

KOVRIGINA, M.D. (Moskva)

Thirty years of the Central Institute of Postgraduate Medical Education.  
Sov.zdrav. 20 no.5:63-67 '61. (MIRA 14:5)  
(MEDICINE--STUDY AND TEACHING)

KOVRIGINA, M.D., red.; GARVEY, N.H., red.; LYUDKOVSKAYA, N.I.,  
tekh. red.

[Nurse-teacher for day nurseries and for the younger groups  
in kindergartens] *Sestra-vospitatel'nitsa detskikh iaslei i  
mladshikh grupp iaslei-sadov.* Moskva, Medgiz, 1963. 547 p.  
(MIRA 16:12)

(DAY NURSERIES) (KINDERGARTEN)  
(CHILDREN—CARE AND HYGIENE)

KOVRIGINA, V.I.; ROZENBERG, I.M.

Stand for determining the coordinates of earthquake epicenters.  
Trudy Inst. fiz. Zem. no.26:98-100 '63. (MIRA 16:11)

KORRIGINA, YE. I

KHOROSHAYA, Ye.S.; KOVRIGINA, Ye.I.; AVILOV, A.A.; MEDVEDEVA, R.

Rapid method of determining the percentage of bitumen, rosin and kaolin  
in a bitumen-rosin emulsion. Leg.prom. 14 no.3:38-39 Mr'54. (MLRA 7:5)  
(Bituminous materials)

KOVRIGINA, Ye.K.; KOVRIGIN, F.P.

Stratigraphy of the Pre-Cambrian of the western slope of the  
Yenisey Ridge in the Verkhnyaya and Nizhnyaya Surnikha,  
Stolbovaya, and Isakovka Basins. Inform.sbor.VSEGEI no.40:3-15  
'60. (MIRA 14:12)

(Yenisey Ridge--Geology, Stratigraphic)

AID P - 5037

Subject : USSR/Engineering  
Card 1/1 Pub. 103 - 8/22  
Authors : Etin, A. O. and E. S. Kovrigina  
Title : Overlapping milling by multiple-thread milling cutters  
Periodical : Stan. 1 instr., 4, 25-27, Ap 1956  
Abstract : The authors describe the new more efficient method and equipment for the overlapping multiple-thread milling of small outside threading on automatic and semi-automatic machines. The new method has been developed by the Experimental Scientific Research Institute of Metal Cutting Machines (ENIMS). Seven drawings and 1 photo.  
Institution : As above  
Submitted : No date

Kovrigina, Ye.S.

AUTHOR: Yulhvid, M.Ye., and Kovrigina, Ye.S.

TITLE: The Design of a Tool for Broaching External Non-Continuous Grooves. (Konstruktsiya instrumenta dlya protyagivaniya naruzhnykh pazov.)

PERIODICAL: Stanki i Instrument, 1957, No. 1, p. 40 (U.S.S.R.).

ABSTRACT: The tool consists of a block with individually adjusted broach tooth inserts. The text contains 3 sets of diagrams.

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

KOVRIGINOVA, D.M.

Central Institute for Postgraduate Medical Training in Moscow.  
Ceek. adnot. ID: A. 007-167-164

1. Rektorka Ustredniho ustavu pro doskolovani lekaru v Moskve.



KOVRIGINOVA, M.

Soviet public health during 40 years since the October Revolution.  
Cesk. zdravot. 5 no.11:615-620 Nov 57.

1. Ministryne zdravotnictvi SSSR.  
(PUBLIC HEALTH,  
in Russia (Cz))

KOVRIGO, A. F.

"The problem of increasing the effectiveness of drilling and explosive operations in working the thick deposits of Dzhezkazgan by a variation of the chamber-column system with two cuts." Min Higher Education USSR. Kazakh Mining and Metallurgical Inst. Alma-Ata, 1956 (DISSERTATION For the Degree of Candidate in TECHNICAL SCIENCE.)

Knizhnaya letopis'  
No 33, 1956, Moscow

KOVRIGO, A.F.

Comparative evaluation of some methods of measuring oversized  
ore. Izv. AN Kazakh. SSR. Ser. gor. dela no.1:49-59 '58.  
(MIRA 16:5)

(Ores—Measurement)

SOV/127-59-1-6/26

AUTHOR: Baykonurov, O. A. and Kovrigo, A. F., Candidates of Technical Sciences

TITLE: The Ways of Decreasing Labor Consumption in Stopping Operations at the Dzhezkazgan Mine (Puti snizheniya trudoyemkosti i snizheniya rabot na Dzhezkazgangskom rudnike)

PERIODICAL: Gornyy zhurnal 1959, Nr 1, pp 23-28 (USSR)

ABSTRACT: The deep blast hole mining system, which was introduced five years ago in the Dzhezkazgan mine, is analysed in the article. The results of the experimental delayed and instant blasting operations are compared in the form of tables. The author studies the yield of various rock sizes and their variations; the results of these studies are illustrated by graphs. The author reaches the following conclusions: A better crushing of the ore can not be obtained by shortly delayed blasting. Reduction of labor consumption in stopping operations can be obtained by decreasing the diameter of blast holes to 70 mm, and increasing the conditional lump size to 800 mm. The introduction of a 100 cu m scraper could double labor productivity. There are 5 graphs, 2 tables and 3 Soviet references.

~~00000002~~

*Kazakh Mining Metallurgical Inst. Alma Ata.*

POLOVINKA, I.G.; KOVRIGO, A.F., kand.tekhn.nauk

System of working a steep layer of average thickness with a KVKIS-3k  
machine unit. Sbor. nauch. trud. Kaz GMI no.19:66-70 '60. (MIRA 15:3)

(Coal mining machinery)

ZINOV'YEV, V.M.; <KOVRIKO, A.F., kand.tekhn.nauk

Breaking coal with deep boreholes in working a thin steep layer.  
Sbor. nauch. trud. Kaz GMI no.19:79-81 '60. (MIRA 15:3)  
(Kuznetsk Basin--Coal mines and mining) (Blasting)

BAYKONUROV, O.A., prof.; KOVRIGO, A.F., dotsent; FILIMONOV, A.T., inzh.

Vibration and combination drilling of holes in hard rocks.

Gor. zhur. no.9:35-37 S '62.

(MIRA 15:9)

1. Kazakhskiy politekhnicheskij institut, Alma-Ata.  
(Boring)

BAYKONUROV, O.A.; KOVRIGO, A.F.; KARAZHANOV, D.D.

Simulation in studying blasthole drilling in the Dzhezkazgan  
mines. Vest. AN Kazakh. SSR 20 no.12:41-50 D '64  
(MIRA 18:2)



KOVRIGG, M.G.

Pipe cutter for cutting asbestos concrete pipes. Rats. i izobr. predl. v  
stroitel'stvo no.94:48-51 '54. (MIRA 8:8)

1. Trest Transvodstroy Ministerstva stroitel'stva. (Pipe, Concrete)

KRASTINA, Ye.Ye.; ~~KOVRIGO, N.M.~~; GUNAR, I.I.

Connection of the photoperiodical reaction of Perilla and  
spring wheat with chronometric characteristics. Izv. TSKHA  
no.6:32-48 '62. (MIRA 16:6)  
(Photoperiodism)

KOVRIGO, O.A.

Geochemical characteristics of the Lower Carboniferous deposits  
and post-Lower Carboniferous intrusions in the southeastern  
part of the Kendyktas Ridge. Vest.AN Kazakh.SSR 18 no.11:68-  
75 N '62. (MIRA 15:12)

(Kendyktas Ridge—Geochemistry)

KOVRIKO, V.K.

KOVRIKO, V.K. (Petrosavodsk)

Wide use of the aural manometer for investigating barometric  
function of the ear. Vest. oto-rin. 16 no.3:69-70 My-Je '54.  
(MLRA 7:7)

(EAR, physiology,

\*barometric funct., manometers)

(ATMOSPHERIC PRESSURE,

\*manometer for investigation of barometric funct. of ear)

KOVRIGO, V. P.

Kovrigo, V. P. -- "Northern Chernozems of Moscow Oblast." Moscow Order of Lenin Agricultural Acad imeni K. A. Timiryazev, Moscow, 1955 (Dissertation for the Degree of Candidate in Agricultural Sciences)

SO: Knizhnaya Letopis', No. 23, Moscow, Jun 55, pp 87-104

USSR/Soil Science - Physical and Chemical Properties of Soil. J

Abs Jour : Ref Zhur Biol., N 1, 1959, 1368

Author : Kovrigo, V.P.

Inst : Izhevsk Agricultural Institute

Title : Conditions of Humus Storage in Soils.

Orig Pub : Materialy nauchn. konferentsiy Izhevskiy, s.-kh. in-t, vyp. 2, Izhevsk. 1958, 77-81

Abstract : Energy of decomposition of vegetative residues in the soil can be lowered when oxidizing processes prevail in it, and this is achieved by a temporary moistening of the soil. A liberal wetting of vegetative residues as soon as the plants had withered consequently impeded their aerobic decomposition and mineralization if oxidizing processes predominated, and this led to an accumulation of humus in the soil. -- M.L. Yaroshenko

Card 1/1

- 23 -

RYBIN, S.F., otv. red.; STOROZHEV, N.A., red.; KIRISOV, A.G., red.;  
KYCHANOVA, N.I., red.; POFOV, Yu.K., red.; KOVRIGG, V.F.,  
red.; YERMOLAYEVA, K.G., red.

[The Udmurt land; collection of articles, stories, and  
verses about nature in the Udmurt A.S.S.R.] Krai Udmurtskii;  
sbornik statei, rasskazov, stikhov o prirode Udmurtii,  
Izhevsk, Udmurtskoe knizhnoe izd-vo, 1963. 75 p.  
(MIRA 18:2)

1. Vserossiyskoye obshchestvo sodeystviya okhrane prirody.  
Udmurtskoye otdeleniye.

KOVRIKOVA, N. P.

KOVRIKOVA, N. P. -- "On the Study of the Gastrocardial Reflex (Experimental Investigation)." Simferopol', 1956. (Dissertation for the Degree of Candidate in Medical Sciences).

So: Knizhnaya letopis', No 8, 1956, pp 97-103



KOVRIN, Ye.I. (Khabarovsk)

Improving ventilating installations in the hardening chambers of  
reinforced concrete plants. Vod. i san.tekh. no.11:39 N '58.  
(MIRA 11:12)

(Concrete plants--Ventilation)

KOVRIN, Ye.I., inzh.

Arrangement of longitudinal seams in bending welded pipes on pipe-bending machines. Mont. i spets.rab.v stroi. 22 no.11:27 N'60. (MIRA 13:10)  
(Pipe bending)

KOVRIN, Ye.I., inzh.

Installing catches on centrifugal pumps. Mont. i spets. rab. v  
stroi. 23 no.10:26 0 '61. (MIRA 14:10)  
(Centrifugal pumps--Equipment and supplies)

TSYGANOV, R.Ya.; ULAZOVSKIY, V.A., red.; TOKIN, A.N., red.;  
KADIL'NIKOVA, A.F., red.; KURDYUKOV, G.V., red.; KOVRIN,  
Ye.I., red.; BARANSKIY, A.V., red.

[Introducing new equipment and the achievements of science into industry] Vnedrenie novoi tekhniki i dostizhenii nauki v proizvodstvo. Volgograd, 1963. 215 p.

(MIRA 18:3)

1. Volgograd. Institut inzhenerov gorodskogo khozyaystva.

KOVRITSKIY, L.K., elektromekhanik

Device for testing and restoring thermal fuses. Avtom. telem.  
i sviaz' 5 no.3:42-43 Mr '61. (MIRA 14:9)

1. Gomel'skaya distantsiya signalizatsii i svyazi Belorusskoy  
dorogi.

(Telephone, Automatic) (Electric fuses--Testing)

KOVRITSKIY, L.K., elektromekhanik

Construction of an automatic telephone exchange by the workers of  
a railroad district. Avtom., telem. i sviaz' 7 no.2:34-37 F '63.  
(MIRA 16:3)

1. Avtomaticheskaya telefonnaya svyaz' Gomel'skoy distantsii  
signalizatsii i svyazi Beloursskoy dorogi.  
(Railroads—Electronic equipment) (Railroads—Communication systems)

KOVRIZHENKO, Ivan Nikiforovich; KOZLOV, Nikolay Iosifovich; DOBROVOL'SKIY,  
A.A., red.; DMITRIYEVSKAYA, M.A., khud.-tekhn. red.

[Breeding and training dogs] Vyrashchivanie i dressirovka sobak.  
Kiev, Gos. izd-vo sel'khoz. lit-ry USSR, 1956. 185 p. (MIRA 11:12)  
(Dogs)

KOVRIZHIN, A.K., inzh.; SHAKHMATOV, V.F., inzh.

Upraise chamber and pillar system with roof bolting for mining  
thick seams at the Kuznetsk Basin "Ziminka 3-4" mine. Izv.  
vys.ucheb.zav.; gbr.zhur. no.9:3-7 '58. (MIRA 12:6)

1. Tomskiy politekhnicheskii institut.  
(Kuznetsk Basin--Coal mines and mining)  
(Mine roof bolting)



KOVRIZHIN, A.K., inzh.

Generalizing the experience acquired in using anchor bolting  
in Kuznetsk Basin stopes. Izv.vys.ucheb.zav.; gor.zhur. no.2:  
3-9 '59. (MIRA 13:4)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskii  
institut imeni S.M.Kirova. Rekomendovana kafedroy razrabotki  
plastovykh mestorozhdeniy.  
(Kuznetsk Basin--Mine roof bolting)

ZAPREYEV, S.I., inzh.; KOVRIZHIN, A.K., inzh.; KIPRIYANOVA, K.K., inzh.

Use of models in determining the parameters of stopes in the chamber system of mining with the use of rod bolting. Izv. vys. ucheb. zav.; gor. zhur. no.9:20-26 '59. (MIRA 14:6)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskoy institut imeni S. M. Kirova i Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut.

(Kuznets Basin--Stoping(Mining)--Models)  
(Mine roof bolting)

ZAPREYEV, S.I., inzh.; KOVRIZHIN, A.K., inzh.; KIPRIYANOVA, K.K., inzh.

Investigation of the range of application and the parameters of  
chambers with roof bolting. Izv.vys.ucheb.zav.; gor.zhur. no.2:  
31-35 '60. (MIRA 14:5)

1. Tomskiy politekhnicheskiy institut.  
(Mine roof bolting)

KOVRIZHIN, A.K., inzh.

Field of use and the parameters of shortwalls with anchor bolting  
in southern Kuznetsk Basin mines. Izv.vys.ucheb. zav.; gor. zhur.  
no16:10-14 '60. (MIRA 14:5)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiiy  
institut imeni S.M.Kirova. Rekomendovana kafedroy razrabotki  
plastovyykh mestorozhdeniy.

(Kuznetsk Basin--Coal mines and mining)  
(Mine roof bolting)

KONOVALOV, V.P.; FIRSOV, V.P.; KOVRIZHIN, A.K.

Reliable powered supports and equipment complexes for Kuznetsk Basin mines. Ugol' 38 no.3:46-48 Mr. '63.

(MIRA 18:3)

1. Shakhta "Abashevskaya 3-4" Kuznetskogo ugol'nogo basseyna (for Konovalov). 2. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Firsov, Kovrizhin).

KOVRIZHIN, A.K.; NIKIFOROV, A.I.; VAGAPOV, M.S.

Observing the manifestation of rock pressure in the rapid advancement of a stope by narrow-cut mining. Vop. gor. davl. no.18:23-29 '63.

(MIRA 18:7)

1. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut.

LEONT'YEV, V.N.; KOVRIZHIN, A.K.; TSAY, T.N.; MURASHEV, V.I.; KUKSOV, N.I.;  
IVANUSHKIN, V.G.; IVANOV, V.V.; KOVACHEVICH, P.M.

Information of completed research and statements made by participants in  
the conference. Vop. gor. davl. no.18:114-120 '63. (MIRA 18:7)

1. Institut gornogo dela Sibirskogo otdeleniya AN SSSR (for Leont'yev).
2. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Kovrizhin).
3. Nauchno-issledovatel'skiy institut stroitel'stva ugol'nykh i gornorudnykh predpriyatiy, Kemerovo (for TSay).
4. Vostochnyy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti (for Murashev).
5. Sibirskiy filial Vsesoyuznogo nauchno-issledovatel'skogo marksheyderskogo instituta (for Kuksov).
6. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom (for Ivanushkin).
7. Kuzbasskiy sovet narodnogo khozyaystva (for Ivanov).
8. Kemerovskiy gornyy institut (for Kovachevich).

KOVRIZHIN, A.K.; LYKOV, G.P.; PANOV, L.K.

Investigating the manifestation of rock pressure in the chamber and pillar system of mining. Vop. gor. davl. no.17:13-18 '63.

(MIRA 18:9)

1. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut.



GRISHIN, V.A., inzh.; KOVRIZHIN, A.K., kandi. tekhn. nauk; KOSCHAYEV,  
I.M., tekhnik

Measuring the power of electric motors of a coal-mining machine  
set for short walls during industrial tests in the Kuznetsk Basin.  
Sbor. KuzNII no.10:33-39 '64. (MIRA 18:9)

KOVRIZHKIN, Nikolai Prokhorovich.

New processes in the work of a thermotechnician in the depot Moskva, Gos. transp. zhel-dor. izdavo, 1949. 79 p. (50-35052)

TJ648.K6

KOVRIZHKIN, Nikolai Prokhorovich.

Technical control of fuel consumption in locomotives Moskva, Gos. Transp. zhel-dor. izd-vo,  
1952. 68 p. (53-36759)

TJ648.K65

RUSANOV, V.T.; GUR'YEV, I.D., master; KOCHENKOV, V.V., osmotrshchik-avtomatchik; SUKINOV, S.I., osmotrshchik-avtomatchik; SEMENIKHIN, N.A., osmotrshchik-prolazchik; MALYGINA, N.A., slozar'-avtomatchik; MANTAK, A.I., inzh.-tekhnolog; MALOV, G.A., instruktor; POTAPOV, A.L., mashinist elektrovoza; KOVRIZHKIN, N.P.; PATEYUK, I.L., starshiy inzh. po tormozam

Discussion of Bolko and Senderov's article "Is there a need for emergency braking boosters on freight trains?" Elek.i tepl. tiaga 5 no.12:26-27 D '61. (MIRA 15:1)

1. Punkt tekhnicheskogo osmotra stantsii Magnitogorsk Yuzhno-Ural'skoy dorogi.
2. Nachal'nik punkta tekhnicheskogo osmotra stantsii Magnitogorsk Yuzhno-Ural'skoy dorogi (for Rusanov).
3. Depo Tuapse Severo-Kavkazskoy dorogi (for Potapov).
4. Starshiy revizor sluzhby lokomotivnogo khozyaystva Moskovskoy dorogi (for Kovrizhkin).
5. Sluzhba vagonnogo khozyaystva Moskovskoy dorogi (for Pateyuk).  
(Railroads--Brakes)

PUSHKAREV, I.F., inzh.; STREKOPYTOV, V.V., inzh.; KOVRIZHKIN, N.P., inzh.;  
KURBATOV, A.I., proyemshchik; KHATSKELEVICH, M.N., inzh.

Answering readers' queries. Elek.i tepl.tiaga 6 no.4:36-37  
Ap '62. (MIRA 15:5)

1. Lokomotivnoye depo Leningrad-Baltiyskiy (for Kurbatov).  
(Locomotives)

GORN, V. N., inzh.; KOVRIZHKIN, N. P., inzh.

How to prevent the overloading of the brake systems of freight  
trains. Elek. i tepl. tiaga 6 no.9:28-31 S '62.

(MIRA 15:10)

(Railroads—Brakes)

KOVRIZHKIN, N.P.; SHOVSKIY, Yu.V., inzh., retsenzent; KLIMOV, N.N.,  
inzh., retsenzent; MEL'NIKOV, V.Ye., red.; USENKO, L.A.,  
tekhn. red.

[Analysis of the work performed by the locomotive engineer  
based on the recordings of the speed counter tapes] Kontrol'  
raboty mashinista lokomotiva po skorostemernym lentam. Mo-  
skva, Transzheldorizdat, 1963. 128 p. (MIRA 16:7)  
(Locomotives--Brakes) (Recording instruments)

TISHCHENKO, A.F., inzh.-tekhnolog; KOVRIZHKINA, M.Ya., inzh.-tekhnolog

Recovery of fiber by means of a wire save-all filter. Bum.  
prom. 35 no.5:14-16 My '60. (MIRA 13:7)

1. Zhidachevskiy kartonno-bumazhnyy kombinat.  
(Zhidachev--Paper industry--Equipment and supplies)  
(Filters and filtration)



RYMASHEVSKIY, D.A., inzh.; SOBOLEV, V.M., inzh.; KOVRIZHKIN, N.P., inzh.;  
PUSHKAREV, I.F., inzh.; STREKOPYTOV, V.V., inzh.

Answering readers' queries. Elek. i tepl. tiaga 6 no. 5:41 May '61.  
(Electric locomotives) (Diesel locomotives) (MIRA 15:6)

**TISHCHENKO, A.F.; KOVRIZHKINA, M.Ya.**

Utilization of centrifugal cleaners for processing the stock  
in front of the paper machine. Bum. prom. 36 no.10:18-19 0 '61.  
(MIRA 15:1)

1. Bumazhnaya fabrika Zhidachevskogo kombinata.  
(Papermaking machinery)

KRYLOVA, I.A.; GOSTEV, M.M.; KOVRIZHKO, I.F.; ZUBOV, P.I.; POSPELOVA,  
K.A.; PASYNKOV, N.V.; SOTNIKOV, I.P.

Effect of surface-active agents on the strength characteristics  
of the vulcanizates of carbon black extended SKA-ROARK rubber.  
Kauch. i rez. 24 no.12:13-14 '66. (MIRA 18:12)

1. Institut fizicheskoy khimii AN SSSR i Voronezhskiy zavod  
sinteticheskogo kauchuka im. S.M. Kirova.

0973

1473

L 33326-66 EWT(m)/EWP(j) ITP(c) RM

ACC NR: AP6021772

SOURCE CODE: UR/0413/66/000/012/0032/0032

INVENTOR: Shatalov, V. P.; Velikanova, L. A.; Volovodov, A. I.; Kovrizhko, L. P.; <sup>33</sup>  
Kudryavtsev, L. D.; Sotnikov, I. F.; Kozlova, M. N. <sub>B</sub>

ORG: none

TITLE: Catalyst for the hydrogenation of ethylbenzene to styrene. Class 12,  
No. 182697 [announced by Voronezh Synthetic Rubber Plant im. S. M. Kirov  
(Voronezhskiy zavod sinteticheskogo kauchuka)]

SOURCE: Izobreneniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 32

TOPIC TAGS: dehydrogenation, ethylbenzene, styrene, improved catalyst

ABSTRACT: An Author Certificate has been issued for an improved catalyst for the dehydrogenation of ethylbenzene to styrene. To increase the activity and mechanical strength of iron, chromium, potassium and calcium oxide-based catalyst, the method provides for the addition of 5-10% magnesium oxide to the composition. [B0]

SUB CODE: 07/ SUBM DATE: 17May65/ ATD PRESS: 5026

Card 1/1 ULR

UDC: 66.094.187.3

roducing the oil at the solution stage displayed a better workability than those prepared by adding the oil in the mixer; their tensile strength and resistance to crack propagation were also higher. It is concluded that the good workability of oil-extend-

L 05648-67

ACC NR: AP6026759

ed rubbers permits the preparation of tread mixes from 100% cis-1,4-polybutadiene. 0  
Orig. art. has: 1 table.

SUB CODE: 11/ SUBM DATE: 06Nov65/ ORIG REF: 002/ OTH REF: 010

Card 2/2 *efh*

1 10183-66 EWT(m)/EWP(j)/T RPL WW/RM

ACC NR: AP5028492 SOURCE CODE: UR/0286/65/000/020/0066/0067

AUTHORS: Angert, L. G.; Kuz'minskiy, A. S.; Kovrizhko, L. F.; Piotrovskiy, K. B.; Rayevskiy, A. B.; Sotnikov, I. F.; Ivanova, G. V.

ORG: none

TITLE: Method for obtaining synthetic rubber. Class 39, No. 175659 [announced by Voronezh Factory for Synthetic Rubber im. S. M. Kirova (Voronezhskiy zavod sinteticheskogo kauchuka)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 66-67

TOPIC TAGS: rubber, synthetic rubber, polymer, copolymer styrene, butadiene

ABSTRACT: This Author Certificate presents a method for obtaining synthetic rubber via an aquo-emulsion copolymerization of butadiene with styrene or  $\alpha$ -methyl styrene in the presence of known emulsifiers, initiators, regulators, and buffers and with the use of polymerization terminators. The latter are introduced into the system after obtaining the desired degree of monomer conversion. To increase the variety of polymerization terminators, oxyneozone is used as polymerization terminator. The polymerization process may also be terminated by using oxyneozone along with known polymerization terminators, e.g., sodium dimethyldithiocarbamate.

SUB CODE: 11/ SUBM DATE: 14Jul64

Card 1/1 UDC: 678.762.2-134.622

1 42876.66 EWT(m)/ENR(1) IJP(c) RM SOURCE CODE: UR/0031/66/000/005/0003/0003  
ACC NR: AR6024953 (A)

AUTHOR: Kovrizhko, L. F.; Bryantseva, Yu. V.; Rayevskaya, V. I.; Agarkova, T. P.

TITLE: Isolation of trans-piperylene from the piperylene fraction obtained in the production of synthetic rubber

SOURCE: Ref. zh. Khimiya, Part II, Abs. 6M17

REF SOURCE: Tr. Labor. khimii vysokomolekul. soyedineniy. Voronezhsk. un-t, vyp. 3, 1964, 78-82

TOPIC TAGS: piperylene, synthetic rubber, *hydrocarbon*

ABSTRACT: The conditions for the isolation of trans-piperylene (I = piperylene) from the piperylene fraction obtained in the production of synthetic rubber were determined. The isolation of trans-I from a mixture containing (in wt. %) 0.00-0.07 butylenes, 8.01-24.91 amylenes, 1.00-2.50 ethyl ether, 3.03-6.58 isoprene, 42.98-54.03 trans-I, 17.2-36.77 cis-I, 0.17-0.59 cyclopentadiene, 0.22-1.12 C<sub>6</sub> hydrocarbons was achieved by fractionating and isomerizing the cis-I present. Ethyl ether is first removed from the piperylene fraction by washing repeatedly with water, then cyclopentadiene is removed by treatment with a 27% solution of maleic acid at a 1:1 ratio of I to maleic acid for 30 min at 30-40°. The purified fraction is dried for 24 hr over active Al<sub>2</sub>O<sub>3</sub> and fractionated on a column of 20 theoretical plates with a reflux ratio of 40-45; the fraction with b. p. 41-43° is removed. After a second fractional distillation of

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L 42876-66

ACC NR: AR6024953

this fraction on a column with 66 theoretical plates and a reflux ratio of 70-80, a fraction with b. p. 41.5-42.3 containing 97-99% trans-I is removed in 60-64% yield. Cis-I, whose content in the bottoms after the first and second rectification amounts to ~80%, is isomerized to trans-I in the presence of crystalline iodine (36.8 g of iodine per 500 g of bottoms), which is added in portions for 20-30 min. The mixture is kept for 24 hr at 20°C and distilled on a fractionating column of 60 theoretical plates and a reflux ratio of 60-70; the fraction with b. p. 41.5-42.3°, containing 99-99.9% trans-I, 0.4-0.08% amylenes, and traces of cyclopentadiene, is removed. The trans-I obtained is used as a copolymer for the synthesis of 1,4-cis-polybutadiene-pyrene rubber. A. Grigor'yev. [Translation of abstract]

SUB CODE: 07

Card

2/2

*bdh*



L 40297-66 EWT(m)/EWR(i) IJP(c) JWD/RM

SOURCE CODE: UR/0081/65/000/021/S091/S091

54  
13

ACC NR: AR6014589 (A)

AUTHORS: Gostev, M. M.; Artemov, V. M.; Kovrizhko, L. F.

TITLE: Development of a method for the preparation of petroleum-black filled stereospecific cis-1,4-polybutadiene rubber. Report 1. Stabilization of the hydrocarbon dispersion of carbon black \5

SOURCE: Ref. zh. Khimiya, Abs. 21S566

REF SOURCE: Yt. Labor. khimii vysokomolekul. soyedineniy. Voronezhsk. un-t, vyp. 3, 1964, 209-212

TOPIC TAGS: rubber chemical, chemical dispersion, oil, stabilizer, carbon black, synthetic rubber / HAF carbon black, PN-6 oil, OP-10 stabilizer

ABSTRACT: Conditions for the preparation of stable dispersions (D) of carbon black (type HAF) in benzene, p-xylene, ethylbenzene, isopropylbenzene, cyclohexane, and "bentol" (mixture of 30% benzene, 66% toluene, and 4% ethylbenzene) were studied. Resin and its soaps, fatty acids, OP-10, cis-1,4-polybutadiene (I), drying oil, talloil (TM), and oil PN-6 were employed as stabilizers for D. System of 20 parts by weight of TM, 10 of resin soap, 30 of I, and 15 of drying oil (calculated per 100 parts by weight of carbon black) yielded a kinetically and aggregatively stable, mobile hydrocarbon D of carbon black which does not separate within 24 hours. With increased concentration of carbon black, cross-linking of D is increased. Consider-

Card 1/2

KOVRIZHKO, N.M.

Problem of intestinal pneumatosis in man. Arkh. pat., Moskva 15  
no.6:83-86 Nov-Dec 1953. (CJML 25:5)

1. Of the Department of Pathological Anatomy (Head -- Prof. Ye. I. Chayka), Kiev Order of the Red Banner of Labor Medical Institute imeni Academician A. A. Bogomolets (Director -- Docent T. Ya. Kalinichenko).

KOVRIZHKO, N.M. (Kiyev)

More about the question of massive dosage of penicillin. Vrach.  
delo no.2:203-204 F '56. (MIRA 9:7)  
(PENICILLIN)

KOVRIZHKO, N.M.

Cyst of the larynx in a newborn. Vest.oto-rin. 18 no.5:130-131  
S-0 '56. (MLRA 9:11)

1. Iz kafedry patologicheskoy anatomii (zav. - prof. Ye.I.Chayka)  
Kiyevskogo meditsinskogo instituta.  
(LARYNX--TUMORS)

KOVRIZHKO, N.M. (Kiyev, Bastionnaya 2, d. 4/4 kv.24)

Microscopic investigation of the structure of renal vessels in  
man in various age groups. Arkh.anat.gist.i embr. 33 no.3:  
67-68 J1-S '56. (MIRA 12:11)

1. Iz kafedry patologicheskoy anatomii (zav. - prof.Ye.I.Chayka)  
Kiyevskogo med. instituta.

(KIDNEYS, blood supply,

age factor in intra-renal blood vessels (Rus))

(AGING, effects,

on intrarenal blood vessels (Rus))

KOVRIZHKO, N.M., kand.med.nauk

Changes in the innervation of the human aorta in some chronic diseases accompanied by oxygen deficiency in the body. Vrach.delo no.10:129 0 '60. (MIRA 13:11)

1. Kafedra patologicheskoy anatomii (zav. - zasluzhennyy deyatel' nauki, prof. Ye.I.Chayka) Kiyevskogo meditsinskogo instituta imeni akademika A.A.Bogomol'tsa.  
(AORTA--INNERVATION)  
(ANOXEMIA)

PINES, G.TS., dotsent; KOVRIZHKO, N.M., kand.med.nauk

Clinical aspects of scleroma of the respiratory organs. Zhur. ush.,  
nos. i gorl. bol. 20 no.1:73-75 Ja-F '60. (MIRA 14:5)

1. Iz 1-y gorodskoy klinicheskoy bol'nitsy Pecherskogo rayona  
Kiyeva.

(RESPIRATORY ORGANS---DISEASES)

KOVRIZHKO, N.M. [Kovryzhko, N.M.], kand.med.nauk

State on the adrenal system in children. Ped., akush. i gin. 23  
no.5:31 '61. (MIRA 14:12)

1. Kafedra patologicheskoy anatomii (zaveduyushchiy - prof. Ye.I.  
Chayka [Chaika, I.E.I.])Kiyevskogo ordena Trudovogo Krasnogo Znameni  
meditsinskogo instituta imeni akademika Bogomol'tsa (rektor - dotsent  
B.D.Bratus').

(ADRENAL GLANDS)



KOVRIZHKO, N.M., kand.med.nauk (Kiyev)

Histochemical study of adrenaline in the human adrenal glands and  
paraganglia in connection with their development and reduction.  
Probl.endok.i gořm. no.4:107-113 '62. (MIRA 15:11)

1. Iz kafedry patologicheskoy anatomii (zav. - zasluzhennyi de-  
yatel' nauki prof. Ye.I. Chayka) Kiyevskogo meditsinskogo insti-  
tuta imeni akad. A.A. Bogomol'tsa (dir. - dotsent V.D. Bratus').  
(ADRENALINE) (ADRENAL GLANDS)

KOVRIZHKO, N.M., kand.med.nauk

Chromaffin system and its state in some pathological processes.  
Vrach.delo no.12:64-69 D '62. (MIRA 15:12)

1. Kafedra patologicheskoy anatomii (zav. - zasluzhennyy deyatel'  
nauki Ye.I.Chayka) Kiyevskogo meditsinskogo instituta.  
(CHROMAFFIN SYSTEM)

KOVRIZHKO, N.M. (Kiyev, 14, ul. Bolsunovskogo, 22, kv.24)

Postnatal evolution and structural characteristics of the most important paraganglia in man. Arkh. anat., gist. i embr. 43 no.12: 50-58 D'62

1. Kafedra patologicheskoy anatomii (zav. - zasluzhennyy deyatel' nauki prof. Ye.I. Chayka) Kiyevskogo ordena Trudovogo Krasnoy Znameni meditsinskogo instituta imeni akademika A.A. Bogomo'l'tsa.

KOVRIZHKO, N.M.

Effect of some toxic irritants on hormonopoesis in chromaffin organs. Probl. endok. i gorm. 10 no.5:94-98 S-0 '64.

(MIRA 18:6)

1. Kafedra patologicheskoy anatomii (zav. - prof. Ye.I. Chayka) Kiyevskogo meditsinskogo instituta imeni Bogomol'tsa (dir. - prof. V.D. Bratus') i laboratoriya endokrinnykh funktsiy (rukovoditel' - akademik V.P. Komissarenko) Instituta fiziologii imeni Bogomol'tsa (dir. - akademik A.F. Marchenko).

KOVRIZHKO, N.M.

Some rare forms of pressoreceptors and chemoreceptors in the human aorta.  
Fiziol.zhur. [Ukr.] 10 no.4:530-534 J1-Ag '64.

(MIRA 18:11)

1. Kafedra patologicheskoy anatomii Kiyevskogo meditsinskogo  
instituta im. akademika Bogomol'tsa.

SOV/89-5-4-9/24

AUTHORS: Antropov, G. P., Zysin, Yu. A., Kovrizhnykh, A. A., Lbov, A. A.

TITLE: Reaction Cross Section  $U^{238}(n,2n)U^{237}$  With Neutrons of an Energy of 15 MeV (Secheniye reaktsii  $U^{238}(n,2n)U^{237}$  na neytronakh s energiyey 15 Mev)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 4, pp 456-457 (USSR)

ABSTRACT: In 1952  $\sigma$  was measured by the authors for  $U^{238}(n,2n)U^{237}$  for  $E_n = 15$  MeV as amounting to  $1,5 \pm 0,2$  b. As, in the meantime, new values have been published which are in contradiction to those mentioned, measurement was repeated in 1957. A  $4\pi$ -counter was used for measuring. The value  $\sigma_{n,2n}$  was measured from the activity of  $U^{237}$  and from the fission products of  $U^{238}$ , namely  $Mo^{99}$ ,  $Ba^{140}$ ,  $Ce^{141}$ . A value of  $0,90 \pm 0,15$  b was obtained by these measurements. This is in agreement with the value given in reference 1, but in strict contradiction of the value given in reference 2. Comparison with the results given in reference 4 leads to the conclusion that the value of 0,90 b is highly probable.

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Reaction Cross Section  $U^{238}(n,2n)U^{237}$  With Neutrons of an Energy of 15 MeV

SOV/89-5-4-9/24

N. P. Martynov, T. P. Timofeyeva, and N. V. Shuvanova participated in the work of chemical preparation. There are 4 references, 2 of which are Soviet.

SUBMITTED: April 17, 1958

Card 2/2

S/089/60/008/04/05/009  
B113/B017AUTHORS: Zysin, Yu. A., Kovrizhnykh, A. A., Lbov, A. A.,  
Sel'chenkov, L. I.TITLE: Cross Section of the Reaction  $\text{Th}^{232}(n, 2n)\text{Th}^{231}$  With  
Neutrons of the Energy 14.7 Mev 19PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 4, pp. 360-361

TEXT: The cross section was determined by a method which is based on the activity of  $\text{Th}^{231}$  and the fission fragments  $\text{Mo}^{99}$  and  $\text{Ba}^{140}$ . The method has been described in a paper by G. P. Antropov et al. in Atomnaya energiya, 1958, Vol. 5, No. 4, p. 456. 14.7-Mev-neutrons were obtained by means of a low-voltage linear accelerator from the reaction  $\text{D}(\text{T}, \text{n})\text{He}^4$ . Mixture irradiated:  $\text{Th}(\text{NO}_3)_4 \cdot 4 \text{H}_2\text{O}$ ,  $\text{U}_3\text{O}_8$ . Six irradiations were made, the irradiation lasting from three to eleven hours, the total neutron emission of the individual samples was at  $(2 \pm 6) \cdot 10^{14}$  n. According to a

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✓ B



Cross Section of the Reaction  $\text{Th}^{232}(n, 2n) \text{Th}^{231}$  S/089/60/008/04/05/009  
With Neutrons of the Energy 14.7 Mev B113/B017

formula given, the reaction cross section of  $\text{Th}^{232}(n, 2n) \text{Th}^{231}$  with  
14.7-Mev-neutrons is found to be  $\sigma_{n,2n}^{\text{Th}} = (0.65 \pm 0.15)$  barn. The authors  
thank K. A. Vlasov, A. S. Kovaldov, V. M. Lartsev, V. R. Nagina,  
N. D. Osyayev for their assistance.

SUBMITTED: October 21, 1959

✓B

Card 2/2

ANTROPOV, G.P.; ZYSIN, Yu.A.; KOVRIZHNYKH, A.A.; TSAREV, V.P.

Fast neutron spectrometer. Prib. i tekhn. eksp. 6 no.4:30-33  
Jl-Ag '61. (MIRA 14:9)

(Spectrometer)

1. KOVRIZHNYKH, D.; MIKHEYEV, V.
2. USSR (600)
4. Sweet Clover
7. Sweet clover as green manure for spring wheat, Dost. sel'khoz, No. 1, 1953.

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

KOVRIZHNYKH, L.M.

56-7-12/66

AUTHOR  
TITLE

KOVRIZHNYKH, L.M.

On the Dynamics of a Bounded Plasma in an External Field.  
(K dinamike ogranichennoy plazmy, nakhodyashoheysya  
vo vneshnem polo.- Russian)

PERIODICAL

Zhurnal Eksperim, i Teoret. Fiziki 1957, Vol 33, Nr 7,  
pp 72-76

ABSTRACT

The present paper deals with some problems of the dynamics of a quasineutral plasma formation located in the field of a plane electromagnetic plane. The system under investigation consists of electrons and ions upon which a plane electromagnetic wave with the wave vector  $\vec{k}$ , which is parallel to the z-axis, impinges. The author describes the system hydrodynamically by assuming the densities  $\rho_i$  and  $\rho$  and the velocities  $\vec{v}_i$  and  $\vec{v}$  of the ions and electrons respectively. The total number of electrons is assumed to be equal to the total number of ions. As the mass of an ion is much greater than that of an electron, the ions may be considered to be at rest in first approximation. For the distribution of  $\rho, \vec{v}$  and of the potentials  $\phi$  and  $A$  equations are written down. This is a system of nonlinear differential equations. With the help of the formalism of Green's functions this system of equations is

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On the Dynamics of a Bounded Plasma in an External Field.

56-7-12/66  
then written down in form of a single nonlinear integro-differential equation. The exact solution of this equation is difficult, but if certain presuppositions are assumed, the forces can be estimated approximately, and it is possible to draw conclusions as to possible deformations. The author here solves this problem by assuming weak linearity and weak eigen fields. The corresponding expressions are explicitly given. The physical significance of the terms occurring in these expressions is discussed. The expression obtained for the average force takes the form of an infinite series and is very complicated. The solutions obtained are then specialized for a special case. The results obtained here confirm an inclination of the plasma condensation to deliquesce, at least at certain conditions.

(No Illustrations)

ASSOCIATION: Physical Institute "P.N. LEBEDEV" of the Academy of Sciences of the USSR. (Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.- Russian)

SUBMITTED: 16.11. 1956

AVAILABLE: Library of Congress.

CARD 2/2

SOV/89-5-6-10/25

AUTHOR: Kovrizhnykh, L. M.

TITLE: Equilibrium Distribution of Current Density in Direct High-Precision Discharges (Ravnovesnoye raspredeleniye plotnosti toka v pryamykh sil'notochnykh razryadakh)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 6, pp 648-649 (USSR)

ABSTRACT: Theoretically the equilibrium distribution of electrons and ion density in a direct discharge is derived for the case in which an additional current flows in the axis of the measuring chamber. It is assumed that the chamber is formed by two coaxial cylinders with the radii  $r_1$  and  $r_2$  ( $r_1 < r_2$ ). The discharge current flows through the chamber. An additional current conductor is arranged along the axis of the chamber, through which a current  $I$  flows. Basing upon the assumption that the pressure tensor is isotropic and the ions are singly charged, the steady energy distribution is derived. Herefrom it follows that, if an additional current flows in the direction of the axis, a steady state is possible only if a definite amount of charge exists in the current conductor. From the data available the

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Equilibrium Distribution of Current Density in Direct SOV/89-5-6-10/25  
High-Precision Discharges

current density is calculated, especially for the case in which the current density is to be a maximum.

Two cases are dealt with separately, viz. that in which  $I = 0$  and that where  $I = \text{const} < 0$  ( $I$  and  $J$  are opposed to each other).

For the first case, the current density attains a maximum near the inner wall of the cylinder. At currents of low amperage  $J$  the current density hardly depends on the radius. In the case of growing currents a large part of the current begins to flow near the inner wall of the chamber. In the case of currents of high amperage the current flows practically along the wall of the chamber.

For the second case, beginning at  $J = -I$ , the maximum of the current density moves away from the outer wall of the chamber and shifts in the direction of the inner wall. For the case  $J \gg J_0 = 2I$  the character of current distribution is similar to the case in which  $I = 0$ .

If a countercurrent which amounts to a  $k$ -th part of the discharge current is sent through the wire in the axis,

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Equilibrium Distribution of Current Density in Direct SOV/89-5-6-10/25  
High-Precision Discharges

the charge becomes localized in the chamber under certain conditions, and it remains completely insulated from the walls by forming a very thin-walled hollow charge cylinder. There is 1 English reference.

SUBMITTED: August 7, 1958

Card 3/3



56-34-4-30/60

AUTHORS: Kovrizhnykh, L. M., Lebedev, A. N.

TITLE: The Consideration of the Collective Interaction of Electrons in Cyclic Accelerators (Uchet kollektivnogo vzaimodeystviya elektronov v tsiklicheskih uskoritelyakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr. 4, pp. 984 - 992 (USSR)

ABSTRACT: The mathematical apparatus developed renders possible the taking into account of the collective interaction of the particles in cyclic accelerators. This mathematical apparatus is then applied to the problem of the capture of electrons as a betatron during the operation of an accelerator. First, the author gives a short survey of the problem in general. The first part of this paper deals with the raising of the problem. The state of the system of electrons in the chamber of the betatron is described in this paper by means of the distribution function  $f(\vec{p}, \vec{q}, t)$ , which is defined in the space of the coordinates and momenta. As initial equation, the equation  $\partial f / \partial t + \vec{v} \cdot \nabla f = -\partial f / \partial t_{\text{impact}} - (f/\tau) + F_{\text{true}}$  is used. From the general form of the kinetic equation it is distinguished by the terms  $-f/\tau$

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The Consideration of the Collective Interaction of  
Electrons in Cyclic Accelerators

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and  $F_{\text{true}}$ , which take into account the annihilation of the particles at the walls of the chamber and on the injector, as well as the forming of new particles caused by the operation of the injector.  $\mathcal{H}$  denotes the Hamiltonian of the particle in consideration of the selfconsisting field. The term  $(\partial f / \partial t)_{\text{impact}}$  which takes into account the collisions in pairs can be neglected. This paper investigates conditions of the betatron capture which are somewhat idealized, nevertheless it is possible to obtain the most important qualitative characteristics of this phenomenon, as well as certain quantitative estimations. The authors investigate in this paper the one-dimensional case, i.e. they take into account only the radial motion of the electrons the energy of which agrees with the equilibrium-energy. The following part of the paper deals with the basic features of the one-electron-capture, i. e. with the capture at low amperages intensities. The course of the computations is followed step by step. The following fact applies to the capture at low current intensities: The captured current

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is weak and depends exponentially on the "error". In the third part the collective capture is computed. The coefficient of the collective capture, i.e. the ratio between captured and maximum current circulating in the chamber increases rapidly with increasing injection current and then shows a tendency towards saturation. Also the dependence of the captured current on the total emission current shows saturation. At low intensities of the total emission current, the captured current depends exponentially on the "error". In conclusion, the authors thank A.A.Kolomenskiy, M. S. Rabinovich and P. A. Ryazin for expressing their opinion of this work. There are 3 figures and 6 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva Akademii nauk SSSR  
(Institute of Physics imeni P. N. Lebedev, AS USSR)

SUBMITTED: November 26, 1957

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21(9)

AUTHORS:

Vekuler, V. I., Kovrizhnykh, L. M.

SOV/56-35-5-8/56

TITLE:

On the Cyclic Acceleration of Particles in High Frequency Fields (O tsiklicheskom uskorenii chastits v vysokochastotnykh polyakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 5, pp 1116-1118 (USSR)

ABSTRACT:

The present paper aims at showing that it is possible to use high-frequency fields for the purpose of controlling the motion of particles in cyclic accelerators. (This work was carried out already in 1956). Already in 1947 Burshteyn and Kolomenskiy (Ref 1) as well as one of the authors of this paper devoted their attention to the possibility of a cyclic acceleration of charged particles by rapidly changing magnetic fields. The present theoretical investigation of particle motion in a field is based on the assumption that the particles move in the field of a plane standing wave:  $E_y = E_0 \cos kx \sin \omega t$   
 $H_z = -H_0 \sin kx \cos \omega t$ , where  $E_0$  and  $H_0$  denote the amplitudes of the electric and magnetic fields, respectively. The equation of motion is:

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On the Cyclic Acceleration of Particles in High Frequency Fields

$$\frac{d}{dt} m\dot{x} = \frac{e^2}{mc^2} \frac{H_0 E_0}{2k} \sin 2kx \cos^2 \omega t. \text{ For the investigated form}$$

of particle motion in a coaxial cylindrical resonator (the axis of which coincides with the z-axis) the following is obtained after coordinate transformation:

$$\frac{d}{dt} m\dot{r} = mr \dot{\theta}^2 + eE_r - \frac{e}{c} H_0 \dot{z}; \quad \frac{d}{dt} mr^2 \dot{\theta} = 0;$$

$$\frac{d}{dt} m\dot{z} = eE_z + \frac{e}{c} iH_0.$$

Furthermore, the system of equations for  $E_r$ ,  $E_z$  and  $H_\theta$  is written down, and a solution is derived for  $q/R_0 \ll 1$  in first order of  $q/R_0$  as well as for  $k/q \ll 1$ . ( $r = R_0 + q$ ,  $R_0 = a+b/2$ ,  $a$  and  $b$  are the outer and inner radii respectively of the cylinder). There are 3 references, 2 of which are Soviet.

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*Physics Inst. im P. N. Lebedev AS USSR*

21(7)

AUTHORS: Kovrizhnykh, L. M., Rayzer, M. D., SOV/30-59-2-57/60  
Abstracters

TITLE: Plasma Physics and the Problem of Controlled Thermonuclear  
Reactions (Fizika plazmy i problema upravlyayemykh  
termoyadernykh reaktsiy)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 121-126 (USSR)

ABSTRACT: This is a discussion of the compilation published in Moscow  
in 1958 by Kovrizhnykh and Rayzer, abstracters.

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21(7)  
AUTHOR:

Kovrizhnykh, L. M.

SOV/56-36-3-28/71

TITLE:

On the Oscillations of Cylindrical Cavities in a Completely Ionized Plasma (O kolebaniyakh tsilindricheskoy polosti v polnost'yu ionizirovannoy plazme).

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 839-841 (USSR)

ABSTRACT:

By employing a method similar to that used by Kruskal and Schwarzschild (Shvartsshil'd)(Ref 1) and V. D. Shafranov (Ref 2) for investigating the stability of an ideally conductive gas cylinder, the author of the present paper investigates the oscillations of a plasma with an infinite cylindrical vacuum cavity with a radius  $a$ , the axis of which is formed by a current-carrying conductor of the radius  $a_0$ .

In the state of a pressure equilibrium in the plasma, an equilibrium with respect to magnetic pressure is formed in the plasma on the boundary of the cavity at the expense of the surface current flowing on the plasma-vacuum boundary. Proceeding from the equations of magnetohydrodynamics for ideally conductive liquids,

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and with  $\vec{H} = \nabla \varphi$ ,  $\Delta \varphi = 0$  for the vacuum and the surface

boundary conditions  $\vec{n} \cdot \{\vec{H}\} = -4\pi \{p\}$ ;  $\vec{n} \cdot \{\vec{E}\} = 0$

( $\vec{n}$  = mean value of the field on the boundary,  $\vec{n}$  = unit vector vertical to the plasma surface) stability investigations are carried out. For the dispersion ratio the author obtains an expression of the form

$$\Omega^2 = \epsilon_{\text{H}}(\Omega^2, k) = \frac{2}{\mu} (k^2 - \Omega^2) \left[ h_2^2 - \frac{1}{\xi} \frac{K'_m(\xi)}{K_m(\xi)} \alpha_{\text{H}}(k) \right] \quad (3)$$

This expression is investigated for  $\Omega^2 > 0$ , at  $q^2 < 1$ , i. e.

$v_{\text{H}}^2 > v_{\text{E}}^2 = H_{22}^{02}/4\pi \rho_0$  and  $q^2 > 1$ . It is found that such a system is stable and that for  $q^2 > 1$  the waves cannot propagate

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along the cavity. The dispersion equation (8) has no solution that corresponds to sound- and Alfvén-waves in gas. There are 2 references, 1 of which is Soviet.

ASSEMBLER: Fizicheskii institut im. P. N. Lebedeva Akademii nauk SSSR  
(Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

DATE: September 2, 1956

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21(7)  
AUTHOR:

Kovrizhnykh, L. M.

SOV/56-36-6-29/66

TITLE:

On the Motion of a Plasma Loop in Axially-symmetric Magnetic Fields  
(O dvizhenii plazmennogo vitka v aksial'no simmetrichnykh magnitnykh  
polyakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36,  
Nr 6, pp 1834 - 1838 (USSR)

ABSTRACT:

Osovets (Ref 1) and Shafranov (Ref 2) already investigated the equilibrium conditions of a plasma loop with a current located in a magnetic field. The author of the present paper investigates several problems of the dynamics of plasma loops located in an inhomogeneous axially-symmetric magnetic field as well as the law of the variation with time of the large radius of the loop. The magnetic field  $\vec{H}(r, z, t)$  is described by means of its vector potential  $\vec{A} = [0, A_\varphi, 0]$ , and it is assumed that the loop axis coincides with the symmetry axis of the field and that the position of the loop may be completely determined by the  $z$ -coordinate in its center and the value of  $r$  which describes its large radius. First, the equation of motion is set up and transformed, and is discussed for the special cases  $\partial U / \partial x > 0$ ,  $\partial U / \partial x < 0$  and  $\partial U / \partial x = 0$  with  $\partial^2 U / \partial x^2 > 0$ . In the following, the problem of the reflection of the loop (the Veksler problem of the magnetic

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mirror) is investigated. Part 3 of the paper deals with problems of the stability of the loop in the high-frequency field on the assumption that the field may be represented by a harmonic function of time. For a "barrel-shaped" field problems concerning the equilibrium radius of the loop are first discussed, and the considerably simplified equations of motion are given for a special case. The conclusions resulting herefrom are briefly discussed. There are 6 Soviet references.

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SUBMITTED: December 25, 1958

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SOV/56-37-1-13/64

21(7)  
AUTHOR:

Kovrizhnykh, L. M.

TITLE:

On the Stability of a Hollow Gaseous Conductor in a Magnetic Field (Ob ustoychivosti pologo gazovogo provodnika v magnitnom pole)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1(7), pp 92-94 (USSR)

ABSTRACT:

The following circumstances were shown in a previous paper by the author: If a conductor with current of opposite direction is attached to the axis of a discharge chamber, the discharge is localized, under certain conditions, to a narrow range within the chamber, forming there a hollow thin-walled cylinder separated from the wall. It seemed that in this case the conditions required for stabilization of the discharge must be less rigorous. In this connection, the present paper deals with the stability of such a plasma layer with respect to small vibrations. The author investigates a hollow plasma cylinder with small radius  $r_2$  and with large radius  $r_3$ , which is placed in a range limited by 2 coaxial, ideally conducting

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cylinders with the radii  $r_1$  ( $r_1 < r_2$ ) and  $r_4$  ( $r_4 > r_3$ ).

The initial system of equations consists of the equations of the magnetohydrodynamics of an ideally conducting liquid, of the Maxwell equations for the field, and of the boundary conditions for the parting planes. In equilibrium, the pressure  $p_0$  of the plasma is assumed to be balanced by magnetic forces

(caused by the currents flowing on the plasma surface). This is why the plasma is homogeneous with respect to  $\varphi$  and  $z$ , the velocity is equal to zero, and only the components

$H_\varphi^0$  and  $H_z^0$  are different from zero. Within the plasma,  $H_\varphi^0$  is assumed to be equal to 0, and  $H_z^0$  is assumed to be

homogeneous everywhere. The deviations from the state of equilibrium are assumed to be small, and the equations are solved by the standard method. This produces rather an extensive dispersion relation for the determination of the

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spectrum of the frequencies of the system. The also rather extensive criterion for the stability is then indicated. Without closely investigating this stability criterion, only the conditions for the stabilization of the 2 most dangerous kinds of disturbances with  $m = 0$  and  $m = 1$  are investigated. It is assumed that there is no external metallic wall. These calculations lead to the following results: At  $\delta_2 \rightarrow 1$ , the stabilizing field, in the case of a hollow cylindrical conductor, is smaller by  $\sim (\delta_2^2 - 1)^{-1/2}$  times (at  $h_{z3} = 0$ ) and by  $\sim (\delta_2^2 - 1)^{-1}$  times (at  $h_{z3} \neq 0$ ) than the field required for the stabilization of a compact conductor. There are 4 references, 2 of which are Soviet.

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SOV/56-37-2-24/20

9(3)

AUTHOR:  
TITLE:

Kovrizhnykh, L. M.

The Influence of Non-elastic Collisions Upon the Electron Velocity Distribution

PERIODICAL:  
ABSTRACT:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 490-500 (USSR)

The author determines the velocity distribution function of the electrons in a weakly ionized plasma, considering the non-elastic collisions. The plasma is considered spatially homogeneous and the ionization so weak as to permit a neglect of the Coulomb interaction. A generalization of this method to an ionization sufficiently high as to give a considerable electron-electron interaction will be investigated in the future. First, the case is considered where the electric and magnetic field is time-independent. The kinetic equation for the steady distribution function of the electrons then is:

$$\left\{ \gamma + [\vec{v}\Omega] \right\} \partial f / \partial \vec{v} = St_a + \sum_m St_e^{(m)} + \sum_n St_i^{(n)} + St_r$$

$\gamma = e\vec{E}/m_e$ ,  $\Omega = e\vec{H}/m_e c$  holds and the terms  $St_a$ ,  $St_e^{(m)}$ ,  $St_i^{(n)}$  account for the elastic collisions of the electrons with the molecules, the excitation of the n-th level, the ionizat

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multiplied by  $n$ , and the recombination (volume recombination under high and surface recombination under low pressure), respectively. The collisions of second kind are ignored, only monoatomic molecules being considered. In the case when polyatomic molecules are considered; the excitation of the vibrational rotational levels of the molecules and the dissociation must be taken into account, which can be done in a similar way. The expression for  $St_a$  has the usual form, an approximation model being used for the non-elastic collisions. The term  $St_a$  has been introduced in order to maintain the number of particles. In the steady case this term is essential. The calculation is given step by step. An exact solution of the equations thus obtained is impossible, only an approximate one being feasible. The expressions found hold for the case of a single ionization ( $N=1$ ) and of only one excitation level. These results may, however, without difficulty be generalized to arbitrary  $N$  and  $M$ . The assumption of nonelastic collisions entails a sharp decline of the distribution function for  $u > 1$ . The mean electron energy first increases with growing electric field strength and then remains constant (from a certain value  $E=E(N_0)$ ) until values are reached where the energy taken out of the

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field is of the same order as the excitation and ionization losses. From this point onward the mean electron energy increases again. In the last section the generalization of these results (concerning the distribution function) to the case of an alternating electric field is discussed. The author expresses his gratitude to M. S. Rabinovich for the interest shown in his work. There are 1 figure and 8 references, 5 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR  
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SUBMITTED: March 7, 1959

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76984  
SOV/56-37-6-24/55

AUTHOR: Kovrizhnykh, L. M.

TITLE: Oscillations of an Electron-Ion Plasma

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,  
1959, Vol 37, Nr 6, pp 1692-1696 (USSR)

ABSTRACT: A theoretical analysis was made of the spectrum of the longitudinal oscillations of an electron-ion plasma for the case of high temperatures (Maxwell distribution). In the case of a homogeneous plasma the asymptotic form of the potential as the function of time was taken to be:

$$D(p, k) = 0 \quad (p = i\omega - \gamma), \quad (1.1)$$

where

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$$D(p, k) = 1 - ik \frac{\omega_e^2}{k^2} \int_L \frac{\partial f_0^{(e)}}{\partial \zeta} d\zeta \frac{1}{p + ik\zeta} - ik \frac{\omega_i^2}{k^2} \int_L \frac{\partial f_0^{(i)}}{\partial \zeta} \frac{d\zeta}{p + ik\zeta},$$

$$f_0^{(e, i)}(\zeta) = \frac{1}{n_{e, i}} \int_{-\infty}^{\infty} F^{(e, i)}(\mathbf{v}) d\xi d\eta \quad (d\mathbf{v} = d\xi d\eta d\zeta), \quad (1.2)$$

$$\omega_e^2 = 4\pi e^2 n_e / m_e, \quad \omega_i^2 = 4\pi e^2 Z^2 n_i / m_i;$$

Here,  $F^{(e)}(\mathbf{v})$  and  $F^{(i)}(\mathbf{v})$  - equilibrium function of ion distribution and electrons;  $n_i$  and  $n_e = Zn_i$  - corresponding densities;  $Z$  - ion charge;  $k$  - wave number;  $\omega$  - frequency;  $\gamma$  - damping decrement; counter  $L$  was selected so that the point  $\zeta = ip/k$  would always lie above the integration. In the case of the high-temperature plasma for short waves ( $ka_e \gg 1$  and  $ka_e \gg Q$ ), the oscillation frequency and the damping decrement were shown to be determined by the parameters of the ionic component of the plasma. In the region of long waves the

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spectrum of longitudinal oscillations of plasma is represented by two branches: optical and acoustical. The relative decrement of damping in optical oscillations is very small. In the case of the low-temperature plasma, the acoustical oscillations are also practically continuous. With high-temperature plasma the weakly damped acoustic waves are possible only at sufficiently high ratio of  $T_e/T_i$ . V. L. Ginzburg, M. S. Rabinovich, V. P. Silin, and A. A. Rukhadze participated in the discussion of this work. There are 6 Soviet references.

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SUBMITTED: June 19, 1959

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