L 45831-66   EWT(1)

ACC NR: AP6030582   SOURCE CODE: UR/0413/66/000/016/0064/0065

INVENTOR: Milyakh, A. N.; Shidlovskiy, A. K.

ORG: none

TITLE: Converter of single-phase to three-phase current. Class 21, No. 184965

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 64-65

TOPIC TAGS: current converter, single phase current, three phase current

ABSTRACT: The proposed converter of single-phase to three-phase current in Fig. 1 is in the form of a transformer with single-phase and three-phase current windings which produce a rotating magnetic field. To obtain a symmetrical output voltage with a symmetrical layout of phase windings having an equal quantity of loops, the axis of the single-phase winding is shifted 90 electrical degrees in relation to the axis of one of the phases of the three-phase winding. A resistance whose value is equal to that of the reciprocal induction between the rotor winding and the corresponding phase winding of the stator (their axes being coincident) is connected in each phase of the three-phase winding. The single-phase winding is

Card 1/2   UDC: 621.314.254

L 45831-66

ACC NR: AP6030582   0

connected between the power line and the terminal of one of the phases of the
three-phase winding. In a second variant, the proposed converter is equipped with
a second single-phase winding whose axis is shifted 90 electrical degrees in rela-
tion to the axis of another of the phases of the three-phase winding. It is connected
between the power line and the terminal of the second phase of the three-phase
winding. A third variant of the converter provides for a switch in the circuit of
single-phase windings. A fourth variant provides for equipping the converter with
four single-phase windings. The axes of two of them are shifted 90 electrical
degrees to one side, and the axes of the two others are shifted at the same angle
but to the opposite side in relation to the axes of the three-phase winding phases
with which they are linked. Finally, a fifth variant provides for a saturation choke
in the single-phase circuit. Orig. art. has: 1 figure. [Translation]   [DW]
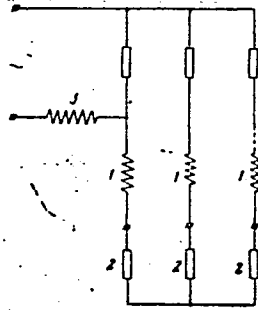
Fig. 1. Converter of single-phase into
three-phase current.
1—Three-phase winding;
2—resistances; 3—single-
phase winding

Card 2/2

SUB CODE: 09/ SUBM DATE: 02Mar62/

SHISHKIN, V.F., tekhnik; SHIDLOVSKIY, A.M., inzh.

Work practices at the "Krasnogorskaya" coal preparation plant
in Kuznetsk Basin. Obog. i brik. ugl. no.6:44-50 '58.
(MIRA 12:7)

1.Krasnogorskaya ugleobogatel'naya fabrika, Kuzbass.
(Kuznetsk Basin--Coal preparation)

RUDOV, V.M., inzh.; DIKOVSKIY, A.M., inzh.

Network of group-type secondary automatic reclosing for substations with remote control. Elek. sta. 35 no.3:87-88 Mr '64. (MIRA 17:6)

L 07135-67   EWT(d) EWP(1)   IJP(c)

ACC NR: AP7001035   SOURCE CODE: UR/0371/66/000/003/0093/0096

KAL'CHENKO, O. T., SHIDLOVSKIY, A. Ya. Institute of Civil Aviation Engineers
im. Leninskiy komsomol (Institut inzhenerov Grazhdanskoy aviatsii)

"Solution of One Problem in Nonlinear Programming"   35

Riga, Izvestiya Akademii Nauk Lat. SSR, Ser. Fiz i Tekh Nauk, No 3, 66, pp 93-96

Abstract: The article presents an approximate method for solution of the
problem of maximization of a nonlinear separable function with two-sided
limitations on the unknowns and the fixed common lower boundary of the
modulus of the difference of the unknowns. The possibility of applying this
method to some problems of air traffic control in high-density zones is
shown. Appropriate data can be stored in the operative memory of a "Ural-4"
computer. Orig. art. has: 1 figure and 3 formulas. /JPRS: 38,421/

TOPIC TAGS: nonlinear programming, air traffic control system, computer /
Ural-4 computer

SUB CODE: 12,17,09 / SUBM DATE: 02Feb66 / ORIG REF: 010

Card 1/1

SOV/80-59-1-37/44

AUTHORS: Gleym, V.G., Shelomov, I.K. and Shidlovskiy, B.R.

TITLE: On the Processes Leading to Drop Formation During Disruption of
               Bubbles on the Surface of Liquid - Gas Separation (O protsessakh,
               privodyashchikh k generatsii kapel' pri razryve puzyrey na po-
               verkhnosti razdela zhidkost'-gaz)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 218-222 (USSR)

ABSTRACT: The study of phenomena occurring between the liquid and gas
               phases in the processes of boiling and bubbling necessitated
               the consideration of the geometry of bubbles in connection with
               the problems of their stability on the separation surface and
               generation of moisture during their bursts. The authors in-
               vestigated the phenomenon theoretically and then carried out
               experiments for determination of the weight of drops in depend-
               ence on the bubble radius. The conclusions drawn are as fol-
               lows: 1. The bubble on the surface, which separates liquid
               from gas, consists of two segments, the upper of which can be
               approximately considered as a hemisphere; 2. The formation of
               drops from the surface of liquid can take place only up to a
               certain critical value of the bubble radius; 3. There are
Card 1/2   definite relations between the kinetic energy of the formed

SOV/80-59-1-37/44

On the Processes Leading to Drop Formation During Disruption of Bubbles on the
Surface of Liquid - Gas Separation

        drops, its mass, the height of its lift, and the radius of the
        bubble; 4. The formation of drops in alkaline media is ener-
        getically less probable than in neutral ones under the same
        other conditions.
        There are 4 graphs, 1 set of photos, 1 table, and 5 references,
        4 of which are Soviet and 1 English.

ASSOCIATION: Kafedra khimii Rostovskogo-na-Donu instituta inzhenerov zhelez-
               nodorozhnogo transporta (Chemistry Chair of the Rostov-na-Donu
               Institute of Railroad Transport Engineers)

SUBMITTED: July 19, 1957

Card 2/2

5(4)   SOV/80-32-5-20/52

AUTHORS: Gleym, V.G., Shelomov, I.K., Shidlovskiy, B.R.

TITLE: The Stability of Electrolyte Foam

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1046-1050 (USSR)

ABSTRACT: The present article is based on /Refs 1, 2/. The value of absorption
                of diluted solutions of electrolytes is based on Gibbs' equation in
                the form proposed by Semenchenko /Ref 3/. In the surface-inactive
                field the stability of films increases in direct proportion with the
                coefficient of surface tension. A method has been proposed by
                Shidlovskiy ensuring the generation of a single bubble at the liquid-
                gas interface at a time. The apparatus for the method is shown in
                Figure 1. The mean time of existence of the bubbles was determined
                for NaCl, Na_2SO_4, NaOH, Na_2CO_3 and $MgSO_4$. The stability of the
                bubbles increases with the concentration to a value of about 500 mg-
                equ./l. At this point the decrease of the film thickness starts,
                which has been established by Deryagin /Ref 4/. The highest stability
                is produced by substances causing an alkaline reaction of the solution,
Card 1/2   like NaOH and Na_2CO_3. This is explained by the interaction of the

The Stability of Electrolyte Foam   SOV/80-32-5-20/52

hydroxyl ions with the water molecules.
There are: 4 graphs, 2 tables, 1 diagram and 5 Soviet references.

ASSOCIATION: Kafedra khimii Rostovskogo-na-Donu instituta inzhenerov zh.-d. trans-
porta (Chair of Chemistry of the Rostov-na-Donu Institute of Engineers
of Railroad Transportation)

SUBMITTED: October 7, 1957

Card 2/2

GLEYM, V.G., doktor tekhn.nauk; SHELOMOV, I.K., inzh.; SHIDLOVSKIY, B.P., inzh.

The effect of suspended matter on the stability of elementary foam and carry-over of moisture. Teploenergetika 7 no.3: 17-20 Mr '60.   (MIRA 13:5)

1. Rostovskiy institut inzhenerov zheleznodorozhnogo transporta. (Chemical engineering) (Foam) (Bubbles)

SHIDLOVSKIY, B. R. Cand Chem Sci -- "Physicochemical processes on the surface of phase separation under boiling and bubbling." Novocherkassk, 1960. (Min of Higher Education USSR. Inst of Elementary Organic Compounds) (KL, 1-61, 184)

GLEYM, V.G.; SHIDLOVSKIY, B.R.

Conditions for minimum drop entrainment in boiling and
bubbling. Zhur.prikl.khim. 35 no.7:1533-1537 Jl '62.
(MIRA 15:8)

1. Kafedra khimii Rostovskogo-na-Donu instituta inzhenerov
zheleznodorozhnogo transporta.
(Ebullition)

GLEYM, V.G., prof., doktor tekhn. nauk; SHIDLOVSKIY, B.R., assistent;
    AVER'YANOVA, L.N., kand. khim. nauk; GOLOVANOVA, T.G., assistent;
    DYSKINA, Ye.G.

    Iron corrosion in boiler waters with increased alkalinity.
    Trudy RIIZHT no.28:120-138 '59.   (MIRA 16:7)

            (Boilers--Corrosion)

ACCESSION NR: AP4010492   S/0080/64/037/001/0209/0211

AUTHORS: Gleym, V.G.; Shidlovskiy, B.R.; Ryabinina, G.B.

TITLE: Elementary foam at elevated pressures

SOURCE: Zhurnal prikladnoy khimii, v.37, no.1, 1964, 209-211

TOPIC TAGS: Foam, pressure effect, bubble dimensions, vapor loss,
             moisture loss

ABSTRACT: The change in the geometrical dimensions of bubbles with
change in pressure is one of the factors in determining the time that
a gas or vapor bubble (the elementary foam unit) exists at the surface
of a liquid. Studies at 1 and 7 atmospheres pressures show that the
length of time a bubble exists is independent of the pressure, de-
creases with decrease in its dimensions, and increases with contami-
nation of the solution (colloidal Fe or Cr compounds); bubble dimen-
sions are an inverse function of the pressure at which they are
formed. For air bubbles on a glycerin surface the following relation-
ship exists: $r = \dfrac{10.66}{P}$, where r is the radius of the bubble in mm.,

Card 1/3

ACCESSION NR: AP4010492

and P is the pressure in atm. The bubble radius--pressure curve is shown in Fig.1. This information can be useful in calculating moisture loss with vapors of high and ultra-high parameters. Orig. art. has: 3 figures and 2 equations.

ASSOCIATION: None

SUBMITTED: 20Jun62   DATE ACQ: 14Feb64   ENCL: 01

SUB CODE: PH   NR REF SOV: 003   OTHER: 000

Card 2/3

KUSHNIR, F.V.; SHIDLOVSKIY, I.A.

      Exciter for the frequency-modulated ultrashortwave transmitter.
      Elektrosviaz' 10 no.2:22-25 F '56.   (MLRA 9:6)
      (Radio, Shortwave--Transmitters and transmission)

SHIDLOVSKIY, M. F.; FEIVE, V. V.; FOLLKARTOV, I. I.; BERG, A. I..; ...., ...;
OBRENSKIY, V. Ye.; VENETSIANOV, Ye. A.; MOVSESOV, N. S., and BELIBASH, B. A.;

"The Case for Explosion-proof Electrical Equipment in the Oil and Gas Industries."

report presented at the All-Union Scientific and Technical Conference on the
Electrical Equipment in Buildings and Outside Installations Liable to Explo-
sions, 14-19 April 1958, Stalino.
(Energet. Byulleten', 1958, No. 7, pp 29-33).

SHIDLOVSKIY, M. K.

U S S R :

Measurement of electromotive force of high-voltage polarization in amorphous selenium.—M. K. Shidlovskii. Zhur. Tekh. Fiz. 23, 1355-60(1953).—Measurements were made in the voltage range 10-6000 v. and at temps. —35 to 50° on 40 different samples of amorphous Se. The sp. resistance was 10^{12}–10^{14} ohm cm. The ratio of polarization voltage/applied voltage decreased with increasing voltage and temp. The e.m.f. should be zero at 60°. S. P.

Effect of strong electric fields and temperature on the electroconductivity of amorphous selenium. M. K. Shidlovskii. *Uchenye Zapiski Beloruss. Univ.* 1954, No. 19, 122–44; *Referat. Zhur., Fiz.* 1955, No. 19410; cf. *C.A.* 49, 9981b.—With the aid of an electrometric circuit the electrocond. of chemically pure amorphous Se was measured. Measurements were made for field strengths (E) 200–180,000 v./cm. and temps. −35, −20, 0, 20, and 60°. Specimens had the form of a disk with a diam. of 30 mm. and thicknesses of 0.2–1 mm. Specific resistance (ρ) of the specimens was $\sim 10^{11}$–10^{14} ohm cm. In the measurements the decrease of current was observed with time, induced by the reduction of the vol. charges (high-voltage polarization). E.m.f. of high voltage polarization has been taken into account with 6% accuracy. The dependence of ρ calcd. according to the current which was set up taking into account the e.m.f. of high-voltage polarization, or according to the initial current from the field strength, is expressed well by the formula of Frenkel: $\rho = \rho_0 \exp(-a\sqrt{E})$ in fields up to 100–120 kv./cm. However, the experimentally defined value of the coeff. a differs from the theoretically defined. Temp. dependence of the electrocond. can be represented by the formula $\sigma = \sigma \exp(-W/2kT)$. The work of dissocn. of the carrier of the current W decreases with the increase of E from 0.666 to 0.315 e.v. on measurements taking into account the e.m.f. of high-voltage polarization. The reduction of the work of dissocn. is attributed to the effect of strong fields which reduce the potential barrier and facilitate the removal of the electrons from the atoms. True resistance of amorphous Se should be figured according to the residual current with calcn. of the e.m.f. of high-voltage polarization.　　J. Rovtar/Leach

USSR/Electronics - Conductivity of selenium

FD-568

Card 1/1   : Pub. 153 - 8/28

Author   : Shidlovskiy, M. K.

Title   : Electrical conductivity of amorphous selenium in strong electrical
                   fields

Periodical   : Zhur tekh. fiz. 24, 837-844, May 1954

Abstract   : Presents results of measurements on the electrical conductivity
                   of amorphous selenium for field strength from 200 to 180,000
                   v/cm and at temperatures from - 35 to 50°C. Establishes that
                   the dependence of the conductivity, as computed for a steady current
                   taking into account the emf of the high-voltage polarization or for
                   an initial current (for 0.001 sec.), upon the field strength agrees
                   well with the Frankel formula in fields up to 100-120 kc/cm.
                   Thanks Prof. D. N. Nasledov, who proposed this subject and offered
                   advice.

1643   SHIDLOVSKIY, M. V. . Gryzuny Adzharii (Ekol.- faunist. ocherk)
         Trudy Zool. in-ta (Akad nauk Gruz SSR) t. VIII, 1949, s. 187-223.-
         Rezyume na gruz yaz. - Bibliogr: s. 223.

         SO: Letopis Zhurnal'nykh Statey, No. 29, Moskva, 1949

SHIDLOVSKIY, M.V.

Rodents of South Ossetia. Trudy Zool.inst. AN Gruz.SSR 10:187-222
'51.   (MLRA 7:7)
        (Ossetia--Rodentia) (Rodentia--Ossetia)

SHIDLOVSKIY, M.V.

The musk-shrew Crocidura russula Herm. among the shrews of Georgia.
Trudy Zool inst.AN Gruz.SSR 11:215-228 '53.   (MLRA 9:7)
                    (Georgia--Shrews)

SHIDLOVSKIY,M.V.

Systematics and occurrence of the dormouse glis glis in
Georgia. Trudy Zool.inst.AN Gruz.SSR 13:47-61 '54.
   (Georgia--Dormouse)   (MIRA 8:8)

SHIDLOVSKIŶM.V.

Gerbil family (Rodentia, Gerbilidae) among the rodent fauna
of Georgia. Trudy Zool.inst.AN Gruz.SSR 13:63-69 '54.
            (Georgia--Gerbils)   (MLRA 8:8)

SHIDLOVSKIY,M.V.

    Plan for changing to a preventive system of field rodent control.
    Trudy probl. i tem.sov. no.5:76-77 '55.   (MIRA 8:12)

    1. Institut zoologii Akademii nauk Gruz.SSR.
                     (Rodent control)

SHIDLOVSKIY, M.V.

Systematics and distribution of the forest dormouse (Dryomys nitedula
Pall) in Georgia. Trudy Inst.zool.AN Azerb.SSR 14:249-259 '56.
(Georgia--Dormouse)   (MLRA 9:9)

SHIDLOVSKIY, M.V.

The small mammals of Klukhori District. Trudy Inst. zool. AN Gruz.
SSR 16:209-224 '58.   (MIRA 11:12)
               (Karachayevsk District--Mammals)

VEKUA, A.K.; SHIDLOVSKIY, M.V.

First finding of pika (Ochotona) in the Paleolithic of the Caucasus.
Soob. AN Gruz.SSR 21   no.3:285-288 S '58.   (MIRA 12:4)

1. AN GruzSSR, Institut paleobiologii, Tbilisi. Predstavleno akade-
mikom L.Sh. Davitashvili.
          (Marneuli District--Pikas, Fossil)

SHIDLOVSKIY, Mikhail Vikent'yevich, kand. biol. nauk; KOBAKHIDZE, D.N.,
     red.; KVARIANI, E.A., red. izd-va; TODUA, A.R., tekhn. red.

     [Classification key of the rodents of Transcaucasia]Opredeli-
     tel' gryzunov Zakavkaz'ia. Tbilisi, Izd-vo Akad. nauk Gruzin-
     skoi SSR, 1962. 171 p.   (MIRA 15:11)

     1. Institut zoologii Akademii nauk Gruzinskoy SSR (for
     Shidlovskiy).
                    (Transcaucasia—Rodentia)

SHIDLEVSKIY, P. G.   PA 5479

USSR/Academy of Sciences   May 1947

"The Economic System in the Academy of Sciences USSR,"
P. G. Shidlovskiy, 5½ pp

"Vest Akad Nauk SSSR" No 5

Reports 1947 budget for scientific and research fields
increased 1½ billion rubles over 1946, a three-fold
increase over 1940. Discusses assignment of budget to
Academy of Sciences. Work of Academy receives prior-
ity with regard to appropriations; nevertheless, Acad-
emy must practice economy while stimulating develop-
ment of Soviet resources.

5479

DRAZHIN, S.V.;. SHIDLOVSKIY, P.R,

    Public health system in Brest Province for twnty years, Zdrav.
    Belor. 6 no.3:11-13 Mr '60.   (MIRA 13:5)
               (BREST PROVINCE--PUBLIC HEALTH)

DRAZHIN, S.V.; SHIDLOVSKIY, P.R.

January resoultion of the party and government in action. Zdrav.
Bel. 7 no.9:12-15 S '61.   (MIRA 14:10)

1. Iz Brestskogo oblastnogo otdela zdravookhraneniya (zaveduyushchiy
S.V.Drazhin) i Brestskoy oblastnoy bol'nitsy (glavnyy vrach -
zasluzhennyy vrach BSSR V.G.Tishchenko).
                    (BREST PROVINCE--PUBLIC HEALTH)

SHIDLOVSKIY, R.P.

PHASE I BOOK EXPLOITATION   SOV/3671

Akademiya nauk SSSR.   Institut elektronnykh upravlyayushchikh mashin

Tsifrovaya tekhnika i vychislitel'nyye ustroystva; [Sbornik]
(Digital Technique and Computing Devices; Collection of Articles)
Moscow, Izd-vo AN SSSR, 1959. 184 p. Errata slip inserted.
4,000 copies printed.

Ed.: N.S. Bruk, Corresponding Member, USSR Academy of Sciences;
Ed. of Publishing House: G.Yu. Shteynbok; Tech. Ed.: V.V.
Volukhova.

PURPOSE: This collection of articles is intended for persons
specializing in computer technique.

COVERAGE: Most of the work in this first issue of the Collection
of Articles of the Institute of Electronic Control Machines of
the Academy of Sciences, USSR, was carried out during 1958-1959,
and was dedicated to digital technique. The Institute conduc-
ted studies aimed at creating a high-speed memory device of large
capacity. One of the results of this work was improvement of the
M-2 computer by replacing its static storage device with ferrite
memory cores. Other articles concern the use of transistors in
digital computers, stability of analog computers equipped with
d-c operational amplifiers, and the use of the M-2 computer
in solving various problems. Future issues of this collection
of articles will present the results of work in digital tech-
nique in mathematical investigations, and in control machines and
systems of control which operate on the principle of digital
technique. Some personalities are mentioned in the articles.
References accompany some of the articles.

Olukhov, Yu.N., V.I. Zolotarevskiy, M.A. Kartsev, V.P. Konstantinov,
and R.P. Shidlovskiy. Ferrite Memory Device With 4096 Digital
memory device. It has a 4096 word capacity, each word consisting
of 36 binary bits, two of which are reserve. The access time is
about 30 microsec; part of this cycle overlaps other computer
operations. This memory unit is equipped with 526 electron tubes
and 103 additional tubes are used in the power supply. These
specifications constitute a great improvement over the previous
memory device, in which the operational electrostatic storage and
the reserve magnetic drum storage had a capacity of 512 binary
34-bit words each, and in which access time was from 37.5 to 50 or
more microsec. It was equipped with 64 electron tubes and
150 additional tubes were used in the power supply. The new
ferrite core memory device was developed, executed, and adjusted
at the Institute under the general direction of I.S. Bruk,
Corresponding Member of the Academy of Sciences, USSR. Prelimi-
nary studies were made in 1955-1956 under the direction of
O.V. Rosnitskiy. The essential part of the work was done under
the supervision of M.A. Kartsev by engineers T.M. Aleksandridi,
V.B. Borok, Yu.N. Olukhov, V.I. Zolotarevskiy, L.V. Ivanov,
V.P. Konstantinov, Ye.N. Filinov, and R.P. Shidlovskiy; and
technicians I.I. Galiyanova, N.S. Zhdanov, V.M. Minayev, M.Ya.
Matanzon, Z.N. Sidyakova and V.S. Sokolov. The construction
group was under the supervision of A.N. Patrikeyev, and the
assembly shop was under the supervision of A.D. Orechushkin and
the mechanical shop of the Institute.

Ivanov, L.V. and Ye.N. Filinov. Checking Installation Used in the   28
Production and Adjustment of Ferrite Memory Device
The following checking operations, which are considered indis-
pensable, were carried out during production of the ferrite
core memory device: selection of the cores according to es-
tablished requirements; testing the finished matrix frame;
and checking the whole memory device. There is very little
reference literature concerning the methods and equipment for
carrying out such work, and the article was written from material
acquired in developing such checking arrangements. This work
was done at the Institute, and the following persons, in addition
to the authors of this article, participated in it: V.P. Kon-
stantinov, M.Ya. Matanzon and V.S. Sokolov. There are two
references, both Soviet.

Chernov, A.N. Utilization of a Dynamic Trigger Equipped With a   42
Junction Transistor in Arithmetic Device Circuits
The author briefly describes the results of his investigation
of possibilities of developing a dynamic trigger equipped with
a junction transistor and utilizing capacitance as its memory
device. He concludes that such triggers can be applied in logical
circuits and that their main advantage over static triggers is
their use of only one transistor instead of two. Their main
disadvantage is their low input resistance.

S/799/62/000/003/005/008

AUTHORS: Kaminskiy, V.N., Shidlovskiy, R.P.

TITLE: Constant memory equipments for specialized machines.

SOURCE: Akademiya nauk SSSR. Institut elektronnykh upravlyayushchikh mashin. Tsifrovaya tekhnika i vychislitel'nyye ustroystva. no.3. 1962, 40-49.

TEXT: The paper describes two types of memory with a constant composition of the information. Both types are memory equipments with ferrite cores with a rectangular hysteresis loop. The capacity of the one type is 1,280 30-digit numbers, that of the other 1,088 12-digit numbers. The maximal times of revolution amount to 25 and 15 μsec, respectively. All fundamental networks employ semiconductor diodes and triodes. It is noted that memory equipment with a constant composition of information permits the dependable storage and reproduction of information recorded therein. Information recorded in such memory equipment is not lost during random skips in the operation, either by the memory equipment or in the machine as a whole. This valuable quality opens broad perspectives for their utilization in specialized digital control machines that operate with real objects according to fixed programs. In comparison with other types of memory equipments employing ferrites of the same memory capacity, such memory equipments are significantly simpler and

Card 1/2

Constant memory equipments for specialized machines. S/799/62/000/003/005/008

contain a smaller number of hardware items. For identical memory capacities the first memory equipment described here requires for its construction a smaller number of cores and other accessories than the second. However, it cannot match the latter with respect to the time of revolution for a complete cycle. An optimal relationship between the number of addresses and numerical blocks in the memory matrix is determined in each specific case from the programming conditions, the required time of revolution for a full and average cycle, and by the practical possibility of the construction of the required commutators. Illustrations comprise the block schemes of the memory matrices of the two types of memory, the fundamental principles of operation of the memory cores, the fundamental scheme of a typical switching unit of the address commutator, a schematic network of the magnetization current generator, a schematic network of the read-out amplifier, and a time diagram of the operation of the two types. There are 10 figures.

Card 2/2

SHIDLOVSKIY, V. A.

"Microphysiological Study of Peculiarities of Secretion of Calcium Ions in the Heart in Irritation of Sympathetic Nerves," Dokl. AN SSSR, 59, No.1, 1948

Lab. Comparative Physiol., Moscow State U.

SHIDLOVSKIY, V. A.

Shidlovskiy, V. A. - "On the properties of the parasympathetic regulation of the heart in bony fish", Trudy Darvinskogo gos. zapovednika na Rybin. vodokhranilishche, Issue 1, 1949, p. 326-33.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

SHIDLOVSKIY, V. A.

Shidlovskiy, V. A. - "The Gol'ts reflex in bony fish", Trudy Darvinskogo gos. zapovednika na Rybin. vodokhranilishche, Issue 1, 1949, p. 334-35.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

SHIDLOVSKIY, V.A.; KOVALEVA, N.T.; VADKOVSKAYA, Yu.D.

Influence of the limitation of sleep and of emotional stress on
arterial pressure and the amount of adrenergic substances in the
blood of animals. Gip.bol. no.5:83-97 '58.   (MIRA 13:5)
     (SLEEP)   (STRESS (PHYSIOLOGY))   (BLOOD PRESSURE)

BULYGIN, I.A., red.; ZAKUSOV, V.V., red.; KAPLANSKIY, S.Ya., red.; MUZY-
    KANTOV, V.A., red.; TURPAYEV, T.M., red.; CHERKASOVA, L.S., red.;
    CHERNIGOVSKIY, V.N., red.; SHADURSKIY, K.S., red.; SHIDLOVSKIY,
    V.A., red.; SHIK, L.L., red.; MUZYKANTOV, V.A., red.; BELEN'KAYA,
    I.Ye., tekhn. red.

[Summaries of reports] Tezisy dokladov. Moskva, Izd-vo Akad. nauk
SSSR. Vol.1. [Abstracts of reports in section meetings; physiology]
Tezisy dokladov na sektsionnykh zasedaniiakh; fiziologiia. 1959. 432 p.
                                                (MIRA 14:11)

1. Vsesoyuznoye obshchestvo fiziologov, biokhimikov i farmakologov.
9. s"yezd. 2. Kafedra fiziologii Moskovskogo meditsinskogo instituta
im. I.M.Sechenova (for Shidlovskiy).
                (PHYSIOLOGICAL SOCIETIES)

SHIDLOVSKIY, V. A. (Moskva)

O vyrazhenii ((Faktora budushchego)) v vegetativnykh komponentakh
uslovnogo refleksa

report submitted for the First Moscow Conference on Reticular Formation,
Moscow, 22-26 March 1960.

SHIDLOVSKIY, V.A.

Some characteristics of the change in arterial pulse pressure in conditioned food and defense reflexes; the problem of the vegetative components of conditioned reflexes. Trudy 1-go MMI 11:375-383 '61. (MIRA 15:5)

1. Kafedra normal'noy fiziologii (zav. - prof. P.K.Anokhin) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.
        (CONDITIONED RESPONSE)   (BLOOD PRESSURE)

SHIDLOVSKIY, V.A.

"On the expression of a "factor of future" in the vegetative
components of a conditioed reflex."

Report submitted, but not presented at the 22nd International
Congress of Physiological Sciences.
Leiden, the Netherlands   10-17 Sep 1962

SHIDLOVSKIY, V.I., slesar'-remontnik

    From practices of efficiency promoters. Tekst.prom.22 no.3:62-63
    Mr '62.   (MIRA 15:3)

    1. Sumskaya sukonnaya fabrika "Krasnyy tekstil'shchik."
            (Looms—Maintenance and repair)

SHIDLOVSKIY, V. P.

3745. Shidlovskiĭ, V. P., Gas and fluid ejector pomp design (in Russian), Izv. Akad. Nauk SSSR Otd. tekh. Nauk no. 10, 119-123, Oct. 1954.

In short mixing chambers (length < 10 to 15 diameters) the temperature of the ejected fluid can be supposed as constant along the whole length if the velocity of the ejecting gas is high. Momentum and energy relations and the equation of continuity yield an expression for the exit velocity which reaches its maximum value under certain critical conditions, as in the case of pure gas ejector. Neglecting the ratio of the densities of gas and fluid against unity, many expressions for critical quantities assume a simple form. Two diagrams show the relation between the total pressure of the entering air and the total (stagnation) pressure of the leaving mixture under critical conditions for pressures of 10 and 50 atm (142 and 711 psi, respectively) of the entering petroleum. Exact calculations show that neglected terms give differences in the third or fourth figure only. Critical parameters of the mixture depend mainly on the state of gas at the exit end of the mixing chamber, and so the results can be applied approximatively also to the ejection of fine powder by gas. Author points out that, owing to some simplifying assumptions, the developed expressions should be taken as qualitative indications only, which should be verified by experiment.   A. Kuhelj, Yugoslavia

Mechanic Inst, AS USSR

SHIDLOVSKIY, V.P.

24-58-3-29/38

AUTHOR· Shidlovskiy, V.P. (Moscow)

TITLE: Approximate Method of Analysis of the Gas Flow around a
          Flat Half-Airfoil at   Large Mach Numbers (Priblizhennyy
          metod rascheta obtekaniya ploskogo poluprofilya gazovym
          potokom pri bol'shikh chislakh Makha)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
          Nauk, 1958, Nr 3, pp 156-162 (USSR)

ABSTRACT: The supersonic flow around a sharp nosed half-profile at
          zero incidence in an ideal gas is considered. The motion
          proceeds without friction or heat transfer, but is accom-
          panied by changes of entropy owing to shock waves. The
          relative profile thickness and the Mach number are assumed
          such that their squares compared with unity are very small
          or very large, respectively. The simplified equation of
          gas motion as proposed by Sears, W.R. ("General Theory of
          High Speed Aerodynamics", Princeton, 1954). The solutions
          adopted in the present paper are distinguished by a simpli-
          fied substitution (Eq.(7)) assumed for the entropy function
          (defined as the pressure raised to the power of the recipro-
          cal specific heat ratio and divided by the density). This

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24-53-3-29/38

Approximate Method of Analysis of the Gas Flow around a Flat
Half-Airfoil at Large Mach Numbers

       substitution makes the square root of the entropy function
into the quotient of a pure pressure function and a pure
volume function. To determine both functions, the boundary
conditions at the shock wave are used. These conditions
(Eq.10) are the transformed Rankine-Hugoniot conditions. A
comparison is given between the method here presented and
the methods of expansion shock (e.g. Mahoney, "Critique of
Shock-Expansion Theory". Journal of Aeronautical Sciences,
1955, Nr 10)(Ref.6). It is claimed that very close agree-
ment is achieved at considerably less labour for a flow of
a half-profile of 10% thickness at a Mach number of 5.
There are 5 figures, including 4 graphs, 1 table, and 4 Soviet
references, 2 English.

SUBMITTED: November 26, 1956.

Card 2/2   1. Airfoils--Supersonic flow   2. Gases--Application   3. Mathe-
         matical analysis

AUTHOR: Shidlovskiy, V.P.   (Moscow)

TITLE: On the Calculation of Slipping in the Flow of a Viscous
          Gas Over a Semi-infinite Plane Plate (Ob uchete skol'-
          zheniya pri obtekanii polubeskonechnoy ploskoy plastiny
          potokom vyazkogo gaza)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
              Nauk, 1958, Nr 9, pp 83 - 90 (USSR)

ABSTRACT: In boundary layer theory there is known the classical
            solution for the problem of the plane parallel flow of a
            viscous fluid at constant velocity over an infintely long
            plate. A similar solution can be obtained for gaseous
            flow but this becomes unsuitable near the leading edge of
            the plate because discontinuities in the velocity and
            temperature at the surface become more appreciable. The
            region of slipping is comparable in dimension with the
            molecular mean free path and if the pressure p_∞ in the
            incident flow is sufficiently large then this region does
            not significantly affect the flow but if the pressure is
            lowered the part played by the region in slipping increases
            strongly. In this paper, such a region of flow is discussed
            in which the thickness δ of the boundary layer is less

Card1/3

SOV/24-58-9-11/31

On the Calculation of Slipping in the Flow of a Viscous Gas Over
a Semi-infinite Plane Plate

than the molecular mean free path l and the ratio l/δ
cannot be neglected. A solution is constructed which
is valid in this region and permits the evaluation of
the influence of slipping on the characteristics of the
flow. It is assumed that the gas is ideal but the
Prandtl number $P = 1$ and the coefficient of dynamic
viscosity is proportional to the absolute temperature.
Solutions are constructed for the cases of no heat
transfer at the surface. and for constant temperature on
the surface. For the first problem. a large velocity
of slipping leads to a weak variation in the temperature
of the plate and the friction factor is virtually
unchanged. The relative velocity of slipping increases
with the Mach number of the incidence of flow. In the
second problem, the temperature of the gas near the
surface and the velocity of slipping depends not only on
the Mach number but also on the relative temperature of
the plate. The influence of the velocity of slipping
is less significant when the temperature of the plate is

Card2/3

SOV/24-58-9-11/31

On the Calculation of Slipping in the Flow of a Viscous Gas Over
a Semi-infinite Plane Plate

   less than that of the gas than when it is greater. The
   friction factor at the surface to the accuracy of the
   calculations remains unchanged. There are 2 figures and
   6 references, 5 of which are Soviet and 1 English.

SUBMITTED: April 30, 1958

Card 3/3

16.7000

SOV/40-24-1-24/28

AUTHOR: Shidlovskiy, V. P. (Moscow)

TITLE: Laminar Boundary Layer for an Infinite Disc Rotating
              in a Gas

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol 24,
              Nr 1, pp 161-164 (USSR)

ABSTRACT: Karman's problem (ZAMM, 1921, Vol 1, p 235) of an
              infinite disc (plate) rotating with constant angular
              speed ω in a viscous incompressible fluid with a lami-
              nar boundary layer flow is one case in which the Navier-
              Stokes equations have been solved exactly. The flow
              of heat in a fluid when the temperature on the surface
              of the disc is constant has been solved by Millsaps and
              Pohlhausen (J. of Aero. Sci., 1952, Vol 19, Nr 2). In.
              this paper, the author shows how the solution of the
              analogous gasdynamical problem can be reduced to these
              two problems. The gas is assumed to be perfect, the
Card 1/3   flow to be steady and independent of θ (the z-axis is

Laminar Boundary Layer for an Infinite
Disc Rotating in a Gas

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SOV/40-24-1-24/28

directed along the axis of rotation) and that the
so-called 'second coefficient of viscosity' is a
constant multiple of the basic coefficient of vis-
cosity μ . There is no influx of heat from without and
internal forces are neglected. The boundary conditions
for the temperature T and velocity components u_r and

u_θ are: $T(r, 0, 0) = T_w,$ $u_r(r, 0, 0) = 0,$ $u_\theta(r, 0, 0) = r\omega,$ $u_z(r, 0, 0) = 0$ (1.1)

$T(r, 0, \infty) = T_\infty,$ $u_r(r, 0, \infty) = 0,$ $u_\theta(r, 0, \infty) = 0,$

It is also assumed that the Prandtl number $\sigma = \mu c_p / \lambda$
is constant and that $\mu/\mu_\infty = (T/T_\infty)^n$. Using
dimensionless variables, the author writes an equation
of continuity, three equations of motion, an energy
equation, and an equation of state. This involves the
fundamental dimensionless quantity:

$$K = c_p T_\infty v_\infty^{-1} \omega^{-1} \qquad (2.8)$$

which is related to the Reynolds and Mach numbers by:

$$K = \frac{1}{x-1} R_\infty(r) M_\infty^{-2}(r)$$

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Laminar Boundary Layer for an Infinite   77996
Disc Rotating in a Gas   SOV/40-24-1-24/28

The boundary layer equations are obtained from the men-
tioned equations by letting $K \longrightarrow \infty$. Under certain
additional assumptions (e.g., n=1) and manipulations,
the author then reduces the system of equations for
$K \longrightarrow \infty$ to those of Karman, and Millsaps and Pohl-
hausen. For $\sigma = .72$, it is shown that the stress on
the surface of the disc is:

$$ C_M = -\frac{2}{\rho_\infty^2 r_0^2 \omega^2 \pi r_0^2} \int_0^{r_0} 2\pi r^2 \tau_{z0}\, dr = -\frac{G'(0)}{\sqrt{R_\infty (r_0)}} = \frac{0.616}{\sqrt{R_\infty (r_0)}} \qquad (4.2) $$

where G' is related to the dimensionless form of τ_θ.
The force moment coefficient for one side of a disc of

radius r_0 is found to be $C_M = .616/\sqrt{R_\infty (r_0)}$. Also cited
are formulas characterizing the heat flow. The
author notes the similarity of these results to the
corresponding formulas for an incompressible fluid.
There are 5 references, 1 German, 2 U.S., and 2 Soviet.

SUBMITTED: November 4, 1959

Card 3/3

SHIDLOVSKIY, V.P. (Moskva)

Motion of a viscous gas caused by the rotation of a disk.
PMTF no.1:10-16 Ja-F '61.   (MIRA 14:6)
(Gas flow) (Disks, Rotating)

31243
S/207/61/000/005/002/015
D237/D303

24.7120

AUTHOR: Shidlovskiy, V.P. (Moscow)

TITLE: Some problems of motion of a conducting viscous gas
            in the presence of electric and magnetic fields

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki,
            no. 5, 1961, 10 - 15

TEXT: The author considers here a stationary laminar flow of gas
between two infinitely long coaxial cylinders, rotating with angu-
lar velocities ω_0 and ω_1 in presence of electric and magnetic fields.
Two cases are considered: First - radial electric field $\underline{E}$ and axial
magnetic field $\underline{H}$; second - axial $\underline{E}$ and circular $\underline{H}$, the latter being
parallel to the flow velocity vector. It is assumed that flow and
field parameters are only r - dependent, and that viscosity of gas
μ and its electrical conductivity σ are both power functions of
the heat content i. Also, $p/\rho = f(i)$. The initial equations are

$$\rho(u\cdot\nabla)u - \mu_e(H\cdot\nabla)H = -\nabla\left(p + \frac{1}{2}\mu_e H^2\right) + \Delta\tau_{jk} \qquad (1.1)$$

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Some problems of motion of a ...

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S/207/61/000/005/002/015
D237/D303

$$\rho(u \cdot \nabla)i = (u \cdot \nabla)p + \frac{1}{P}\nabla(\mu\nabla i) + \tau_{jk}\nabla u + (\nabla \times H)\left(\frac{\triangle \times H}{\sigma} - \mu_e u \times H\right) \ (1.1)$$

$$\nabla \times (u \times H) - \nabla \times \left[\frac{1}{\mu_e \sigma}(\nabla \times H)\right] = 0, \quad \nabla(\rho u) = 0, \quad p = \rho f(i)$$ (1.1)

$$(\mu_e = \text{const}, \quad P = \text{const})$$

where $\underline{u}$ = flow velocity vector, μ_e – magnetic permeability coeffi-
cient, τ_{jk} – viscous stress tensor, P – Prandtl no. Using cylin-
drical coordinates, the author obtains for the case $H \equiv H_z$, first
integrals

$$\mu r^3 \frac{d\omega}{dr} = a, \qquad \frac{r}{\sigma}\frac{dH}{dr} = b \quad (a, b, - \text{const})$$ (2.4)

$$r\mu \frac{di}{dr} + aPN^2\omega + bP \frac{N^2}{M_m^2} \frac{R_h}{R_m} H = d$$ (2.5)

and $\mu = i^n, \qquad \sigma = i^m$ (2.6)

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Some problems of motion of a ...

with $t = \ln r$, $y = i^{n+1}$, gives

$$\frac{d^2 y}{dt^2} + A^2 y^{-\frac{n}{n+1}} e^{-2t} + B^2 y^{\frac{m}{n+1}} = 0 \qquad (2.7)$$

$$A^2 = a^2 P (n+1) N^2, \qquad B^2 = b^2 P (n+1) \frac{N^2}{M_m^2} \frac{R_h}{R_m}$$

With $y(t)$ determined, Eq. (2.4) on integration gives $\omega(t)$ and $H(t)$ is found similarly, and a and b are found by successive approximations. For $H \equiv H_\Theta$, first integrals are

$$\mu r^3 \frac{d\omega}{dr} = a', \qquad \frac{1}{r^3} \frac{d(rH)}{dr} = b' \qquad (3.4)$$

$$r\mu \frac{di}{dr} + a' P N^2 \omega + b' P \frac{N^2}{M_m^2} \frac{R_h}{R_m} r H = d' \qquad (3.5)$$

which with Eq. (2.6) give

$$\frac{d^2 y}{dt^2} + A'^2 y^{-\frac{n}{n+1}} e^{-2t} + B'^2 y^{\frac{m}{n+1}} e^{2t} = 0 \qquad (3.6)$$

$$A'^2 = a'^2 P (n+1) N^2, \qquad B'^2 = b'^2 P (n+1) \frac{N^2}{M_m^2} \frac{R_h}{R_m}$$

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Some problems of motion of a ...

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If $\varepsilon = M_m^2 R_m/R_h$ is small, in Eqs. (2.7) and (3.6) $A = A' = 0$. If in addition $m = n + 1$, then

$$y = C_1 \sin Bt + C_2 \cos Bt \qquad (4.1)$$

is a solution of Eq. (2.7). In case of $H \equiv H_\theta$, the above simplifications result in Bessel's equation of zero order. A numerical example is solved and discussed. There are 5 figures and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: C.R. Illingworth, Some solutions of the equations of flow of a viscous compressible fluid. Proceedings of the Cambridge Phil. Soc., 1950, v. 46, 469 - 478.

SUBMITTED: May 16, 1961

Card 4/4

SHIDLOVSKIY, V.P. (Moskva)

Effect of slipping on the behaviour of laminar boundary layer in a
hypersonic flow. Inzh.zhur. 1 no.2:52-59 '61.   (MIRA 14:12)

1. Institut mekhaniki AN SSSR.
            (Boundary layer) (Aerodynamics, Hypersonic)

LOYTSYANSKIY, Lev Gerasimovich; SHIDLOVSKIY, V.P., red.; MURASHOVA,
    N.Ya., tekhn. red.

    [The laminary boundary layer]Laminarnyi pogranichnyi sloi. Mo-
    skva, Gos. izd-vo fiziko-matem. lit-ry, 1962. 479 p.
                                                    (MIRA 16:1)
                    (Boundary layer)

/C. /4/C

AUTHOR: Shidlovskiy, V.P. (Moscow)

TITLE: On the problem of the supersonic flow round a sphere
             of a slightly rarefied gas

TEXT: The Navier-Stokes equations are used to describe the
motion of the gas in the layer between the sphere and the shock
wave (assumed to be virtually spherical in shape).   The motion
is assumed to be steady and axisymmetric.   The case of a large
temperature drop through the viscous layer is considered.   The
viscosity is related to the heat capacity by a power law, in
which the exponent varies from unity near the surface of the
sphere to 1/2 on the shock wave.   The boundary conditions on the
surface of the sphere are given in the usual form and the
conditions on the outer boundary coincide with those on the shock
wave taking into account the effect of viscosity and heat
Card 1/2

On the problem of the supersonic ...

S/179/62/000/002/003/012
E031/E435

conductivity. A method of solution is proposed in which it is
not necessary to assume either that the density is constant or that
the polar angle is very small.   In this treatment the Knudsen
number K is of the order 0.1 to 0.01 and the Mach number of
the incident flow is of the order of 1/K.   The surface of the
sphere is assumed to be cooled.   The solution is only valid for
small values of $\varepsilon = (\varkappa - 1)/(\varkappa + 1)$.   It is acknowledged that
there is a danger in the present method that the shock wave cannot
be considered as a discrete surface of discontinuity.   The
equations are first solved for the pressure and the heat capacity
and then in turn the density and the drag and heat transfer
coefficient at the surface of the sphere are determined.   The
fundamental similarity parameter of the flow is $\varkappa M_{\infty}^{2}/R_{\infty}$.
There are 4 figures.

SUBMITTED: December 7, 1961

Card 2/2

R/008/62/013/003/005/006
D272/D308

44,2120.
2470000

AUTHOR: Shidlovskiy, V.P.

TITLE: Motion of an electrically conducting viscous gas in
           the vicinity of an infinite porous plate

PERIODICAL: Studii și cercetări de mecanică aplicată, no. 3,
             1962, 701 – 708

TEXT: The author studies the flow of a viscous compressible gas,
having infinite electrical conductivity, through an infinite porous
plate placed in a magnetic field perpendicular to it. The general
fundamental equations were obtained in an earlier study by the au-
thor. The equations are reduced to a single non-linear second order
differential equation, where the unknown function is the normal
component of the velocity. The solution of this equation is simpli-
fied by assuming the Prandtl number to be equal to 3/4 (correspond-
ing to air). It is impossible to find an analytical solution and
approximate solutions in the vicinity of the plate as well as asymp-
totic solutions are considered. The flow was found to depend on the
hydrodynamic and magnetic Mach numbers, and several particular ca-
Card 1/2

L 17454-63   EWT(1)/BDS   AFFTC/ASD
ACCESSION NR: AP3006125   S/0207/63/000/004/0074/0077

AUTHOR: Shidlovskiy, V. P. (Moscow)   51

TITLE: A problem of gas point mass escape and its solution by means of the ki-
netic theory

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1963, 74-77

TOPIC TAGS: point mass escape, kinetic theory, Boltzmann equation, nonequilib-
rium distribution, potential power field, molecular model, monatomic gas

ABSTRACT: An unsteady motion of a monatomic gas, corresponding to the escape
of a point mass into vacuum, was studied by means of the kinetic theory of
flows on the basis of the solution of the Boltzmann equation in the case of
nonequilibrium initial distribution. Collisions among the molecules themselves
were neglected. The more general case of escape in the presence of a potential
power field invariable with time was also considered. It was found that the
Boltzmann equation admits an exact solution with similar properties if the power
field is constant in value and direction. A molecular model of solid, elastic,
and smooth spheres was used for the study of both cases. It is concluded that
the solution may be extended to the case of a mixture of monatomic gases.

Card 1/2

L 17454-63

ACCESSION NR: AP3006125

Orig. art. has: 28 formulas.

ASSOCIATION: none

SUBMITTED: 11Mar63   DATE ACQ: 11Sep63   ENCL: 00

SUB CODE: AI   NO REF SOV: 002   OTHER: 001

Card 2/2

SHIDLOVSKIY, V.P. (Moskva)

Some problems of the unsteady motion of an electroconducting
viscous fluid in a magnetic field. Rev mec appl 8 no.5:
757-767 '63.

SHIDLOVSKY, V. P. (Moscow)

"Kinetic analysis of couette plasma flow".

report presented at the 2nd All-Union Congress on Theoretical and Applied
Mechanics, Moscow, 29 January - 5 February 1964.

SHIDLOVSKIY, V. P.

"Some problems of nose drag minimization for bodies in free molecule flow."

paper presented at 4th Intl Symp, Rarefied Gas Dynamics, Toronto, 14-17 Jul 64.

Inst of Mechanics, AS USSR, Moscow.

L 15649-65 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1) Pd-4 AFFTC/AFMDC/AEDC(a)/
ACCESSION NR: AP4049578 ASD(f)-2/AEDC/ASD-3 S/0258/64/004/004/0721/0727

AUTHOR: Shidlovskiy, V. P. (Moscow)

TITLE: Cylindrical Couette flow in weakly rarefied gas

SOURCE: Inzhenerny*y zhurnal, V. 4, no. 4, 1964, 721-727

TOPIC TAGS: Couette flow, rarefied gas motion, steady flow

ABSTRACT: The author considers steady-state motion of a gas between two coaxial
cylinders where the inner cylinder is at rest and the outer one rotates with
constant angular velocity Ω. The temperatures of the surface touching the gas
are constant on the periphery, but different for the different cylinders. Using
a cylindrical system of coordinates, the equation of momentum and the equation of
energy for the problem have the form

$$\frac{dp}{dr} = \rho \frac{v^2}{r},$$ (1)

$$\frac{d}{dr}\left[r^2 \mu \left(\frac{dv}{dr} - \frac{v}{r}\right)\right] = 0,$$ (2)

$$\frac{d}{dr}\left(r\mu \frac{dh}{dr}\right) + r\sigma \mu \left(\frac{dv}{dr} - \frac{v}{r}\right)^2 = 0.$$ (3)

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ACCESSION NR: AP4049578

where p is pressure, ρ is density, v is the peripheral component of velocity
of the motion of the gas, h is its enthalpy, μ is viscosity, and σ is the Prandtl
number. The system is closed with the help of the equation of state of an ideal
gas and the equation of relation between viscosity and enthalpy. The author
treats the case where the coefficient of viscosity undergoes comparatively little
change in the entire region of flow between the cylinders. This permits the
desired quantities to be expressed in powers of a related small parameter. The
basic singularities of the given motion can be correctly analyzed by the proposed
method for sufficiently large characteristic Mach numbers. The method was
applied to computation of plane Couette flow without consideration of the effects
of rarefaction of the gas, and the approximate results thus obtained compared
with precise ones for temperature fall between plates $0.8 \leq T_a/T_b \leq 1.2$ and

Mach number, for the relative velocity, equal to $3\sqrt{6}/2 \approx 3.674$. Considering
only the first two approximations, the maximal error for determining the velocity
was found not to exceed 2%, and for determining temperature in the flow — 5%.
On the basis of the derived formula, the author computes the stress of friction
τ with consideration of slipping and temperature jump. Orig. art. has: 2
figures and 23 formulas.

ASSOCIATION: Institut mekhaniki AN SSSR (Institute of Mechanics, AN SSSR)

Card 2/3

L 15649-65
ACCESSION NR: AP4049578   O

SUBMITTED: 01Apr64   ENCL: 00

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

Card 3/3

SHIDLOVSKIY, Vsevolod Pavlovich; SHAKHOV, Ye.M., red.

[Introduction to the dynamics of rarefied gas] Vvedenie
v dinamiku razrezhennogo gaza. Moskva, Nauka, 1965.
217 p.   (MIRA 18:9)

L 31546-66   EWT(1)/ETC(f)   IJP(c)   AT
ACC NR: AP6009047   SOURCE CODE: UR/0207/66/000/001/0021/0031

AUTHOR: Shidlovskiy, V. P. (Moscow)

ORG: none

TITLE: Kinetic analysis of plasma Couette flow in an electric field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 21-31

TOPIC TAGS: plasma flow, Couette flow, boundary layer flow, rarefied plasma, ionized plasma, boundary value problem

ABSTRACT: The author investigates steady-state flow of a fully ionized plasma between parallel plates in the presence of an electric field. The distribution functions of ions and electrons are determined from the Boltzmann kinetic equations, supplemented by equations for the electric field. The solution is constructed by means of one of the variations of the method of moments, and it is assumed that the momentum transfer is achieved only by the ions, and the heat transfer by the electrons. The analysis is performed taking into account the close collisions between particles for an arbitrary degree of plasma rarefaction. An example is given for calculating the basic flow characteristics. Boundary value problems, related to the presence of hard surfaces in the flow, have a much smaller practical impor-
tance in plasma dynamics than in gas dynamics. This is explained by the fact that plasma may exist only at very high temperatures the action of which causes some degree of

Card   1/2

L 31546-66

ACC NR: AP6009047   O

destruction of most materials. As a rule, plasma is confined within certain boundaries not by solid walls, but by intense magnetic fields. However, an investigation of problems with boundary surfaces still presents a certain interest for the case of plasma. An approximate solution to one of the simplest problems of this kind is given. Orig. art. has: 4 figures and 51 formulas.

SUB CODE: 20 / SUBM DATE: 06Mar64 / ORIG REF: 001 / OTH REF: 003

Card   2/2 LC

L 34385-66   EWP(m)

ACC NR: AP6022638   SOURCE CODE: RU /0019/66/011/003/0635/0641

AUTHOR: Shidlovskiy, V. P. (Moscow)

ORG: Computing Center, AN SSSR (Vychislitel'nyy tsentr AN SSSR)

TITLE: Formulation of problems in the theory of highly rarefied, ionized gas flow past charged bodies

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v. 11, no. 3, 1966, 635-641

TOPIC TAGS: aerodynamics, rarefied gas, ionized gas, plasma flow, Boltzmann equation, kinetic equation

ABSTRACT: The flow of highly rarefied, fully ionized plasma past charged bodies was studied. The analysis, limited to the case of absence of a magnetic field, is based on a system of equations formed by the Boltzmann equation and by two kinetic equations which Vlasov introduced into the study of plasma oscillations. As the main difficulty lies in the nonlinearity of these equations, two possible simplifying methods are presented. The first method involves the linearization of these equations while the second is related to solution of the kinetic equations with a given functional form of the potential Φ. Analysis shows that under certain conditions the second of the two approximate methods yields better results, since with a successful choice of the function $\Phi(x_1, x_2, x_3)$ and even without successive iterations, it yields

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L 34385-66

ACC NR: AP6022638

a sufficiently accurate physical representation of the processes, including a description of the oscillating variations of the characteristics of slowly moving particles. The difficulties related to this method are of a technical nature and pertain to the calculation of the integrals which determine the macroscopic parameters of ionized gas components. Orig. art. has: 14 formulas.   [AB]

SUB CODE: 20/ SUBM DATE: 23Nov65/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS:
5034

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GALENKO, M.; SHIDLOVSKIY, Yu. M.

    Performance of grain-harvesting machinery at increased speeds.
Tekh. v sel'khoz. 20 no.6:39-43 Je '60.   (MIRA 13:10)

    1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii i
elektrifikatsii sel'skogo khozyaystva.
          (Grain--Harvesting)

NIKITENKO, I.T.; GOLENKO, M.D.; SHIDLOVSKIY, Yu.M.

Experimental investigation of the process of removing broken straw from the combine. Trakt.i sel'khozmash. 30 no.10: 16-18 O '60.   (MIRA 13:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva.
    (Grain--Harvesting)   (Straw)

NIKITENKO, I.T., nauchnyy sotrudnik; SHIDLOVSKIY, Yu.M. [Shydlovs'kyi, IU.M.],
    nauchnyy sotrudnik; GORSHKOV, A.P. [Horshkov, A.P.], nauchnyy
    sotrudnik; KAPLIN, I.M., nauchnyy sotrudnik

Continuous harvesting of grain. Mekh. sil'. hosp. 12 no. 6:5-8
Je '61.   (MIRA 14:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii i
elektrifikatsii sel'skogo khozyaystva.
                (Grain—Harvesting)

NIKITENKO, I.T., kand.sel'skokhozyaystvennykh nauk; SHIDLOVSKIY, Yu.M., inzh.;
    KAPLIN, I.N., inzh.; GORSHKOV, A.P., inzh. ————————————

    Continuous-flow harvesting of grain by combines with straw
    chopping. Mekh. i elek. sots. sel'skoz. 20 no.3:6-9 '62.
                                                    (MIRA 15:7)
    1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii
    i elektrifikatsii sel'skogo khozyaystva.
            (Grain—Harvesting)   (Harvesting machinery)

SHIDOV, L.I.

Number of nonspecial subgroups of finite groups. Soob. AN Gruz.
SSR 32 no.3:577-584 D '63.   (MIRA 17:11)

1. Kabardino-Balkarskiy gosudarstvennyy universitet. Predstavleno
akademikom G.S. Chogoshvili.

SHIP V. L.

Some characteristics of insoluble finite groups. Soob. AN Gruz. SSR
34 no.3:491-498 D '62.   (MIRA 18:3)

1. Kabardino-Balkarskiy gosudarstvennyy universitet. Submitted
November 15, 1963.

SABLINA,T.B.; SHESTAKOVA,G.S., doktor biologicheskikh nauk, redaktor;
    SHIDROVSKAYA,O.G.; AUZAN,N.P., tekhnicheskiy redaktor

    Hoofed animals of the Byalovezhska Pushcha. Trudy Inst.morf.zhiv.
    no.15:3-191 '55.   (MLRA 8:11)
                (Byalovezhska Pushcha--Ungulata)

S/129/63/000/001/003/017
E073/E335

AUTHORS: Rotenshteyn, B.F., Muntyanu, A.P. and Shif, A.F.

TITLE: Compound ferromagnetics with high internal friction

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,
              no. 1, 1963, 12 - 15

TEXT: A method of increasing the internal friction of non-
ferromagnetic metals by depositing electrolytically a coating of a
ferromagnetic (Ni or an Fe-Ni alloy) is described. Nickel-plating
took place in a bath containing 140 g/l. $NiSO_4$, 20 g/l. $NiCl_2$ and
20 g/l. H_3BO_3. 30 g/l. ammonium sulphate or 4 g/l. dinaphthalene
sulphonic acid (2.6-2.7) were added to the solution; hydrogen
index 5.2, current density 1 A/cm^2. Plating with an Fe-Ni alloy
was in a bath containing 21.8 g/l. $NiSO_4 \cdot 6H_2O$, 9.7 g/l. NaCl,
25 g/l. H_3BO_3, 0.83 g/l. saccharin, adding $FeSO_4 \cdot 7H_2O$ in the
quantity required to obtain an alloy of the desired composition.
The internal friction was measured by the torsion-pendulum method
with a varying stress-amplitude up to 2.5 kg/mm^2, applying a DC
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longitudinal magnetic field of up to 600 Oe. The specimens were
heated to 220 $^{\circ}$C after being fitted into the instrument and held
for 1 h at that temperature. Results: 1) internal friction is
almost independent of amplitude under conditions of saturation-
magnetization (600 Oe);   2)   there is a definite stress at which
the internal friction is highest for each magnitude of the magnetic
field;   3) there is an intensity of the longitudinal magnetic
field, for each stress value, at which the internal friction will
have the highest value and the magnitude of the magnetic field will
be the lower the higher the stress-amplitude;   4)   the value H_{max}
at which the internal friction is highest for a given stress-
amplitude depends on the properties of the metal in the core of
the specimen;   the internal friction of combined ferromagnetics
depends to a great extent on the amplitude of the force;   also,
the dependence is more pronounced in the magnetized than in the
demagnetized state. For commercial iron, Fe-Ni alloys with up to
50% Ni and for pure annealed Ni the internal friction in the
Ni is highest for an amplitude between 1 and 2 kg/mm^2,

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Q^{-1} = 1910 x 10^{-5} for commercial iron and 1590 x 10^{-5} for nickel.
A compound ferromagnetic with a layer of Fe-Ni alloy has an
internal friction comparable with that of an Fe-Ni alloy; holding
of such materials in vacuum at high temperatures appears to give
them higher internal-friction values than those obtained in the
here described work. There are 5 figures.

ASSOCIATION: Timishoarskiy politekhnicheskiy institut (Rumyniya)
                 (Timisoara Polytechnical Institute, Romania)

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KOMAROV, V. A.;   DROZDOVA, V. M.;   SHIF, G. A.

Metallic Oxides

Determination of the starting temperature of reduction of metallic oxides with hydrogen.
Uch. zap. Len. un., No. 150, 1951.

9. Monthly List of Russian Accessions, Library of Congress, November 1952 1953, Uncl.

SHIF, G.A.

Shaftless apparatus for gate valves. Stroi.truboprov. 7
no.2:31 F '62.
(MIRA 15:3)

1. Nachal'nik stroitel'nogo uchastka No.4 tresta Omsknefteprovodstroy
g. Novosibirsk.
(Petroleum—Pipelines)

KOZYREV, N.T., inzh.; LITVINENKO, M.P., inzh.; SOROKIN, Ye.A., inzh.;
    SHIF, G.S., inzh.

Bottom-dump skip. Gor. zhur. no.7:62-63 Jl '61.
                                                (MIRA 15:2)
            (Mine hoisting)

SHIF, I. I.; PETROVA, V. G.

"The development of cognitive activity of mentally retarded children in the
process of learning."

report submitted for Intl Cong on Scientific Study of Mental Retardation,
Copenhagen, 7-14 Aug 64.

SHIF, I.M., kandidat tekhnicheskikh nauk.

Principles of kinematics involved in threading by two rollers
(axial shifts). Trudy Ural.politekh.inst. no.5:149-170 '56.
(Screw cutting)   (MLRA 9:11)

S/122/60/000/007/011/011
A161/A029

AUTHOR: Shif, I.M., Candidate of Technical Sciences, Docent

TITLE: Scientific-Technical Conference on Strengthening Technology

PERIODICAL: Vestnik mashinostroyeniya, 1960, No. 7, pp. 80 - 81

TEXT: A conference was organized in March 1960 in Perm' by the Perm' sov-
narkhoz and the oblast' board of NTO MAShPROM jointly with research and educatio-
nal organizations on problems of theory and practice of machine part surface
strengthening by plastic deformation. Delegates from the machine building indus-
try from Moscow, Sverdlovsk, Perm' and other places were present. Doctor of
Technical Sciences, Professor I.V. Kudryavtsev (TsNIITMASh, Moscow), reviewed the
methods of work hardening and its effect in large machine parts and on the fa-
tigue strength of parts in corrosive environment, stating that it materially
raises the fatigue strength and durability of parts in high temperatures. Plas-
tic strengthening is highly effective for parts with high stress concentrations,
e.g., threaded parts. TsNIITMASh has suggested a new method of threading and
strengthening already cut threads by rolling with a vibrating roller. This meth-
od is recommended for medium and large parts from 50 to 1,000 - 1,500 mm in dia-

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meter. It has been discovered that the effect of this method increases with in-
creasing steel strength and stress concentration coefficient. Candidate of Tech-
nical Sciences L.M. Shkol'nik (TsNII MPS, Moscow) reported on the practical use
of work hardening in railroad transport and on standardization of rolling stock
parts. State standards require shot blasting for chassis springs and automatic
couplings, hangers, railroad car axles and portions of locomotive axles. Inves-
tigations at TsNIITMASh and TsNII MPS revealed that a deep work hardened layer is
not absolutely necessary to obtain by rolling, particularly in parts with stress
concentrators. Engineer G.Z. Zaytsev (TsNIITMASh, Moscow) reported on results of
an investigation of the technico-economical effect of surface work hardening
carried out at 31 plants in four machine building industry branches. The condi-
tional annual economy is evaluated to be 260.3 million rubles, not including the
economy of high-alloy steel replaced by low-alloy grades or carbon steel, reduced
metal consumption and machine weight, etc. Engineer V.M. Braslavskiy (UZTM,
Sverdlovsk) reported on the application of work hardening and rolling in heavy
machine building where a deep hardened layer (up to 25 - 28 mm) is produced by
rolling and striking, and the surface hardness is raised by 30 - 50%. Special

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Scientific-Technical Conference on Strengthening Technology

devices are developed for strengthening parts of 500 to 1,000 mm in diameter and
up to 12,000 mm long. Strengthening is obligatory for many parts. Rolling of
outer or inner surfaces is also used for surface finish to 7th and 8th finish
class. Combination of cutting for rough finish with rolling for final finish on
the same machine tool cuts the total work cycle by 30 - 40%. Candidate of Tech-
nical Sciences O.O. Kulikov (TsNIITMASh) reported on the experience of his insti-
tute with strengthening the rods of stamping hammers by rolling with rollers. It
more than doubled the life of rods. Candidate of Technical Sciences Docent I.M.
Shif (Gosudapstvennyy universitet, Perm' - Perm' State University) reported on
results of investigations of the physical and mechanical changes in steel surface
strengthened by rolling. It was proposed to check rolled parts of carbon steel
by measuring their surface hardness by a Vickers test device with a 10 kg load,
for this property is directly related with the surface microhardness, depth, de-
gree and gradient of work hardening. A qualitative interdependence had been re-
vealed in some cases between the strengthening and the microgeometry of the sur-
face. Candidate of Technical Sciences Docent G.A. Pinchuk (Vecherniy mashino-
stroitelnyy institut, Perm' - Perm' Machine Building Evening Institute) reported

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on experiments with combination of heat treatment with rolling with rollers or shot blasting. Technological processes had been developed that raised the durability of steel under repeated application of dynamic load by 2 to 2.5 times. Engineer M.I. Moldavskiy (Sovnarkhoz Laboratory at the mentioned Evening Institute) reported on investigations of rolling stainless steel by ball strengtheners. It considerably raised the wear-resistance of parts that could not be treated chemico-thermically or made of material with higher wear-resistance. Staff Member M.S. Nemanov (of the Evening Institute) reported that rolling raised the fatigue resistance of mine locomotive axles of "45" steel and the method is being introduced into use at a plant. The reports of Candidates of Technical Sciences N.M. Savvina (TsNIITMASh) and M.I. Razikov (UPI im. Kirov, Sverdlovsk) dealt with experiments with hammering welded joints and heat-affected zone for raising fatigue-resistance and with problems of raising the mechanical strength of welded joints by hammering. Engineer V.P. Vislobokov (UPI im. Kirov, Sverdlovsk) spoke of strengthening parts by centrifugal rolling over with balls or rollers placed in a special holder. The method is suitable for raw as well as quenched steel of any hardness. Candidate of Physico-Mathematical Sciences, Docent I.F. Vereshcha-

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gin (Perm' State University) reported on the increase of static strength of low-
carbon steel by three-dimensional plastic deformation. It was proven in a work
carried out by him and Engineers L.K. Muryleva and G.S. Khlebutin that strength-
ening by twisting raised the static strength of steel by 75% and the work temper-
ature could be raised to 400°C without any noticeable strength drop of parts.
The conference took a decision determining the trend of further research and prac-
tical use of strengthening technology in the machine industry of the Perm' econom-
ic region.

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SHIF, I.M., kand.tekhn.nauk (Perm')

Conference on metal-hardening techniques. Mashinostroitel' no.8:
41 Ag '60.
(Metals—Hardening)   (MIRA 13:9)

SHIF, I.M., kandidat tekhnicheskikh nauk.

Quality of the thread surfaces formed by two rollers. Trudy
Ural.politekh.inst. no.50:171-193 '56.   (MLRA 9:11)
     (Screw threads)

SHIF, I.M.

Committee on hardening techniques. Mashinostroitel' no.5:48
My '60.   (MIRA 14:5)
          (Metals--Hardening)