ATKEVICH, Eduard Feliksovich (g. E.M.G.T, ? F., red.; SHILKTERV,
        Ye.S., red.

    [Handbook for engineers and loading crew foreman. Spravoch-
nik tekhnika i brigadira gruzchikov. Moskva, Transport,
1965. 196 p.   (MIRA 18:12)

PONOMAREV, Fedor Gavrilovich; SOLOVEYCHIK, Mikhail Zakharovich;
        SHISHLYKOV, Ye.S., red.

    [Aid for ticket and baggage cashiers] Posobie biletno-
    bagazhnomu kassiru. Moskva, Transport, 1965. 263 p.
                                    (MIRA 18:3)

SHISHMAKOV, V.; SAPATOV, P.

Superheterodyne with crystal triodes. Radio no.12:50-52 D '55.

(MIRA 9:4)

(Radio--Receivers and reception) (Triodes)

05211
SOV/142-2-3-19/27

(2,3)
AUTHOR: Shishmakov, V.N., (Moscow)

TITLE: The Terminology in the Field of Transistor Electronics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol
               2, Nr 3, pp 376-377 (USSR)

ABSTRACT: The author refers to the article by T.M. Agakhanyan, B.N. Kononov
               and I.P. Stepanenko, titled "The Terminology in the Field of
               Transistor Electronics", published in Izvestiya vysshikh ucheb-
               nykh zavedeniy, Radiotekhnika, 1958, Vol 1, Nr 4. He presents his
               opinions in the same arrangement as in the aforementioned article,
               dealing with General Problems, Junctions and Contacts, Diodes,
               Triodes and Circuit Problems. The author recommends the term "po-
               luprovodnikovyye pribory" (semiconductor devices) instead of
               "tranzistornaya elektronika" (transistor electronics) since "tran-
               sistors" are usually controlled triodes or tetrodes. Similar sug-
               gestions were made for junctions and contacts, diodes and triodes.

Card 1/1   As far as circuits are concerned the author recommends distin-
               guishing between emitter or base input, etc.

SUBMITTED: February 12, 1958

PHASE I BOOK EXPLOITATION   SOV/5521

Kobzev, V.V., and V.N. Shishmakov

Kaskady radiopriyemnikov na tranzistorakh (Cascades of Transistorized Radio Receivers)
Moscow, Gosenergoizdat, 1960. 271 p. 17,000 copies printed.

Ed.: Ya.A. Fedotov; Tech. Ed.: G.Ye. Larionov.

PURPOSE: This book is intended for technical personnel engaged in the development
of radio receiving equipment. It may also be useful to students of radio engi-
neering in schools of higher and secondary education.

COVERAGE: The book presents the basic principles of the design and calculation of
cascades in transistorized radio receivers. Physical processes occurring in
semiconductor devices and the basic relationships of semiconductor parameters to
operating conditions, temperature, and frequency are briefly described. The au-
thors thank N.I. Chistyakov, Professor, Doctor of Technical Sciences, and Ya.A.
Fedotov, Candidate of Technical Sciences, for their advice. There are 66 refer-
ences: 45 Soviet (including 13 translations), 20 English, and 1 French.

Card 1/6

Condensation of phenol with allyl chloride. I. I.
Kotlyarevskiĭ and T. G. Shishmakova. Trudy Vostochno-
Sibir. Filial, Akad. Nauk S.S.S.R., Ser. Khim. 1956, No. 4,
32–6.—During a period of 110 min., 150 g. CH_2:$CHCH_2Cl$
(I) is added dropwise to a soln. of 183.1 g. PhOH, 156 g.
NaOH, and 200 g. H_2O at 38–40°; this mixt. is stirred an
addnl. 135 min. at 38–50° and the temp. raised to 60° for 10
min. The mixt. is then cooled and neutralized with concd.
HCl. The oily layer is sepd. and washed with 10% soln.
of NaOH; the insol. part is washed with H_2O, dried with
$CaCl_2$ and contains all the ethers formed during the reaction.
An H_2O soln. of the previous mixt. is acidified with concd.

HCl and extd. with ether, washed with a soln. of $NaHCO_3$,
dried with $MgSO_4$, and the ether evapd. leaving the phenolic
fraction of the reaction products. By distn. of the ether
fraction (obtained from 375 g. I), the following compds.
have been isolated and identified: 152.51 g. CH_2:CH-
CH_2OPh, 11.85 g. o-CH_2:$CHCH_2OC_6H_4CH$:$CH:CH_3$, 4.31 g. p-
CH_2:$CHCH_2OC_6H_4CH$:CH:CH_3, and 21.33 g. CH_2:CH-
$CH_2OC_6H_3(CH_2CH$:$CH_2)_2$. The following compds. have
been isolated and identified from the phenolic fraction ob-
tained from 225 g. I: 33.18 g. PhOH, 10.61 g. o-CH_2:-
$CHCH_2C_6H_4OH$, 8.72 g. p-CH_2:$CHCH_2C_6H_4OH$. It is
considered that the mechanism of formation of the compds.
differs from the Claisen rearrangement. 6 references.

N. Vasileff

BARINOVA, M.I.; SHISHMAKOVA, T.G.; KOTLYAREVSKIY, I.L.

4-Hydroxy-4'-ethynylazobenzene. Izv. AN SSSR. Ser. khim. no.9:
1674-1675 '65.   (MIRA 18:9)

1. Institut khimicheskoy kinetiki i goreniya Sibirskogo
otdeleniya AN SSSR.

L 22340-66   EWT(m)/EWP(j)/T   RM

ACC NR: AP6009802   SOURCE CODE: UR/0062/66/000/002/0360/0362

AUTHOR: Shishmakova, T. G.; Bardamova, M. I.; Kotlyarevskiy, I. L.

ORG: Institute of Chemical Kinetics and Combustion, Siberian Department of the Academy of Sciences, SSSR (Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Synthesis of vinylacetylene aromatic hydrocarbons from unsaturated ketones

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966, 360-362

TOPIC TAGS: aromatic ketone, aromatic hydrocarbon, alkyne, polycondensation

ABSTRACT: The stabilizing effect on aromatic vinylacetylenes of introducing a phenyl radical in the vinyl group and of substituting the monophenyl with a diphenyl group were investigated. Mono- and divinylacetylene derivatives of aromatic hydrocarbons were synthesized by reacting unsaturated aromatic ketones with PCl_5 and $NaNH_2$. Thus 1-biphenylylbutene-1-ine-3 (I) was synthesized from p-phenylbenzalacetone and 1,4-bis(2'-phenylbutene-1'-ine-3'-yl-1')benzene (II), from

Card 1/2   UDC: 542.91+547.362

L 22340-66

ACC NR: AP6009802

1,4-bis(2'-phenylbutene-1'-one-3'-yl-1')benzene. Oxidative condensation of I gave a dimer. Polycondensation of II gave a polymer in which some of the acetylenic bonds underwent partial hydration to a carbonyl group. Introduction of the phenyl substituent in the vinyl group increased stability considerably; 54% yield of II was obtained. Orig. art. has: 1 figure.

SUB CODE: 07/ SUBM DATE: 06Jul65/ ORIG REF: 001

Card 2/2 dda

L 29386-66   ENF(j)/EnT(m)/T   IJr(c)   nM

ACC NR: AP6017879   (A)   SOURCE CODE: UR/0062/66/000/005/0909/0914

AUTHOR: Kotlyarevskiy, I. L.; Bardamova, M. I.; Shishmakova, T. G.

ORG: Institute of Chemical Kinetics and Combustion, Siberian Department, Academy
of Sciences SSSR (Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya
Akademii nauk SSSR)

TITLE: Highly unsaturated polymers.   Communication 17.   Synthesis of mono- and
di-ethynylvinyl derivatives of benzene and oxidative condensation thereof

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 5, 1966, 909-914

TOPIC TAGS: organic semiconductor, semiconducting polymer, polyacetylene, poly-
vinyleneacetylene

ABSTRACT: New unsaturated polymers V (see below) with alternating double and triple
bonds in the backbone have been prepared by a new route. It is noted that the
polymers previously prepared by the authors,

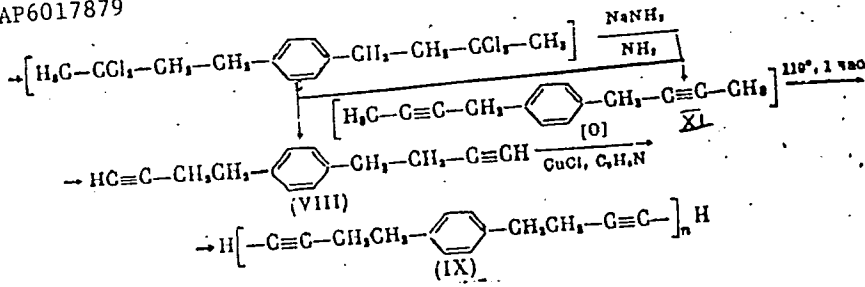$$[(C \equiv C)_m - Ar - (C \equiv C)_m]_n,$$
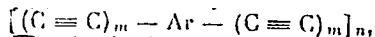
where m = 1 and 2, contained diacetylene and tetraacetylene bonds in the backbone.
To determine the difference between the effect on properties of double and triple
bonds, it was of interest to prepare such polymers in which triple bonds would be

Card   1/3   UDC: 547.362+542.952

L 29380-66
ACC NR: AP6017879

partly or fully replaced by double bonds. Polymer V was prepared as follows:

$$H_3CCOCH=CH-\langle\bigcirc\rangle-CH=CH-CO-CH_3 \xrightarrow{PCl_5}$$

(VII)

$$\rightarrow \left[H_3C-CCl_2-CH=CH-\langle\bigcirc\rangle-CH=CH-CCl_2-CH_3\right] \xrightarrow[NH_3]{NaNH_2}$$

$$\rightarrow HC\equiv C-CH=CH-\langle\bigcirc\rangle-CH=CH-C\equiv CH \xrightarrow[CuCl, C_5H_5N]{[O]}$$

(VI)

$$H\left[-C\equiv C-CH=CH-\langle\bigcirc\rangle-CH=CH-C\equiv C-\right]_n H$$

(V)

Polymer V was a brown powder. It gave a narrow, intense EPR signal which indicates continuous conjugation in the backbone. Elemental analysis and IR spectroscopy indicated the presence of some carbonyl substituents, apparently due to hydration of end-group triple bonds. To determine the effect on properties of the removal of the double bonds in V, polymer IX was prepared as follows:

$$H_3C-CO-CH=CH-\langle\bigcirc\rangle-CH=CH-CO-CH_3 \xrightarrow[Pd/CaCO_3]{H_2}$$

(VII)

$$\rightarrow H_3C-CO-CH_2-CH_2-\langle\bigcirc\rangle-CH_2-CH_2-CO-CH_3 \xrightarrow{PCl_5}$$

(X)

Card   2/3

L 29386-66

ACC NR: AP6017879

$$\rightarrow \left[H_3C-CCl_2-CH_2-CH_2-\bigcirc-CH_2-CH_2-CCl_2-CH_3 \right] \xrightarrow[NH_3]{NaNH_2}$$

$$\left[H_3C-C\equiv C-CH_2-\bigcirc-CH_2-C\equiv C-CH_3 \right] \xrightarrow{110°, 1\ \text{час}} \underline{XI}$$

$$[O]$$

$$\rightarrow HC\equiv C-CH_2CH_2-\bigcirc-CH_2-CH_2-C\equiv CH \xrightarrow{CuCl,\ C_5H_5N}$$

(VIII)

$$\rightarrow H\left[-C\equiv C-CH_2CH_2-\bigcirc-CH_2CH_2-C\equiv C-\right]_n H$$

(IX)

Polymer IX was a white powder. It gave no EPR signal, which indicates discontinuous conjugation in the backbone. In addition, a number of vinylacetylene and divinyl-acetylene alcohol monomers were prepared. Orig. art. has: 3 formulas.   [SM]

SUB CODE: 07/ SUBM DATE: 30Dec65/ ATD PRESS: 5008

Card 3/3 CC

SHISHMAN, D. V.

Zimmerman, A. S., Kosyrev, N. A., and Snishman, D. V. "An investigation of the impluse stability of the insulation of rotary electrical machines," Trudy Leningr. politekhn. in-ta im. Kalinina, 1948, No. 3, p. 126-40.

SO: U-3736, 21 May 53,(Letopis 'Zhurnal 'aykh Statey, no. 18, 1949)).

SHISHMAN, D.V.

04922   Shishman, D.V.   Velichina Napryazheniya Poyavleniya Skol'zyashchikh
         Razryadov Po Poverkhosti Tvordogo Dielektrika V Transforratornom Masle.
         Vestnik Elektroprom-sti, 1949, No. 7, S. 19-24

                    1.   Svetotekhnika

So: Letopis' No. 33, 1949

SHISHMAN, D. V.   PA 171T26

USSR/Electricity - Lightning Protection   Oct 50
                    Networks, Low-Voltage

"Damage From Storms, and Protection of Rural
Low-Voltage Networks," K. M. Semchinov, Engr,
D. V. Shishman, Cand Tech Sci, Leningrad Affil-
iate, All-Union Inst for Electrification of Agr

"Elektrichestvo" No 10, pp 37-39

Analyzes overvoltages in subject networks in
Leningrad Oblast due to storms in 1948-49. Dis-
cusses protection of these networks from atmos-
pheric overvoltages and recommends testing cer-
tain protective measures for internal-wiring
systems in houses.
FDD   171T26

SHISHMAN, D.V., kandidat tekhnicheskikh nauk.

"Simplified method of routine testing vilit" lightning arresters.
Elek.sta. 25 no.9:39-43 S '54.   (MLRA 7:9)
(Lightning arresters)

621.316.93 : 621.316.1

3799.   PROTECTION OF RURAL POWER INSTALLATIONS AGAINST ATMOSPHERIC SURGES. D.V. Shishman. Elektrichestvo, 1956, No. 6, 47-50. In Russian.

The special characteristics of these systems are low-capacity stations and substations, frequent pole-type trans-formers, extensive use of steel conductors, low short-circuit currents and low rates of voltage recovery after clearance of short-circuits; also extensive use of two-wire-earth systems, low phase-earth short-circuit currents in three-wire systems with insulated neutral, simple types of switchgear, l.v. systems without earth wires on wooden poles and lack of personnel for the maintenance of protective devices. On the other hand, the dangers arising are mainly those to human and animal life and to houses, particularly great fire risks. The protective equipment used consists mainly of protective spark gaps and auto-valve diverters. Rapid reclosing is recommended. Dia-grams showing recommended solutions of protection problems for various types of rural power systems are presented. Sta-tistical data indicate the necessity of improving the protection mainly of l.v. systems. From some of the accidents it can be concluded that surges of 1500 kV amplitude penetrate into houses, this being due to the almost complete absence of earth-ing at the lead-ins of the service cables.   B.F.Kraus

MEKHOVA, N.N., inzhener; SHISHMAN, D.V., kandidat tekhnicheskikh nauk.

Possibility of maintenance tests on vilite arresters at below-freezing temperatures. Elek.sta. 27 no.9:60-61 S '56.   (MLRA 9:11)
(Lightning protection)

SHISHMAN, D.V., kand.tekhn.nauk

Some data on the electric conductivity of silicon carbide powder.
Trudy GIEKI no.2:121-133 '57.   (MIRA 11:7)
        (Electric conductivity) (Silicone carbide)

8(2)   SOV/112-58-3-3982

AUTHOR: Shishman, D. V.

TITLE: Carrying Capacity of Working Resistors in Modern Valve-Type Lightning
    Arresters (Propusknaya sposobnost' rabochikh soprotivleniy sovremennykh
    ventil'nykh razryadnikov)

ABSTRACT: Investigations conducted by manufacturing plants and scientific-
    research institutes have permitted a considerable rise in the carrying capacity
    of working resistors (vilit disks) of valve-type lightning arresters. As a rule,
    the vilit-disk carrying capacity decreases with an increase in the disk
    resistance. A high-temperature firing results in a higher resistance of the
    disk due to the oxidation of carborundum grains. The voltage drop across
    individual carborundum grains and across the contacts between them increases
    while the carrying capacity decreases. The disk-resistance increase also

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8(2)   SOV/112-58-3-3982

Carrying Capacity of Working Resistors in Modern Valve-Type Lightning Arresters

takes place when it is prepared from a lower-conductivity carborundum. In
this case, too, the voltage drop across the individual grains and grain-to-grain
contacts increases. With the disk prepared from finer carborundum grains,
the residual voltage across the disk also increases. The presence of a small
number of larger carborundum grains in the disks results in the fact that the
larger grain contacting several smaller grains passes a heavy current; this,
in turn, results in a damage to the larger grains and, therefore, in a lower
disk carrying capacity. The disk carrying capacity also materially depends
on the quality of its molding and the moisture content of the molding mass.
Even if the mass were placed in the mold in a uniform manner, it is, never-
theless, less compressed around the disk edge, as the mass is partly squeezed
into the gap between the insert and the mold; the maximum electric-field
concentration also occurs at the edge of the metallized area, and the disk
breakdown usually occurs there. If the disk is prepared from the mass with a

Card 2/3

8(2)

SOV/112-58-3-3982

Carrying Capacity of Working Resistors in Modern Valve-Type Lightning Arresters

low moisture content, the cohesion between the carborundum grains is poor. The disk carrying capacity can be increased by: (1) firing the disk at a normal temperature; (2) manufacturing the disk from a higher-conductivity carborundum; (3) segregating larger grains from the carborundum powder; (4) using a harder pressure around the disk edges; (5) molding the disk from a sufficiently moistened mass. Bibliography: 4 items.

T.V.V.

Card 3/3

8(2)   SOV/112-59-2-2821

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, p 79 (USSR)

AUTHOR: Shishman, D. V.

TITLE: Operating Experience With Vilite Arrestors
   (Opyt ekspluatatsii vilitovykh razraydnikov)

PERIODICAL: Tr. mezhvuzovsk. nauchno-tekhn. konferentsii po dal'nim
   elektroperedacham, 1956, Sekts 3, L., 1957, pp 88-97

ABSTRACT: Operating-experience data with vilite arrestors is presented; the data
   shows that the average annual number of arrestor operations recorded by an
   RVR counter was 0.25 per phase; the maximum number was 5. RVS-220 and
   RVVM counters operated much less frequently. Many failures of RVR counters
   due to seal breaks are noted. Statistics of arrestor failures are presented, and
   it is noted that all existing types of arrestors cannot stand the internal over-
   voltages that occur when a no-load line is switched off, or when a resonant or
   arc overvoltage appears, etc. A reliable arrestor operation during internal

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SOV/112-59-2-2821

Operating Experience With Vilite Arrestors

overvoltages could be ensured only by altering the series gap and by raising the current-carrying capacity of arrestor resistors.

Ye.V.K.

Card 2/2

SHISHMAN, D. V., kandidat tekhnicheskikh nauk.

Experience using "vilite" arrestors. Elek. sta. 26 no.5:76-79
My '57.   (MLRA 10:6)

(Lightning protection)

SOV/110-59-9-10/22

AUTHOR: Shishman, D.V. (Cand. Tech. Sci.)
TITLE: The Operating Resistance of Vilite Lightning Arresters
PERIODICAL: Vestnik elektropromyshlennosti,1959,Nr 9,pp 34-36 (USSR)

ABSTRACT: The Vilite lightning arresters described in this article are made of carborundum.   A most important property of lightning arresters is their current-carrying capacity. It is defined either as the minimum amplitude of current impulses of given wave shape which the discs can carry for a fairly large number of times (usually not less than 20-30) without damage; or as the minimum number of current impulses of given amplitude and wave shape which the discs can pass without damage.   The current-carrying capacity of Vilite lightning arresters is greatly influenced by the actual resistance of the discs, which is usually defined as the ratio of the remanent voltage on the disc when a certain current is passed.   Thus for discs of 75, 100 and 150 mm diameter the remanent voltages are usually measured at currents of 50, 80 and 100 A respectively.   The current-carrying capacity of Vilite discs is best characterised by testing in accordance with the first of the above-mentioned definitions and plotting the results as functions of the remanent voltage or voltage gradient on the discs.   This

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SOV/110-59-9-10/22

The Operating Resistance of Vilite Lightning Arresters

was done with current impulses of wave shape 18/40 and
180/500 microseconds (front and tail times) and Vilite
discs of 100 mm diameter, 30 mm high, subjected to 20-30
impulses, the voltage gradients on the discs being
determined at a current of 80 A. The amplitudes are
plotted against the voltage gradients in Figs 1 and 2.
The bold lines correspond to mean current-carrying
capacity and the dotted lines to minimum capacity. Discs
of low current-carrying capacity usually have very non-
linear properties, as will be seen from the graph in
Fig 3. Here the coefficient of non-linearity is plotted
as function of the voltage gradient at a current of 80 A
for discs of the types mentioned in Figs 1 and 2. If the
carborundum powder from which the discs are made is finer
than usual their resistance is high and current-carrying
capacity low. The reasons for this are discussed. If
the amplitude of the current impulses is increased the
number of impulses that the disc can withstand decreases:
a similar effect is observed if the duration of the
current impulses is increased. Data are given in support
of these statements, and the relationships between

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SOV/110-59-9-10/22

The Operating Resistance of Vilite Lightning Arresters

current-carrying capacity and wave length of the impulses
are plotted in Fig 4. For example, the current-carrying
capacity of lightning arresters types RVS and RVVM, with
discs of 100 mm diameter, ranges from 9000 to 10000 A with
a wave shape of 18/40 microseconds to 170-200 A with a
wave shape of 1000/2500 microseconds. Corresponding data
are given for other sizes of disc. Storage tests showed
that the current-carrying capacity did not change after
five years storage under dry conditions but was greatly
reduced by storage for relatively short times under humid
conditions. In some cases moisture may cause cracks to
appear in the discs.

Card 3/3

There are 4 figures and 3 Soviet references.

SOV/105-59-12-14/23

8 (3)
AUTHOR:

Shishman, D. V., Candidate of
Technical Sciences (Leningrad)

TITLE:

The Influence on Valve Diverters With a Reduced Flashover
Potential in Internal Excess Voltages

PERIODICAL:

Elektrichestvo, 1959, Nr 12, pp 64-69 (USSR)

ABSTRACT:

The influences to which valve diverters are exposed at different
internal excess voltages, are investigated. The influences are
compared with the "permeability" of the operation resistances
of modern vilite diverters. On the strength of the examinations
carried out, the following was determined: excess voltages
occurring when switching off inductivities do not endanger
conventional valve diverters used for protection against
atmospheric excess voltages. Excess voltages occurring when
switching off unloaded high-tension lines are the most
characteristic as to "permeability". In cases of such excess
voltages the influence on the diverter depends to a
considerable extent on the location of the diverter in the
substation, on the quality of the line switch and on the
nominal voltage of the network. The estimation of the currents
in diverters when switching off unloaded 110 and 220 kv lines

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The Influence on Valve Diverters With a Reduced
Flashover Potential in Internal Excess Voltages

SOV/105-59-12-14/23

shows that the "permeability" of working resistors of modern
RVS-dischargers is seemingly sufficient for the following: if
the diverters are mounted on the track-side of the substation,
the diverters can be used for limiting the excess voltage
occurring when switching off unloaded 110-220 kv-lines. The
excess voltages occurring with intermittent ground leaks, with
different resonance- and other unusual phenomena, may cause
damage of the diverter, because of their long duration. As
the diverters for limiting internal excess voltages are used in
the first place for limiting excess voltages acting on the
insulation of power transformers, it is advisable to connect
the diverters near the inlet of the transformers concerned. In
this case the diverters are less loaded by the influence of the
excess voltage caused by switching-off of unloaded lines than
are diverters connected on the side of the line. For testing the
possibility of limiting the internal excess voltage with valve
diverters of the same transmissivity as that present in valve
diverters used for protection against atmospheric excess
voltage, the following is recommended: in networks with a dead
ground neutral feeder and of 110 and 220 kv it would be

Card 2/3

The Influence on Valve Diverters With a Reduced
Flashover Potential in Internal Excess Voltages   SOV/105-59-12-14/23

suitable to undertake a test operation with RVS-conductors.
The flashover potential of the diverter at 50 cps frequency
should be reduced to 2.2-2.5 U_{phase}. Because of the difficult
conditions it would be advisable to use spark segments with
insulation interlayers of mica or "amofos"(amofosnyy) micanite
instead of the conventional commutator micanite. The computations
were made according to a method worked out at the Leningradskiy
politekhnicheskiy institut im. Kalinina (Leningrad Polytechnic
Institute imeni Kalinin). There are 4 figures, 1 table, and
21 references, 8 of which are Soviet.

SUBMITTED: May 18, 1959

Card 3/3

SHISHMAN, D.V., kand.tekhn.nauk

Protection of small electric power substations against
overvoltages. Elek.sta. 31 no.5:53-54 My '60.
(MIRA 13:8)
(Electric protection) (Electric substations)

SHISHMAN, D.V., kand. tekhn.nauk; MEKHOVA, N.N., inzh.

Vilite 3 to kv. dischargers with a simplified design for electric
substations. Vest. elektroprom. 31 no.10:74-76 O '60.
(MIRA 15:1)

(Electric switchgear)
(Electric substations--Equipment and supplies)

SHISHMAN, D.V., kand.tekhn.nauk; TRUSOVA, V.N., inzh.

Rod-type supporting electric insulators for outdoor use with a 35 to 220 kv. power rating. Vest.elektroprom. 32 no.8:74-76 Ag '61.
(MIRA 14:8)
(Electric insulators and insulation) (Electric lines--Overhead)

SHISHMAN, D.V., kand.tekhn.nauk; MEKHOVA, N.N., inzh.; ROZET, V.Ye., inzh.

Valve discharger for the production of electric machinery. Vest.
elektroprom. 33 no.2:75-77 F '62.   (MIRA 15:2)
        (Electric machinery)   (Electric protection)

SHISHMAN, D.V., kand.tekhn.nauk; GUREVICH, A.A., inzh.

Experience in using "vilite" arresters. Elek.sta. 33 no.12:46-51
D '62.   (MIRA 16:12)
          (Electric protection)   (Electric power distribution)

SHISHMAN, D.V., kand. tekhn. nauk; MEKHOVA, N.N., inzh.; GUREVICH, A.A., inzh.; IKHTEYMAN, F.M., inzh.; Prinimali uchastiye: ROZET, V.Ye., inzh.; KAPLAN, G.S.; KAZIMIR, A.P.

Light-weight RVO-35 valve-type discharger. Mekh. i elek. sots. sel'khoz. 21 no.3:60-62 '63.   (MIRA 16:8)

1. Leningradskiy filial Gosudarstvennogo issledovatel'skogo elektrokeramicheskogo instituta (for Shishman,Mekhova, Gurevich). 2. Nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Severo-Zapada (for Ikhteyman).
                    (Electric protection)

SHISHMAN, D.V.

  Valve dischargers with magnetic quenching. Standartizatsiia 27
  no.2:43-44 F '63.   (MIRA 16:4)

    (Electric insulators and insulation—Safety
                   appliances)

SHISHMAN, D.V., kand. tekhn. nauk

Valve dischargers for the overvoltage protection of nongrounded
neutral lines of 110-220 kv. transformers. Elek. sta. 35 no.6:
38-40 Je '64.   (MIRA 18:1)

KUKLIN, G.A., kand. tekhn. nauk (Leningrad); SHISHMAN, D.V., kand.
tekhn. nauk (Leningrad); BUKIR', P.P., inzh. (Leningrad);
BULAT, V.Ye., inzh. (Leningrad)

Spark gaps with electromagnetic narrow-slot arc querchers for
a.c. valve dischargers. Elektrichestvo no.12:58-60 D '64.
                                              (MIRA 18:12)

SHISHMAN, S. S. (Senior Engineer)

"Methods of Modeling Random Disturbances in Gyro Systems"

report presented at the Scientific-technical Conference on Modern Gyroscope
Technology Ministry of Higher and Secondary Special Education RSFSR, held
at the Leningrad Institute of Precision Mechanics and Optics, 20-24 November 1962

(Izv. vysshikh uchebnykh zavekeniy. Priborostroyeniye, v. 6, no. 2, 1963)

ACCESSION NR: AR4034722

S/0124/64/000/003/A011/A012

SOURCE: Ref. zh. Mekhan., Abs. 3A81

AUTHOR: Shishman, S. S.

TITLE: Modeling gyroscopic systems including the calculation of friction

CITED SOURCE: Tr. Leningr. in-t aviats. priborostr., vy*p. 40, 1963, 119-127

TOPIC TAGS: gyroscopic system, modeling, friction, Cardan suspension

TRANSLATION: Methods of modeling gyroscopic systems are shown with computation of friction as a stationary random process. A simple system of a generator of random disturbances is noted, and an engineering method for calculating transmission functions is given. A generalized system of modeling makes it possible to model all possible variants of the movement of a gyroscope in a Cardan suspension.

DATE ACQ: 02Apr64

SUB CODE: AE, PH

ENCL: 00

Card 1/1

BULGARIA / Chemical Technology.   Chemical Products & Their Appli-   H
              cations. Synthetic Polymers. Plastics.

Abs Jour   : R Zh Khim., No 12, 1959, No 44149

Author   : Shishmanov, Ch.; Zlaterev, K.
Inst   : Not given
Title   : Plastics and Their Use for Machinery.

Orig Pub   : Tezhka promishlenost, 1958, 7, No 4, 17-25

Abstract   : Classification of present-day plastics, their basic proper-
              ties, and the use of plastics for machinery. - L. Pesin.

Card: 1/1

H - 66

SHISHMANOV, Ch.

New Hungarian metal-cutting machines.   p. 44.

TEZHKA PROMISHLENOST. (Ministerstvo na tezhkata promishlenost) Sofiia, Bulgaria.
Vol. 8, no. 6, June 1959.

Monthly List of East European Accessions EEAI) LC, Vol. 9, No. 2, Feb. 1960.
UNCL

SHISH___OV, D.

DRACHEV, Iv.; SHISHMANOV, D.

Clinical possibilities of diagnosis of Q fever. Suvrem. med.,
Sofia 5 no.2:117-120 1954.

1. Iz terapevtichnoto otdelenie pri Garnizoniia gospital, Plovdiv.
        (Q FEVER, diagnosis.)
            *

SHISHMANOV, D.; GRIGOROV, D.V.

Densography and densometry in electrophoresis on filter paper. Suvrem.
med., Sofia 9 no.2:69-71 Feb 58.

1. Iz Vutreshnoto otdelenie na Voennata bolnitsa; Plovdiv (Zavezhdashch:
Iv. Drachev).
       (ELECTROPHORESIS
           filter paper, densography & densometry (Bul))

KHAVEZOV, K.; SHISHMANOV, N.

Sulfohemoglobin intoxication in simultaneous therapy with analgin and magnesium sulfate. Suvrem. med., Sofia 8 no.10:103-106 1957.

1. Iz Klinikata po fakulteteka terapiia pri VMI--Sofiia (Zavezhdashch: prof. D-r. M. Rashev.

(DIABETES MELLITUS, complications,
    polyneuritis, analgin with magnesium sulfate ther. causing
    sulfohemoglobinemia (Bul))
(POLYNEURITIS, etiol. & pathogen,
    diabetes mellitus, analgin with magnesium sulfate ther. causing
    sulfohemoglobinemia (Bul))
(BLOOD DISEASES, etiol. & pathogen.
    sulfohemoglobinemia caused by analgia with magnesium sulfate
    ther. of diabetic polyneuritis (Bul))
(AMINOPYRINE, rel. cpds,
    analgin with magnesium sulfate ther. of diabetic polyneuritis
    causing sulfohemoglobinemia (Bul))
(MAGNESIUM SULFATE, inj. eff.
    sulfohemoglobinemia in ther. of diabetic polyneuritis, with
    analgin (Bul))

VLADIMIROV, Vl.; SHISHMANOV, N.

Echinococcosis of the liver with thrombosis of the inferior vena cava.
Suvrem. med., Sofia 9 no.3:107-110 1958.

1. Iz Klinikata po fakultetska terapiia pri VMI--Sofiia (Zav. katedrata:
prof. M. Rashev).
        (LIVER DISEASES, case reports
            echinococcosis, with thrombosis of inferior vena cava (Bul))
        (ECHINOCOCCOSIS, case reports
            liver, with thrombosis of inferior vena cava (Bul))
        (VENAE CAVAE, dis.
            thrombosis of inferior in echinococcosis of liver (Bul))
        (THROMBOSIS, complications,
            vena cava, with liver echinococcosis (Bul))

SHISHMANOV, P.

Eleminating impulse disturbances in amateur short-wave receivers. p.16.
(RADIO Vol. 4, no. 4, 1955, Sofiya)

SO: Monthly List of East European Accessions, (EEAL). LX, Vol. 4m No. 11,
    Nov. 1955, Uncl.

SHISHMANOV, P. ; RADEV, S.

Construction of electric transformers with coils of conic bobbins.   p. 38.

TEZHKA PROMISHLENOST. (Ministerstvo na tezhkata promishlenost) Soffia, B ulgaria
Vol. 8, No. 9, Sept. 1959.

Monthly List of East European Accessions (EEAL) LC, Vol. 9, No. 2, Feb. 196..
UNCL

Shishmanov, P.

BULGARIA / Chemical Technology. Chemical Products :   H
and Their Application. Leather. Fur. Gel-
atin. Tanning Materials. Industrial Pro-
teins.

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 33660.

Author   : Shishmanov, P.
Inst   : Not given.
Title   : The State of the Technique of Leather Impreg-
nation.

Orig Pub: Leka promishlenost, 1958, 7, No 5, 9-11.

Abstract: There is set forth a review of the contemporary
state of the technique of leather impregnation
for the increase of its hydrophobic properties
and its resistance to laundering, at the same
time retaining good air and steam penetrability.
The impregnation by complex Cr salts and fatty

Card 1/2

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IONKOV, I.; TSOLOV, R.; STANCHEV, A.; DOSKOV, I.; SHISHMANOVA, IU.;
BALCHEV, A.; PENEVA, M.; SUKIASIAN, Kh.; MATEV, M.; NIKOLOV, St.;
ATANASOV, E.; TODOROV, B.; STEFANOVA, A.

Clinical, pathophysiologic, and therapeutic aspects of tuberculous
exudative pleurisy. Nauch. tr. Med. akad. Chervenkov, Sofia 1 no.1:
117-137 1953.

1. Predstavena ot prof. Iv.Ionkov, zavezhdashch Katedrata po
propedevtika na vutreshnite bolesti.
     (TUBERCULOSIS, PULMONARY, complications,
        pleurisy, exudative)

IONKOV, Iv.; STANCHEV, Al.; DOSKOV, Iv.; SHISHMANOVA, IUl.; ATANASOV, E.;
    MATEV, M.; PANEVA, M.; NIKOLOV, St.; PETRUNOV, St.; NIKOLOV, N.

The development of Bulgarian internal medicine from 9 September
1944. Suvrem med., Sofia no.6:106-114 '60.
        (HISTORY OF MEDICINE)

STANCHEV, Al.; SHISHMANOVA, IU.

On combined therapy of diabetes mellitus with insulin and sex hormones.
Nauch. tr. vissh. med. inst. Sofia 40 no.1:191-209 '61.

1. Predstavena ot prof. Iv. Ionkov, rukovod. na Katedrata po propedev-
tika na vutreshnite bolesti.

(SEX HORMONES ther)   (INSULIN ther)

IONKOV, Iv.; NIKOLAEV, A.; BOZADZHIEVA, E.; SHISHMANOVA, IU.

A case of gargoylism. Nauch. tr. vissh. med. inst. Sofia 40 no.3:
227-240 '61.

1. Predstavena ot prof. Iv. Ionkov, rukovoditel na Katedrata po pro-
pedevtika na vutreshnite bolesti, i ot prof. A. Nikolaev, rukovoditel na
Katedrata po rentgenologiia.

(LIPOCHONDRODYSTROPHY case reports)

SHISHMANOVA, IU.

Studies on the duration of the electrical systole in patients with chronic cardiac decompensation. Suvr. med. 12 no.12: 39-44 '61.

1. Iz Katedrata po propedevtika na vutreshnite bolesti pri VMI [Vissh meditsinski institut] - Sofiia (Rukovod. na katedrata prof. Iv. Ionkov).
            (HEART FAILURE CONGESTIVE)
            (ELECTROCARDIOGRAPHY)

SHISHMANOVA, IU.; PENEV, P.

A rare case of gouty polyarthritis. Suvr. med. 13 no.7:33-34
'62.
                (GOUT)   (PYELONEPHRITIS)   (CINCHOPHEN)

IONKOV, Iv.; TSOLOV, R.; DOSKOV, I.; SHISHMANOVA, IUl.; ANDREEV, I.;
NIKOLOV, St.; SUKIASIAN, Kh.; MATEV, M.; ATANASOV, E.;
TODOROV, B.; STEFANOVA, A.; PETRUNOV, St.; TSVETKOV, D.;
ORESHKOV, V.; SIMEONOV, S.; PATARINSKI, D.; AVRAMOVA, N.;
MALCHEV, Kh.

Biochemical changes in patients with influenza during the
1959 epidemic. Nauch. tr. vissh. med. inst. Sofia 41 no.7:
9-14 '62.

1. Predstavena ot prof. I. Ionkov.
   (INFLUENZA)   (GAMMA GLOBULIN)   (IRON METABOLISM)
   (BILIRUBIN)   (BICARBONATES)   (BLOOD CHOLESTEROL)
   (UREA)   (BLOOD SUGAR)   (PROTEIN METABOLISM)
   (POTASSIUM)   (BLOOD PROTEINS)   (SODIUM)
   (17-KETOSTEROIDS)   (SODIUM CHLORIDE)

SHISHMANYAN, Z.

"The First Radio-Telegraph Competitions of Short-Wave Operators in the Armenian
SSR," Soviet journal "Radio," Issue No. 4, 1952.

SHISHMANYAN, Zh.

Erivan - Zaporozh'ye. Radio no.9:19 S '56.   (MLRA 9:11)

1. Predsedatel' korotkovolnovoy i ul'travolnovoy sektsii Yere-
vanskogo radiokluba.
                    (Erivan--Radio, Shortwave)

KOZLOV, F.; SHISHMANYAN, Zh.; GAGARNIKOVA, T.; KOVAL', V.

Ultra-shortwave operators on the air. Radio no.11:17 N '56.
(MLRA 9:12)

1. Predsedatel' korotkovolnovoy i ul'trakorotkovolnovoy sektsiy
radiocluba, Yereven, Armeniya (for Shishmanyan).
(Radio, Shortwave)

SHISHMANYAN, Zh. (UG6AW), sud'ya respublikanskoy kategorii (Yerevan)

Justified requests. Radio no.12:17 D '58.   (MIRA 11:12)
(Radio, Shortwave--Competitions)

SHISHMAREV, A.I.

The book should be improved. Priborostroenie no.10:30 O '63.

(MIRA 16:11)

8

16(1)

AUTHORS: Il'in,V.A.,Shishmarev,I.A.   SOV/20-126-6-6/67

TITLE: On the Connection Between the Classical and the Generalized
             Solution of the Dirichlet Problem and of the Problem of
             Eigen Values

ABSTRACT: It is proved that the classical and the generalized solutions
             of the Dirichlet problem

                   $Lu = -f$ in G , $u|_\Gamma = 0$,

             where Γ is the boundary of G, are almost everywhere identical
             in G , if certain conditions are satisfied guaranteeing the
             existence of the classical solution.
             A similar result for the eigen value problem

                   $Lv + \lambda v = 0$ in G , $v|_\Gamma = 0$,

             is obtained.
             Five theorems and lemmata are given.

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On the Connection Between the Classical and the   SOV/20-126-6-6/67
Generalized Solution of the Dirichlet Problem and of the Problem of
Eigen·Values

        There are 8 references, 4 of which are Soviet, 2 German,
        1 American, and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
        (Moscow State University imeni M.V. Lomonosov)

PRESENTED: March 17, 1959, by S.L. Sobolev, Academician

SUBMITTED: February 24, 1959

Card 2/2

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S/038/60/024/04/01/001
C111/C222

16.3500

AUTHORS: Il'in, V.A., and Shishmarev, I.A.

TITLE: On the Connection Between the Generalized and Classical Solutions of the Dirichlet Problem

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol 24, No. 4, pp. 521 - 530

TEXT: In the arbitrary N-dimensional domain g with the boundary Γ the authors consider the Dirichlet problem

(1) $Lu = -f$ in g , $u|_{\Gamma} = 0$,

where L is an elliptic selfadjoined differential operator

(2) $Lu = \sum_{i,j=1}^{N} \frac{\partial}{\partial x_i} \left[a_{ij}(x) \frac{\partial u}{\partial x_j} \right] - c(x)u$,

where $c(x) \geqslant 0$. A function $u(x)$ which is continuous in $(g + \Gamma)$, two times

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On the Connection Between the Generalized   S/038/60/024/04/01/001
and Classical Solutions of the Dirichlet   C111/C222
Problem

continuously differentiable in g, and which satisfies (1) is called a
classical solution of the problem (1). A function v = u for which

(4) $\phi(v) = \int_g \left[\sum_{i,j=1}^N a_{ij} \frac{\partial v}{\partial x_i} \frac{\partial v}{\partial x_j} + cv^2 - 2 fv \right] dx$

becomes a minimum, where $v \subseteq \overset{o}{D}(g)$ is called a generalized solution of (1).
$\overset{o}{D}(g)$ is the closure in the norm of the space $W_2^{(1)}(g)$ of the set of all
functions continuously differentiable in g , which vanish in a certain
boundary strip of g .
Under assumptions which guarantee the existence of the classical solution
(i.e. for an arbitrary normal domain) it is proved that the classical and
the general solution of problem (1) are identical (almost everywhere in g).
The authors mention S.G. Mikhlin; they thank A.N. Tikhonov, B.M. Budak and M.I.
Vishik. There are 8 references: 3 Soviet, 2 German, 2 American and 1 French.
PRESENTED: by S.L. Sobolev, Academician
SUBMITTED: April 9, 1959   ✕
Card 2/2

84746

16.3500

S/038/60/024/005/004/004
C111/C222

AUTHORS: Il'in, V.A. and Shishmarev, I.A.

TITLE: On the Equivalence of Systems of Generalized and Classical Eigen-functions

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol. 24, No. 5, pp. 757 - 774

TEXT: In the N - dimensional domain g with the boundary Γ the author considers the eigenvalue problem

(1)
$$\begin{cases} Lu + \lambda u = 0 \quad (\text{in } g) \\ u|_{x \in \Gamma} = 0 \end{cases}$$

where

(2)
$$Lu = \sum \frac{\partial}{\partial x_j}\left(a_{ij}(x)\,\frac{\partial u}{\partial x_j}\right) - c(x)\cdot u$$

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On the Equivalence of Systems of Generalized   S/038/60/024/005/004/004
and Classical Eigenfunctions   C111/C222

is a linear selfadjoint operator of elliptic type and $c(x) \geqslant 0$.
Under these conditions theorem 1 asserts: Let g be a normal domain (i.e.
let the Dirichlet problem for the Laplace equation for every continuous
boundary function be solvable in g, cf. (Ref. 4)) and let it lie together
with Γ in an open domain C. Let the coefficients of L belong to the
classes

(5) $a_{ij}(x) \in c^{(1, \mu)}$, $c(x) \in c^{(0, \mu)}$ $(\mu > 0)$.

Then there exists a complete orthogonally normed system of the classical
eigenfunction of (1).
As a generalized eigenfunction of (1) the author denotes a function $u(x)$
not equivalent to zero which belongs to the class $\overset{o}{D}(g)$ $(D(g)$ is the
closure with respect to the norm of the
$$W_2^{(1)}(g)$$ of the set of functions
continuously differentiable in g which vanish in a certain boundary strip
of the domain g) and which satisfies the identity

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(4)
$$\int_g \left[\sum_{i,j=1}^{N} a_{ij} \frac{\partial u}{\partial x_i} \frac{\partial \psi}{\partial x_j} + c\, u\, \psi - \lambda\, u\, \psi \right] dx = 0$$

for each function $\psi(x) \in \overset{o}{D}(g)$.

Theorem 2: If the assumptions of theorem 1 are satisfied, then the ortho-
gonally normed systems of the generalized and the classical eigenfunctions
of the problem (1) as well as the corresponding systems of the eigenvalues
are identical.

If g is not only normal but bounded by a surface Γ of the Lyapunov type,
then it is sufficient when the $a_{ij}(x)$ and $c(x)$ satisfy the conditions in
$(g + \Gamma)$ formulated in theorem 1 and 2.

The proof of the theorems bases on the investigation of the Green's
function of the problem $Lu = -f$, $u|_{x \in \Gamma} = 0$. The existence of the Green's
function $K(x,y)$ follows from (Ref. 6). Then the author proves that in g:
$K(x,y) = K(y,x)$, $K(x,y) > 0$, $K(x,y)$ is continuous everywhere in $g + \Gamma$
with the exception of $x = y$. Then the existence and continuity of the first
and second derivatives of K as well as of the regular part of K are proved

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and Classical Eigenfunctions   C111/C222

and these derivatives are estimated (lemmas 1 - 4). Then the theorems 1 and
2 are proved with the aid of the Green's function and its properties.
The author mentions S.G. Mikhlin. There are 9 references: 6 Soviet, 1 German
and 3 American.

PRESENTED: by S.L. Sobolev, Academician

SUBMITTED: April 9, 1959

Card 4/4

S/038/60/024/006/001/004
C111/C333

AUTHORS: Il'in, V.A., Shishmarev, I.A.

TITLE: Uniform Estimations in the Closed Domain of the Eigenfunctions
of an Elliptic Operator and of Their Derivatives

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960,
Vol. 24, No. 6, pp. 883 - 896

TEXT: Let the linear self-adjoint differential operator

$$(1) \quad Lu = \sum_{i,j=1}^{N} \frac{\partial}{\partial x_i} \left[a_{ij}(x) \frac{\partial u}{\partial x_j} \right] - c(x)u$$

be given in the open N-dimensional domain C; assume that it is elliptic,
i.e. let

$$(2) \quad a_{ij}(x) = a_{ji}(x) \quad \text{and} \quad \sum_{i,j=1}^{N} a_{ij} \xi_i \xi_j \geq \alpha \sum_{i=1}^{N} \xi_i^2 \quad (\alpha = \text{const} > 0)$$

for all $x = (x_1, x_2, \ldots, x_N) \in C$ for arbitrary real $\xi_1, \ldots, \xi_N$.   Let

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Uniform Estimations in the Closed Domain of the Eigenfunctions of an Elliptic Operator and of Their Derivatives

$$(3) \quad a_{ij}(x) \in C^{(1,\mu)} \quad , \quad c(x) \in C^{(0,\mu)} \, , \quad \mu > 0 \quad , \quad c(x) \geqslant 0$$

be in C. Assume that g is an arbitrary open normal domain which lies in C together with its boundary Γ (g is normal, if in g the Dirichlet problem for the Laplace equation is solvable for every continuous boundary function). The authors consider the eigenvalue problem

$$(4) \quad \begin{cases} Lu + \lambda u = 0 \qquad \text{(in g)} \\ u\big|_\Gamma = 0 \end{cases}$$

in g. As it is well-known (4) possesses complete orthogonally normed systems of classical and generalized eigenfunctions, where these systems are identical according to (Ref. 3). All the eigenfunctions correspond to positive eigenvalues.

At first the authors prove the following formula for the eigenfunctions of problem (4) :

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Uniform Estimations in the Closed Domain of the Eigenfunctions of an
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$$(16) \quad u_n^2(y) = \int_g H(x,y) \left\{ 2\lambda_n u_n^2(x) - \left[2\sum_{i,j=1}^{N} a_{ij} \frac{\partial u_n}{\partial x_i} \frac{\partial u_n}{\partial x_j} + c u_n^2(x) \right] \right\} dx$$

$$+ \int_g u_n^2(x) LH \, dx \quad ,$$

where y is an arbitrary fixed interior point of g ,

$$(12) \quad H(x,y) = \frac{1}{(N-2)\omega_N \sqrt{A(y)}} \left[\sum_{r,s=1}^{N} A_{rs}(y)(x_r - y_r)(x_s - y_s) \right]^{\frac{2-N}{2}} \quad ,$$

$A(y) = \det \| a_{rs}(y) \|$, $A_{rs}(y)$ the ratio of the algebraic complement of
the element $a_{rs}(y)$ to the determinant $A(y)$,

$$\omega_N = \frac{2(\sqrt{\pi})^N}{\Gamma\left(\frac{N}{2}\right)} \quad .$$

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Then the authors show : The estimation

(7)
$$|u_n(x)| \leq c_2 \, \lambda_n^{\frac{1}{4}N}$$

holds uniformly in an arbitrary closed domain $(g + \Gamma)$.
A closed domain is said to belong to the class $A^{(k, \mu)}$, if the equation
of the boundary surface in local coordinates belongs to the class $C^{(k, \mu)}$
(i.e. if its k-th derivatives satisfy the Hölder condition with the ex-
ponent μ). Theorem 2 : If the domain $(g + \Gamma)$ belongs to $A^{k, \mu}$ and if the
$\frac{\partial a_{ij}(x)}{\partial x_k}$, $c(x)$ belong to the class $C^{(k-2, \mu)}(k \geqslant 2)$ in the closed domain
$(g + \Gamma)$, then the eigenfunctions of (4) belong to $C^{(k, \mu)}$ in the closed
domain $(g + \Gamma)$.
Theorem 3 : For all $u(x) \in C^{(k, \mu)}$ in $(g + \Gamma)$ there hold uniformly the
estimations

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$$(37) \quad u_1 = O\left(u_{k,\mu}^{\frac{1}{k+\mu}} u_o^{\frac{k+\mu-1}{k+\mu}} + u_o R^{-1} \right) , \quad 1 \leq k$$

$$(38) \quad u_{1,} = O\left(u_{k,\mu}^{\frac{1+\mu}{k+\mu}} u_o^{\frac{k-1}{k+\mu}} + u_o R^{-(1+\mu)} \right) , \quad 1 < k$$

where R is the diameter of g, u_1 the sum of the maxima of the absolute values of all 1-th derivatives of u(x) in (g + Γ), $u_{1,\mu}$ the sum of the Hölder coefficients of these derivatives for the exponent μ, where u_o and $u_{o,\mu}$ are the maxima of the absolute value and the Hölder coefficient of the function u(x) in (g + Γ).
Theorem 2 is deduced from theorem 1 (theorem of Schauder and Caccioppoli). Theorem 3 and a further theorem 4 contain well-known apriori-estimations

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of Schauder and Caccioppoli (theorem 1 and the estimations of theorem 3 and 4 are contained in (Ref. 4)).
From the estimations of the theorems 1-4 the authors obtain the following results :
1. For the derivatives of the eigenfunctions of (4) it holds uniformly in $(g + \Gamma)$:

$$(9) \quad |u_n^{(k)}(x)| \leq c_4 \, \lambda_n^{N/4 + k/2}$$

2. for the Hölder coefficient $u_{k,\mu}$ of the k-th derivative of the eigenfunction it holds :

$$(10) \quad u_{k,\mu} \leq c_5 \, \lambda^{N/4 + k/2 + \mu/2} \quad ;$$

c_4 , c_5 depend on k, μ is the Hölder exponent.
Kh.L. Smolitskiy, D.M. Eydus and L.N. Slobodetskiy are mentioned.
Card 6/7

S/038/60/024/006/001/004
C111/C333

Uniform Estimations in the Closed Domain of the Eigenfunctions of an
Elliptic Operator and of Their Derivatives

There are 10 references : 7 Soviet, 2 American and 1 French.

[Abstracter's note : (Ref. 3) is a paper of the authors in Izvestiya
Akademii nauk SSSR, Seriya matematicheskaya, 1960, 24, 757-774 ; (Ref.4)
is the book of Miranda : Partial Differential Equations of Elliptic
Type]

PRESENTED: by S.L. Sobolev, Academician

SUBMITTED: April 9, 1959

Card 7/7

16(1) 1 6. 3500

AUTHOR: Shishmarev, I.A.

TITLE: A Priori Estimation of Solutions to Dirichlet Problem for an
             Elliptical Operator With Discontinuous Coefficients

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 2, pp 269-272 (USSR)

ABSTRACT: Let g be an N-dimensional open domain with the boundary
             manifold Γ_2. Let the (N-1)-dimensional geometrically closed
             surface Γ_1 lie in g and divide g into the subdomains g_1 and g_2.
             The author considers the Dirichlet problem

             (1) $L_1 u = 0$ in g_1; $L_2 u = 0$ in g_2; $[u]\big|_{\Gamma_A} = 0, \left[\dfrac{\partial u}{\partial \nu}\right]\big|_{\Gamma_A} = k,$

             $u\big|_{\Gamma_2} = 0.$

             Here

             (2) $L_1 u = \sum\limits_{i,j=1}^{N} a_{ij}^{(1)}(x)\, \dfrac{\partial^2 u}{\partial x_i \partial x_j} + \sum\limits_{i=1}^{N} b_i^{(1)}(x)\, \dfrac{\partial u}{\partial x_i} + c^{(1)}(x)u,$

             $l=1,2$ is an elliptical operator defined in g_1. Besides it is

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S/020/60/131/02/014/071

A Priori Estimation of Solutions to
Dirichlet Problem for an Elliptical
Operator With Discontinuous Coefficents

$c^{(1)} \leq 0$ in g_1; $[u] \Big|_{\Gamma_1} \equiv u \big|_{x \to \Gamma_1 - o} - u \big|_{x \to \Gamma_1 + o}$; $\left[\frac{\partial u}{\partial \nu} \right] \Big|_{\Gamma_1} \equiv$

$\frac{\partial u}{\partial \nu_1} \Big|_{x \to \Gamma_1 - o} + \frac{\partial u}{\partial \nu_2} \Big|_{x \to \Gamma_1 + o}$, where $\frac{\partial}{\partial \nu_1}$ is the derivative

with respect to the conormal which equals $\sum\limits_{i,j=1}^{N} a_{ij}^{(1)} \cos(n^{(1)}, x_j) \frac{\partial}{\partial x_i}$;

k is a function defined on Γ_1; $L_1 \not\equiv L_2$. The coefficients of

the operators L_1 satisfy the Hölder condition; the surfaces Γ_1,

Γ_2 belong to the class of Lyapunov.
It is shown that every solution of (1) which in $g + \Gamma_2$ belongs
to the class $C^{(o)}$, in $g_1 + \Gamma_1$ and $g_2 + \Gamma_1 + \Gamma_2$ belongs to the
class $C^{(1)}$, and in g_1 and g_2 belongs to the class $C^{(2)}$, satisfies
the estimation:

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Operator With Discontinuous Coefficients

$$(4) \quad \max_{x \in (g+\Gamma_2)} |u(x)| \leq C \max_{x \in \Gamma_1} |k(x)| \ , \qquad C = \text{const.}$$

To the class $C^{(k)}$ there belong functions the k-th derivatives
of which are continuous.
The author thanks V.A.Il'in for the theme and attention to the
paper.
There are 4 references, 1 of which is Soviet, 2 French, and
1 American.

PRESENTED: November 19, 1959, by S.L.Sobolev, Academician

SUBMITTED: November 18, 1959

Card 3/3

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16.3500

AUTHORS: Il'in, V.A., and Shishmarev, I.A.

TITLE: Some Problems for the Lu = div[p(x)grad u]-q(x)u Operator With Discontinuous Coefficients

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.135, No.4, pp.775-778

TEXT: Let g be an N-dimensional open region with the boundary Γ; let C be an (N-1)-dimensional region in g being homeomorphic to the sphere and dividing g into g_1 and g_2. Let T be an open region containing $(g+\Gamma)$. In $(g+\Gamma)$ the author considers the following Dirichlet problem:

(1)
$$\begin{cases} L_1 u = \operatorname{div}[p_1(x)\operatorname{grad} u]-q_1(x)u = f_1(x) \text{ in } g_1 \\ L_2 u = \operatorname{div}[p_2(x)\operatorname{grad} u]-q_2(x)u = f_2(x) \text{ in } g_2 \\ u|_\Gamma = \varphi(x), \quad [u]|_C = \psi(x), \quad \left[p\frac{\partial u}{\partial n}\right]|_C = \chi(x) \end{cases}$$

where $[u]|_C \equiv u|_{C-0}-u|_{C+0}$; $\left[p\frac{\partial u}{\partial n}\right]|_C = p_1\frac{\partial u}{\partial n}|_{C-0}-p_2\frac{\partial u}{\partial n}|_{C+0}$, n is the outer normal of g_1 and the symbols C-0 and C+0 mean that the boundary values are taken from the inner and outer side, respectively, of C (with

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Some Problems for the Lu = div[p(x)grad u] -q(x)u Operator With Discontinuous Coefficients

respect to g_1).

Definition 1. A function $u(x)$ which satisfies the following conditions is called a classical solution of the problem (1): 1) $u(x)$ belongs to the class $C^{(0)}$ in (g_1+C) and $(g_2+C+\Gamma)$; $u(x)$ belongs to $C^{(1)}$ in (g_1+C) and (g_2+C); $u(x)$ belongs to $C^{(2)}$ in g_1 and g_2; 2) $u(x)$ satisfies the problem (1) in the classical sense. $(C^{(n)}$ and $C^{(n,n)}$ are defined as in (Ref.1)).
The following five conditions (A) are formulated:
1) C belongs to the Lyapunov class, Γ is regular.
2) $p_1(x) \in C^{(1,\mu)}$ in (g_1+C); $p_2(x) \in C^{(1,\mu)}$ in $(T-g_1)$;

$q_1(x) \in C^{(0,\mu)}$ in (g_1+C); $q_2(x) \in C^{(0,\mu)}$ in $(T-g_1)$;

$f_1(x) \in C^{(0,\mu)}$ in g_1; $f_2(x) \in C^{(0,\mu)}$ in g_2; besides:

$f_1(x) \in C^{(0)}$ in (g_1+C); $f_2(x) \in C^{(0)}$ in $(g_2+C+\Gamma)$

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Some Problems for the $Lu = \text{div}\left[p(x)\text{grad } u\right]-q(x)u$ Operator With Discontinuous Coefficients

3) $p_i(x) > 0$, $q_i(x) \geq 0$ $(i=1,2)$ everywhere in the regions of definition of them.

4) $\Phi'(x)$ is defined and continuous on Γ.

5) $\psi(\tau)$, χ are defined on C; $\psi \in C^{(1,\mu)}$, $\chi \in C^{(0,\mu)}$.

Theorem 1: If the first and third condition A is satisfied then it exists only one classical solution of (1).

Theorem 2: If all conditions A are satisfied then there exists a unique solution of (1), where it belongs to the class $C^{(1,\mu)}$ in each of the regions (g_1+C) and (g_2+C).

If $\varphi = \psi = \chi = 0$ then the classical solution is simultaneously the generalized solution in the sense of (Ref. 4,5).

The Green's function $K(x,y)$ of (1) is symmetrical, continuous in (x,y) everywhere in $(g+\Gamma)$ (inclusively $C!$) for $x \neq y$, and in $(g+\Gamma)$ it satisfies the estimations

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$$|K(x,y)| \leqslant c_1 + c_2 \ln \frac{1}{r_{xy}} \qquad \text{for } N = 2$$

(2)

$$|K(x,y)| \leqslant c_3 r_{xy}^{2-N} \qquad \text{for } N > 2 .$$

Then the authors consider

(3)
$$\begin{cases} L_1 u + \lambda u = 0 & \text{in } g_1 \\ L_2 u + \lambda u = 0 & \text{in } g_2 \\ u|_\Gamma = 0, \; \left[u\right]\big|_c = 0, \; \left[p \frac{\partial u}{\partial n}\right]\big|_c = 0, \end{cases}$$

where L_1 and L_2 are the same as in (Ref.1).

Definition 2: The classical eigenfunction of (3) is a function $u(x) \not\equiv 0$ which 1) satisfies the condition 1) of the definition 1, and 2) for a certain λ satisfies (3) in the classical sense.

Theorem 3: If the first three conditions of A are satisfied then there exists a complete system of classical eigenfunctions of (3) orthogonally

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normed in the $L_2(g)$, where besides each of these eigenfunctions belongs to

the class $C^{(1,\mu)}$ in each of the regions (g_1+C), (g_2+C).

Theorem 4: The complete system of classical eigenfunctions of (3) is
identical with the complete system of generalized eigenfunctions of (3).
Theorem 5: Under the assumptions of theorem 4 there exists a constant c_o
so that uniformly in $(g+\Gamma)$ it holds

(5) $|u_n(x)| \leqslant c_o \lambda_n^{N/4}$

(here $u_n(x)$ is an arbitrary eigenfunction of (3) corresponding to the
eigenvalue λ_n).

The authors mention D.M.Eydus and O.A.Oleynik; they thank A.N.Tikhonov

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Some Problems for the Lu = $\operatorname{div}\left[p(x)\operatorname{grad}u\right]$-q(x)u Operator With
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for advices. There are 8 references: 6 Soviet, 1 German and 1 American.

[Abstracter's note: (Ref.1) concerns Miranda, Partial Differential
Equations of Elliptic Type. (Ref.4) concerns Courant and Hilbert, Methods
of Mathematical Physics, 2, Chapter 7.]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
               (Moscow State University imeni M.V.Lomonosov)

PRESENTED: June 20, 1960, by I.G.Petrovskiy, Academician

SUBMITTED: June 18, 1960

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S/199/61/002/001/003/008
B112/B218

16.3500

AUTHORS: Il'in, V. A., Shishmarev, I. A.

TITLE: Method of potentials of the Dirichlet-Neumann problem in the case of equations with discontinuous coefficients

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 1, 1961, 46-58

TEXT: The authors' study is based on an N-dimensional open domain g with a boundary manifold Γ. The domain g divides an (N-1)-dimensional surface C which is homeomorphic to the sphere, into two subdomains g_1 and g_2. The authors deal with the following Dirichlet problem:

$$L_k u = \operatorname{div}\left[p_k(x)\,\operatorname{grad} u\right] - q_k(x)\, u =$$

$$\sum_{i=1}^{N}\left[p_k(x)\,\frac{\partial^2 u}{\partial x_i^{2}} + \frac{\partial p_k}{\partial x_i}\,\frac{\partial u}{\partial x_i}\right] - q_k(x)\, u = f_k(x) \quad (\text{in } g_k)$$

$$u\big|_\Gamma = \varphi,\; [u]\big|_C = \psi,\; \left[p\frac{\partial u}{\partial n}\right]\Big|_C = \chi.$$

They assume that C belongs to Lyapunov class of surfaces, that Γ is regular,
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Method of ...   B112/B218

and that the functions $p_i(x)$, $q_i(x)$, $f_i(x)$, φ, ψ, χ belong to certain clas-
ses of functions which are more general than the classes of functions
corresponding to the classical Dirichlet problem. O. A. Oleynik has proved
existence theorems for a similar but more special Dirichlet problem. The
authors of the present paper prove the existence and uniqueness of a
classical solution of the Dirichlet problem formulated above. Their
existence is proved by the method of potentials; explicit solutions are not
given. Following this, they discuss the Neumann problem:
$L_1 u = f_1(x)$ in g_1, $L_2 u = f_2(x)$ in g_2,

$(p_2 \frac{\partial u}{\partial n_2} + hu)\big|_\Gamma = \varphi$, $[u]\big|_C = \psi$, $\left[p \frac{\partial u}{\partial n}\right]\big|_C = \chi$, where h is a function given on Γ.

Also for this boundary problem, the authors prove the existence and uni-
queness of a classical solution. Finally, they solve the Dirichlet prob-
lem in a general way and study its relation to the classical solution. An
appendix gives the explicit form of some theorems that were implicitly
used or derived in the paper. The authors thank A. N. Tikhonov for dis-
cussions of the results obtained. There are 6 Soviet-bloc references.

SUBMITTED: July 2, 1960
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IL'IN, V.A.; SHISHMAREV, I.A.

Eigenfunction problem for the operator $Lu = div[p(x)grad \; u] - g(x)u$ having discontinuous coefficients. Sib. mat. zhur. 2 no.4:520-536 Jl Ag '61.

(MIRA 14:9)

(Eigenfunctions)

20315

S/020/61/137/001/005/021
C111/C222

/6.3500

AUTHOR: Shishmarev, I.A.

TITLE: Uniform evaluations of the derivatives of solutions to
Dirichlet's problem and to the problem of eigenfunctions
for the Lu = div (p(x) grad u) + q(x)u operator with
discontinuous coefficients

PERIODICAL: Akademii nauk SSSR. Doklady, v. 137, no. 1, 1961, 45-47

TEXT: Let g be an N-dimensional region with the boundary Γ_2 and Γ_1
be an (N-1)-dimensional closed surface in g which subdivides g into the
regions g_1 and g_2.

In the region (g + Γ_2) the author considers the Dirichlet problem

$$L_1 u = f_1 \quad \text{in} \quad g_1$$
$$L_2 u = f_2 \quad \text{in} \quad g_2 \tag{1}$$

$$[u]\big|\Gamma_1 = \varphi, \quad \left[\frac{\partial u}{\partial v}\right]\big|\Gamma_1 = \psi, \quad u\big|\Gamma_2 = \chi \quad .$$

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Uniform evaluations of the derivatives ...

Here

$$L_1 u = \text{div}(p_1(x)\,\text{grad } u) + q_1(x)\cdot u \tag{2}$$

is an elliptic operator given in g_1 ($l = 1,2,$) ; $p_1 > 0$, $q_1 \leq 0$ in g_1 ;

$$[u]\Big|_{\Gamma_1} \equiv u\Big|_{x\to\Gamma_1-o} - u\Big|_{x\to\Gamma_1+o} \; ; \Big[\frac{\partial u}{\partial \nu}\Big]\Big|_{\Gamma_1} = \frac{\partial u}{\partial \nu_1}\Big|_{x\to\Gamma_1 o} + \frac{\partial u}{\partial \nu_2}\Big|_{x\to\Gamma_1+o} \quad , \text{ where } \frac{\partial}{\partial \nu_1}$$

is the derivative in the direction of the conormal, which is equal to

$p_1 \dfrac{\partial}{\partial n_1}$ (n_1 - outer normal for g_1).

Definition : The classical solution of (1) is a function $u(x)$ which
satisfies the following conditions : 1) $u(x) \in C^{(0)}$ in $(g_1 + \Gamma_1)$ and
$g_2 + \Gamma_1 + \Gamma_2$) , 2) $u(x) \in C^{(1)}$ in $(g_1 + \Gamma_1)$ and $(g_2 + \Gamma_1)$,

3) $u(x) \in C^{(2)}$ in g_1 and g_2 4) $u(x)$ satisfies (1) in the classical sense.

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Uniform evaluations of the derivatives   ...

Theorem 1 : Let Γ_1 and Γ_2 belong to the class $A^{(n,\mu)}$; let $p_1 \in c^{(n,\mu)}$,

$q_1 \in c^{(n-2,\mu)}$, $f_1 \in c^{(n-2,\mu)}$ in $g_1 + \Gamma_1$) ; $p_2 \in c^{(n,\mu)}$, $q_2 \in c^{(n-2,\mu)}$,

$f_2 \in c^{(n-2,\mu)}$ in $(g_2 + \Gamma_1 + \Gamma_2)$; $\varphi \in c^{(n,\mu)}$, $\psi \in c^{(n-1,\mu)}$ on Γ_1;

$\chi \in c^{(n,\mu)}$ on Γ_2 $(n \geqslant 2)$. Then there exists a unique solution $u(x)$ of
(1) ; $u(x)$ belongs to the class $c^{(n,\mu)}$ in each of the regions $(g_1 + \Gamma_1)$
and $(g_2 + \Gamma_1 + \Gamma_2)$, where the estimation

$$u^{(n,\mu)} = 0 \left(F^{(0)} + \varphi^{(0)} + \psi^{(0)} + \chi^{(0)} + \sum_{i=1}^{n} \psi^{(i-1,\mu)} + \sum_{i=0}^{n} \varphi^{(i,\mu)} + \right.$$

$$\left. + \sum_{i=0}^{n} \chi^{(i,\mu)} + \sum_{i=2}^{n} F^{(i-2,\mu)} \right)$$

(3)

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Uniform evaluations of the derivatives ...

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is valid. The constant in O depends on the coefficients of the operators L_1 and L_2 and on the form of the regions g_1 and g_2 .

The classes $A^{(n,\mu)}$ and $C^{(n,\mu)}$ are defined by K. Miranda (Ref. 1 : Uravneniya s chastnymi proizvodnymi ellipticheskogo tipa [Partial elliptic differential equations] IL, 1957) ; $z^{(k)}$ denotes the sum of the maxima

of the absolute values of all derivatives of k-th order $(k \leq n)$ of

$z(x) \in C^{(n,\mu)}$, and $z^{(k,\mu)}$ denotes the sum of the Hölder coefficients of these derivatives (for the exponent μ) .

The author considers the problem of eigenfunctions

$$L_1 u + \lambda u = 0 \quad \text{in} \quad g_1$$
$$L_2 u + \lambda u = 0 \quad \text{in} \quad g_2 \tag{9}$$

$$[u]\big|_{\Gamma_1} = 0 \; , \quad \left[\frac{\partial u}{\partial y}\right]\Big|_{\Gamma_1} = 0 \; , \quad u\big|_{\Gamma_2} = 0 \; .$$

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Theorem 2 : Let Γ_1 and $\Gamma_2 \in A^{(n,\mu)}$, $p_1 \in C^{(n,\mu)}$, $q_1 \in C^{n-2,\mu}$ in $(g_1 + \Gamma)$; $p_2 \in C^{(n,\mu)}$, $q_2 \in C^{(n-2,\mu)}$ in $(g_2 + \Gamma_1 + \Gamma_2)$. Then the eigenfunctions of (g) belong to the class $C^{(n,\mu)}$ in each of the regions $(g_1 + \Gamma_1)$ and $(g_2 + \Gamma_1 + \Gamma_2)$, where in $(g + \Gamma_2)$ the estimations

$$u_1^{(k)} = O\left(\lambda_1^{\frac{N}{4}+\frac{k}{2}}\right) \quad , \quad u_1^{(k,\mu)} = O\left(\lambda_1^{\frac{N}{4}+\frac{k}{2}+\frac{\mu}{2}}\right) \tag{10}$$

(1 - number of the eigenfunction.) hold for them.
The author mentions A.N. Tikhonov. He thanks V.A. Il'in. There are 4 Soviet-bloc references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
              (Moscow State University imeni M.V. Lomonosov)
PRESENTED: October 14, 1960, by I.G. Petrovskiy, Academician
SUBMITTED: October 13, 1960
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IL'IN, V.A.; SHISHMAREV, I.A.

Smoothness properties of the generalized potentials of an elliptic operator. Dokl. AN SSSR 141 no.3:547-550 N '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom I.G. Petrovskim.
          (Operators (Mathematics))   (Potential, Theory of)

IL'IN, Vladimir Aleksandrovich; POZNYAK, Eduard Genrikhovich;
TIKHONOV, A.N., red. SVESHNIKOV, A.G., red.; SHESHMAREV,
L.A., red.

Fundamentals of mathematical analysis] Osnovy matemati-
cheskogo analiza. Moskva, Nauka, 1965. 571 p. (Kurs
vysshei matematiki i matematicheskoi fiziki, no.1)
                                            (MIRA 18:9)

ZHABIN, A.I., inzh.; RYBAL'CHENKO, P.S., inzh.; SHISHMAREV, L.I., inzh.;
        KNOBLOKH, V.P., inzh.

        Determining tolerances for machining bushing holes eliminating
        their scraping after press fitting. Vest. mashinostr. 45 no.5:
        41-45 My '65.   (MIRA 18:6)

AUTHORS: Yagn, Yu. I., Shishmarev, O. A.   SOV/32-24-10-28/70

TITLE: Investigation of the Plastic Deformation With Simultaneous
                Expansion and Torsion of Thin-Walled Tubular Metal Samples
                (Issledovaniye plasticheskogo deformirovaniya pri odnovremennom
                rastyazhenii i kruchenii tonkostennykh trubchatykh obraztsov
                metalla)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1243-1245 (USSR)

ABSTRACT: In studying the plastic deformation the samples mentioned in the
                title are often used (Refs 1-7). The results of these investi-
                gations do, however, not agree in many respects. In the present
                paper a perfection of this method and apparatus for carrying
                out the investigations mentioned in the title are described. The
                force of expansion and the angular momentum are produced by
                putting on certain weights. A diagram of the apparatus as well
                as a description of are given. The apparatus described was used
                for investigating the deformation anisotropy of thin-walled
                nickel tubes (diameter 5 mm, wall thickness 0,2 mm). The samples
                were subjected to a plastic expansion or torsion on the same
                apparatus prior to the investigation. Two different types of
Card 1/2   test methods were employed. According to the first, all limiting

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Investigation of the Plastic Deformation With Simultaneous Expansion and
Torsion of Thin-Walled Tubular Metal Samples

points of the elastic state were determined with one and the
same sample, whereas in the second case a number of samples
were tested with which the same initial deformation was obtained.
The most important results and data of this work were published
in the Doklady AS USSR 1958, Vol 119, Nr 1. A number of diagrams
corresponding to different stages of the initial plastic de-
formation of expanded samples are given. There are 2 figures
and 7 references, 2 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina
(Leningrad Polytechnical Institute imeni M. I. Kalinin)

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