significant parameter of the distribution curve, and is also expressed as the sum of the maximum individual errors multiplied by a factor, then it is possible to find a relation between the manufacturing risk and this multiplying factor. This relation is derived and tabulated in Table 2. Each column has a certain value of the multiplying factor and each row a certain value of the ratio between the maximum individual errors. The manufacturing risk is given in percentages. There are 1 figure and 2 tables.

ASSOCIATION: Kuybyshevskiy aviatsionny institut
(Kuybyshev Aviation Institute)

✓B

Card 2/2

SHEVELEV, A.S.; FEDORCHENKO, G.P.

Determining errors in the position of surfaces in machining parts. Izv.vys.ucheb.zav.; av.tekh. 4 no.3:134-143 '61.(MIRA 14:8)

1. Kuybyshevskiy aviatsionnyy institut, kafedra proizvodstva aviadvigateley.

(Machine-shop practice)

16,6200

S/147/62/000/001/012/015
E115/E535

AUTHOR: Fedorchenko, G.P.

TITLE: Summation of vectorial errors

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Aviatsionnaya tekhnika, no.1, 1962, 105-115

TEXT: The author discusses the problem of summation of independent vectorial errors on a plane (or on parallel planes) taking into account the technical and economic estimate of the production efficiency. Let \bar{a} be a systematic vectorial (constant) error, \bar{r} - random error and let $\bar{u} = \bar{a} + \bar{r}$. Then, under the assumption of the distribution of absolute value of r , $|r|$, being Maxwell distribution" (Abstractor's note: Better known in the two-dimensional case as Rayleigh distribution, see, e.g. Parzen: Modern Probability Theory and Its Applications, p.181) with parameter α , an approximate (with an excess) probability distribution of δ_0 - the acceptable value of production error (defined in terms of the ratio $\nu = \frac{|a|}{\alpha}$ and the coefficient of summation k) - is derived. (Abstractor's note: This assumption

Card 1/3

VB

Summation of vectorial errors

S/147/62/000/001/012/015
E115/E535

of the "Maxwell distribution" is an immediate consequence of the assumption that the distribution of a point representing the random error on the plane is Gaussian). The second part of the article deals with the generalized problem, where \bar{u}_i , $i = 1, \dots, n$, independent vectorial errors, each of them being a sum of two components - \bar{a}_i - the systematic error with constant $|\bar{a}_i|$ and with the argument distributed uniformly and of \bar{r}_i - random error, $|\bar{r}_i|$ being distributed with "Maxwell distribution" with parameter α_i are given. Asymptotic result ($n \rightarrow \infty$) for distribution of the total acceptable value of production error (δ) is derived using central limit theorem (provided the Lyapunov condition is satisfied). Next, the case where the $|\bar{a}_i|$ are distributed uniformly on a given interval is considered, and these two results are then compared. Finally, two numerical examples are presented and a table of the values of the production risk in percent for these two cases as a function of the coefficient of summation is given. (Production risk is defined as the cumulative distribution function of δ). There are 6 figures and 1 table.

[Abstractor's Note: There are numerous misprints in the article.]
Card 2/3

Summation of vectorial errors

S/147/62/000/001/012/015
E115/E535

ASSOCIATION: Kafedra proizvodstva aviadvigateley, Kuybyshevskiy
aviatsionnyy institut (Department of Aircraft
Production, Kuybyshev Aviation Institute)

SUBMITTED: November 3, 1961

Card 3/3

L 16581-63

EWT(d)/EWT(1)/EWT(m)/EDS

S/145/62/000/012/011/011 53

AUTHOR:

Shevelev, A. S., Cand. Techn. Sciences, and Fedorchenko, G. P.,
Senior Teacher

52

TITLE:

On determining the precision of centering parts during as-
sembling 14

PERIODICAL:

Izvestiya vysshikh uchebykh zavedeniy. Mashinostroyeniya,
no. 12, 1962, 179-185

TEXT:

The author discusses the dependence of the precision of centering parts at assembling on actual errors in locating adjoining surfaces, clearances in contacts, and on mutual angular layout of parts. It is shown with the aid of Lyapunov's limit theorem that the laws of distribution of the summarized error approach Maxwell's law as the number of components increases.

The application of the theorem on the numerical characteristics of the sum of random values and the product of the random value by the constant of the distribution of projections of the summary vector permits the

Card 1/2

L 16581-63

S/145/62/000/012/011/011

On determining the precision of centering...

determination of parameter α for various relationships of component errors, and leads to development of a formula for the determination of the probability of the summary error as a function of the coefficient of production risk K. Experiments have shown a satisfactory agreement of the equation with experimental data. The authors prepared tables and graphs from which it is possible to determine from actual errors during assembling the accuracy of the elements location. Three Soviet references. There are 9 formulas, 5 figures, and 2 tables.

ASSOCIATION: Kuybyshevskiy aviatsionnyy institut (Kuybyshev Aviation Institute)

SUBMITTED: June 17, 1961

Card 2/2

S/147/63/000/001/015/020
E031/E181

AUTHORS: Shevelev, A.S., and Fedorchenko, G.P.

TITLE: Total manufacturing errors as derived from the limiting values of their parameters

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.1, 1963, 131-139

TEXT: Vector and scalar errors are considered separately at first and then an expression for the total error is derived which includes both. In each of the first two cases it is assumed that there are n independent components, each of which is the sum of a systematic and a random error. The total error for a given manufacturing risk is determined. Each error component is assumed distributed normally. In the general case, there are n vector and m scalar components and, as before, a relation is derived between the total error and the manufacturing risk. The expressions derived can be used to find the total error for a given manufacturing risk, or to find the permissible values of the error components for known values of the parameters, or to find the manufacturing risk from known values of the other parameters.

~~CONFIDENTIAL~~

L 19076-63

EWI(a)/FCC(w)/BDS AFTC/IJP(C) WRM

ACCESSION NR: AP3007051

S/0147/63/000/003/0122/0128

AUTHOR: Shevelev, A. S.; Fedorchenko, G. P.

TITLE: Determination of total error in a given direction

SOURCE: IVUZ. Aviatzionnaya tekhnika, no. 3, 1963, 122-128

TOPIC TAGS: accuracy, aircraft engine, aircraft engine part, engine assembly, vector error, scalar error, total error, manufacturing accuracy, error addition, engine part reliability

ABSTRACT: A procedure is presented for calculating the total error associated with the manufacture and assembly of aircraft-engine parts. The procedure is based on the summation of vector and scalar errors in a fixed direction according to the diagram shown in Fig. 1 of the Enclosure. The scalar errors along the straight line are added to the projections on this line of vector errors. Mathematical expressions for the distribution of total error are derived. The use of the method is illustrated by a practical example. Orig. art. has: 4 figures and 21 formulas.

Card 1/3

L 19076-63

ACCESSION NR: AP3007051

ASSOCIATION: none

SUBMITTED: 180ct62

DATE ACQ: 070ct63

ENCL: 01

SUB CODE: PR

NO REF SOV: 004

OTHER: 000

Card 2/3

FEDORCHENKO, G.P.

Summing errors with variable parameters of distribution.

Izv. vys. ucheb. zav.; av. tekhn. 8 no.4:149-154 '65

(MIRA 19:1)

ACC NR: AP7006680

(A)

SOURCE CODE: UR/0145/66/000/010/0126/0131

AUTHOR: Fedorchenko, G. P. (Candidate of technical sciences)

ORG: None

TITLE: Summation of the errors in a linear dimensional chain in the case of variable distribution curve parameters

SOURCE: IVUZ. Mashinostroyeniye, no. 10, 1966, 126-131

TOPIC TAGS: probability, error statistics, industrial automation

ABSTRACT: The fundamental postulates of probability theory are used for finding the functional relationship between the distribution parameters for the dimensions of a closing link and the parameters of the distribution laws for the component links in a dimensional chain. It is assumed that a given linear dimensional chain has n component links with dimension $x_1, x_2, \dots, x_i, \dots, x_n$ and scattering fields (tolerances) $2\delta_1, 2\delta_2, \dots, 2\delta_i, \dots, 2\delta_n$. The size of a component link for a group of parts is a random quantity distributed in the tolerance field according to the law

$$f(x) = \frac{1}{t_i - t_0} \int_{t_0}^{t_i} \frac{1}{\sqrt{2\pi s(t)}} e^{-\frac{(x-s(t))^2}{2s^2(t)}} dt.$$

Card 1/2

UDC: 621.001

ACC NR: AP7006680

with parameters $a_i(t)$ and $\sigma_i(t)$ where t lies in the closed interval between t_{0i} and t_1 ($i=1, 2, \dots, n$), the parameter α being determined by the value of the systematic error while σ describes scattering. The problem is to find the value of the scattering field (tolerance) for the dimensions of the closing link x_L . This problem is solved and expressions are derived which may be used for finding the optimum method for solving the direct and inverse problems of calculating dimensional chains. The article was presented for publication by G. D. Troshin, lecturer at the Kuybyshev Aviation Institute. Orig. art. has: 3 figures, 20 formulas.

SUB CODE: 13, 12/ SUBM DATE: 10Jun65/ ORIG REF: 003

Card 2/2

L 45110-66 EWT(d)/T LJP(c)

ACC NR: AP6003195

SOURCE CODE: UR/0147/65/000/004/0149/0154

AUTHOR: Fedorchenko, G. P.

37
B

ORG: none

TITLE: Summation of the errors with varying distribution parameters

SOURCE: IVUZ. Aviatсионnaya tekhnika, no. 4, 1965, 149-154

TOPIC TAGS: error statistics, mathematic analysis

ABSTRACT: The problem is posed as follows. There are given n independent components of the errors with dimensions U_1, U_2, \dots, U_n with permissible values of $\epsilon_1, \epsilon_2, \epsilon_3, \dots, \epsilon_n$. The instantaneous distribution of each of them will be normal to the plane:

$$f(u) = \frac{1}{\sqrt{2\pi} \sigma_i} e^{-\frac{(u-a_i)^2}{2\sigma_i^2}} \quad (1)$$

It is required to determine the distribution law for the total error:

$$U = \sum_{i=1}^n U_i \quad (2)$$

Card 1/2

UDC: 621.3.088.3:658.511

L 4310-66

ACC NR: AP6003195

After a statistical analysis the following expression is arrived at:

$$P = 100 \left[1 - \Phi \left(\frac{6k \sum_{i=1}^n d_i}{\sqrt{3 \sum_{i=1}^n d_i^2}} \right) \right] \quad (23)$$

Calculation shows that summation of the errors of the total distributions is two or more times as effective than summation with respect to the limiting values of the parameters. Orig. art. has: 23 formulas and 3 figures.

SUB CODE: ¹²/₂₀ SUBM DATE: 24Dec64/ ORIG REF: 002/ OTH REF: 001

Card 2/2 mjs

FEDORCHENKO, I.G., Cand Tech Sci--(disc) "Chromo-tin and chromo-
Vanadium catalyzers for the manufacturing of sulfuric acid by the con-
tact method." Khar'kov, 1958. 13 pp (Min of Higher Education USSR.
Khar'kov Polytech Inst in V.I. Lenin), 100 copies (BI, 22-58, 110)

-115-

~~5(4)~~ SOV/78-4-5-3/46
AUTHORS: Kondratenko, Z. V., Fedorchenko, I. G.

TITLE: The Density and Viscosity of Some Polyphosphoric Acids
(Plotnost' i vyazkost' nekotorykh polifosfornykh kislot)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 985-988
(USSR)

ABSTRACT: The investigation of the density of polyphosphoric acid was carried out by the method of hydrostatic weighing. With an increase of temperature the density of the polyphosphoric acid changes slightly and increases with an increase of the P_2O_5 -content. Table 1 shows the densities of polyphosphoric acids in dependence on temperature. Figure 1 is a graphical representation of densities. Figure 2 shows the dependence of the density of phosphoric acid on the percentile P_2O_5 -content and temperatures of from 20 to 90°C. The percentile P_2O_5 -content in the acid is determined by the given density at from 20 to 90° for concentrations of from 65.2 to 64.6% P_2O_5 . The viscosity of the phosphoric acid with a P_2O_5 -content of from 65.2 to 74.6% and at 20 to 90°C was investigated. It follows

Card 1/2

KAKULIN, G.P.; FEDORCHENKO, I.G.

Electric conductivity of concentrated phosphoric acids.
Zhur.neorg.khim. 7 no.11:2485-2486 N '62. (MIRA 15:12)
(Phosphoric acid—Electric properties)

S/068/62/000/012/001/001
E071/E436

AUTHORS: Nechiporenko, N.N., Kakulin, G.P., Fedorchenko, I.G.,
Manoylenko, B.R.

TITLE: An investigation of the process of chlorination of
thiophene

PERIODICAL: Koks i khimiya, no.12, 1962, 43-45

TEXT: In view of the possibility of applying chlorine for the
production of a high purity benzene, the authors investigated the
process of chlorination of thiophene dissolved in benzene in order
to establish the necessary amount of chlorine for a complete
purification of benzole from thiophene. In addition, the influence
of temperature and velocity of supply of chlorine to the reactor on
the degree of purification of benzole with a given thiophene content
was studied. The apparatus consisted of a reactor fitted with a
mercury sealed stirrer, thermometer and inlet and outlet for
chlorine. The outlet gases (air and traces of chlorine) were
scrubbed in a solution of potassium iodide, crystalline sodium
hydroxide (for HCl) and activated carbon (for benzene vapours).
A cryoscopic benzene with an addition of 1% of thiophene was used
Card 1/2

An investigation of the process ...

S/068/62/000/012/001/001
E071/E436

for experiments. The purification process was followed by the bromine number, determined by the bromide-bromate method. It was established that the degree of purification of benzole depends mainly on the amount of the reagent used and is practically independent of temperature (7 to 40°C) and rate of supply of chlorine. Refining with chlorine can produce a product practically free from thiophene. For a complete purification of benzole from thiophene, it is necessary to use 1.5 to 2.0 weight units of chlorine per 1 weight unit of thiophene. There are 1 figure and 3 tables. ✓

ASSOCIATION: Khar'kovskiy politekhnicheskii institut
(Khar'kov Polytechnic Institute)

Card 2/2

FEDORCHENKO, I.G.; KAKULIN, G.P.; KONDRATENKO, Z.V.

Electric conductivity of concentrated phosphoric acids at
100-200°C. Zhur.neorg.khim. 10 no.8:1945-1946 Ag '65.

(MIRA 19:1)

1. Khar'kovskiy politekhnicheskoy institut imeni V.I.Lenina,
kafedra obshchey i neorganicheskoy khimii. Submitted November 18,
1964.

DADICHEN, Ye.A., kand. tekhn. nauk; TEVEROVSKIY, N.F., kand. tekhn. nauk;
OLICHNIK, Ye.D.; FEDORCHENKO, I.N., akademik; RUDIN, V.S.;
STARITSKIY, V.I.; ANDRIYEVSKIY, I.A.

Dry cleaning of blast furnace gas in ceramic metal filters.
Met. i gornorud. prom. no.6:14-17 N-D '64.

(MIRA 18:3)

1. Akademiya nauk UkrSSR (for Feodorchenko).

FEDORCHENKO, I.M.; CHAYKA, B.I.; NEVEL'SHTEYN, Ya.G.; SHAPORENKO, M.A.;
~~BRIDZHEV, Ya.Ye.~~

Comparative testing of ceramic metal piston rings on tractor engines.
Porosh.met. 4 no.5:92-97 S.O '64. (MIRA 18:10)

1. Institut problem materialovedeniya AN UkrSSR i Spetsial'noye
konstruktorskoye tekhnologicheskoye byuro Odesskogo zavoda
zapasnykh chastey.

KONEV, F.A.; TIMOFEYEV, V.V.; FEDORCHENKO, I.M.; ANDRIYEVSKIY, R.A.

Ceramic metal filters for the filtration of air and water.
Porosh. met. 4 no.6:84-88 N-D '64. (MIRA 18:3)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut i Institut problem materialovedeniya AN UkrSSR.