

ALEKSANDROV, G.N., professor; LEVIN, S.I.

Some external signs in determining pathways of suppurative drainage in the foot and ankle joint. Vest.khir. no.4:107-110 '61. (MIRA 14:4)

1. Iz kafedry operativnoy khirurgii (zav. - prof. G.N. Aleksandrov) Samarkandskogo meditsinskogo instituta im. I.P. Pavlova.  
(FOOT--ABSCESS) (ANKLE--ABSCESS)

ALEKSANDROV, G.N., prof.; BARAKOV, V.Ye., kand.med.nauk

Changes in the position and skeleton of the human diaphragm due to age. Nauch. trudy SarMM 21:102-107 '62. (MIRA 1785)

1. Iz kafedry operativnoy khirurgii s topograficheskoy anatomiyey Samaranskogo meditsinskogo instituta imeni Pavlova.

ALEKSANDROV, G.N., prof.; NASEKIN, M.T., assistant

Size of the pelvis in female human fetuses. Med. zhur. Uzb.  
no.7:60-64 JI '63. (MIRA 17:2)

1. Iz kafedry operativnoy khirurgii s topograficheskoy  
anatomyey Samarkandskogo meditsinskogo instituta imeni  
I.P. Pavlova.

ALEKSANDROV, G.N.

Correct solution of the problem of competence on the part of experts  
in legal medicine. Sud.-med. ekspert. 3 no.3:3-6 JI-S '60.

(MIRA 13:9)

1. Gosudarstvennyy sovetnik yustitsii 3-go klassa.  
(VIOLENT DEATHS) (MEDICAL JURISPRUDENCE)

ALEKSANDROV, G.N.

Corona characteristics in transition processes. Zhur.tekh.fiz. 24  
no.11:2036-2043 N '54. (MLRA 7:12)  
(Electric discharges through gases) (Corona (Electricity))

Aleksandrov, G. N.

✓ 5898. CALCULATION OF A.C. CORONA CHARACTERISTICS. G.N. Aleksandrov. 587.523.3

Zh. tekhn. Fiz., Vol. 25, No. 10, 1894-16 (1955). In Russian. The main contribution to corona losses is the energy lost in inelastic collisions of electrons and ions with gas molecules in the field of the corona space, whereas energy spent on ionization and radiation is negligible. A theoretical investigation and calculation of the corona characteristics must therefore be based mainly on that of the ion movements in the corona space. The results of experimental investigations confirm the correctness of the method qualitatively and, if initial conditions are correctly chosen, quantitatively.

Electrical Research Association

Translation D 419421, p. 45

ALEKSANDROV, G.N.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1274  
AUTHOR ALEXANDROW, G.N.  
TITLE The Physical Conditions for the Production of a Corona Discharge  
in the Case of Alternating Voltage.  
PERIODICAL Žurn.techn.fis, 26, fasc.8, 1769-1781 (1956)  
Publ. 8 / 1956 reviewed 9 / 1956

Measuring the initial voltages of the corona discharge of alternating current was carried out with carefully polished Cu-lines of various diameters in a cylinder of 2 m diameter and a working section of 1,2 m length, as well as in a cylinder of 30 cm diameter and the same working section. As capacities  $C_1$  and  $C_3$ , by which no corona discharge is caused, the air intervals: a sphere with 25 cm diameter - plane were used. The voltage at the beginning of the corona discharge was measured by means of an electrostatic voltmeter. The corona current was observed by means of an electron oscillograph. Investigation of the corona discharge at transitions showed that the corona is produced on the occasion of the first half-wave of the transition at a lower voltage if polarity is negative than is the case if polarity is positive. On the other hand, the discharge which began with the voltage half-wave being negative, is continued also with positive half-waves.

In the case of alternating voltage the corona discharge is continued in both voltage half-waves. The numerous works on the positive corona give no analysis of the phenomenon on real conductors the surface of which is considerably less curved. With respect to the negative corona, numerous works show that within the large domain of pressure modification an essential part of the secondary

ALEKSANDROV, G.N.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1818  
AUTHOR ALEKSANDROV, G.N.  
TITLE The Physical Conditions for the Production of a Corona Discharge  
on Smooth Conductors at Constant Voltage.  
PERIODICAL Žurn.techn.fis, 26, fasc.11, 2640-2651 (1956)  
Issued: 1 / 1957

At present the conditions for the creation of a corona discharge are formulated as conditions for the reproduction of single avalanches. In the works by LOEB it was, however, shown that, if the gas absorbs the radiation of one single avalanche, this may lead to the creation of several photoelectrons. Any of the photoelectrons can be the starting point for a more or less powerful avalanche. In the present work the ideas developed by LOEB are applied for the clarification of the conditions of a corona discharge. These conditions are for the creation of an intermittent current of the corona discharge, and the conditions for an independent discharge are formulated without taking account of the space discharge caused by the avalanches. Photoionization in the gas volume is the only source of secondary electrons in the case of the positive corona. In the case of a negative corona spatial photoionization of the gas is supplemented by the photoeffect from the surface of the conductor. At first the positive corona is dealt with. All photons are assumed to be formed immediately on the surface of the conductor and to be propagated with the same probability in all directions. Part of the photons is swallowed by the conductor surface. This loss is taken into account as factor  $g=0.5$ . The number of photons created by the electron avalanche (the avalanche is propagated from the hemisphere of the radius  $q$  to the



Zurn.techn.fis,26,fasc.11, 2640-2651 (1956) CARD 2 / 2

PA - 1818

conductor) depends on the position of the starting point of the avalanche on this hemisphere. The integral for the full effective photon number is derived, it is adapted to the photon number of the initial avalanche, and, as the expression is too complicated, is put into a more practical form. Next, the condition for the creation of the positive corona is set up in form of an integral and the latter is transformed into an approximated form. Plotted as curves, both, the exact and the approximated formula, show a difference of only 4.6%. - The negative corona is then dealt with. Here it is very complicated to keep the photoelectric processes in the gas volume in evidence, as here the production of photons by the avalanches on their way is much more regular. Again the integral for the full number of photons is derived. Further computation shows that the electron avalanches produced as a result of photonization in the gas volume reproduce only a small part of those photons which are produced by the avalanches propagated on the conductor surface. The conditions for the creation of a negative corona may therefore be approximately be assumed to be the condition for the reproduction of an individual avalanche which is propagated further from the conductor surface. The integral for the condition of the creation of a negative corona is then derived and put into a more practical form without taking photoionization in the gas volume into account. Also here, like in the case of the positive corona, a small difference of only 5,2% is found to exist between the exact and the approximated formula. In conclusion the amount of the errors is examined, on which occasion it was found that the value of the present work is by no means impaired.

INSTITUTION: Polytechnical Institute "M.J.KALININ", Leningrad.

ALEKSANDROV, G.N.

SUBJECT USSR / PHYSICS  
AUTHOR ALEKSANDROV, G.N. CARD 1 / 2 PA - 1817  
TITLE The Initial Stages of the Negative Corona at the Peak.  
PERIODICAL Zurn.techn.fis, 26, fasc.12, 2633-2639 (1956)  
Issued: 1 / 1957

The qualitative regions for the considerable current fluctuations of the negative corona are explained. The intermittent character of the current of the negative corona was for the first time found by TRICHEL. However, experiments carried out in LOEB'S laboratory proved that TRICHEL'S statements were without any foundation, and the same may be said of those made by LOEB. The true reason can be found by taking all phenomena within the domain of a corona as a whole. On this occasion it is possible to use the theory developed by TOWNSEND and ROGOWSKI on the formation of the discharge. It results from the following that the cause of the intermittent phenomena of the corona is the accumulation of volume charges of both signs and at different distances from the peak as well as the different velocities with which these charges are removed from the domain in which the corona is formed. LOEB'S calculations confirm the correctness of the above view. This also explains the dependence of the frequency of the sequence of pulses on the curvature of the peak (at a given current). The current amplitude of the impulse is proportional to the length of its own front. This may serve for an approximated qualitative evaluation of the modification of the amplitude of impulses on the occasion of a change of the curvature of the surface forming a corona. This relation between the

ALEKSANDROV, G. N. Cand Tech Sci -- (diss) <sup>110</sup> Corona Discharge  
~~on XXXXXXXXXXXXXXXX~~ Alternating Voltage." Len, 1957. 23 pp with  
graphs, 21 cm. (Min of Higher Education USSR, Len Polytechnic Inst  
im M. I. Kalinin), 100 copies (KL, 26-57, 107)

AUTHOR: ALEKSANDROV, G.N., TIKHODEEV, N.N. PA - 2142  
TITLE: Concerning a Wrong Hypothesis in the Theory of Corona Discharge  
(Ob odnoy oshibochnoy gipoteze v teorii korony. Russian).  
PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 410 - 413 (U.S.S.R.)  
Received: 3 / 1957 Reviewed: 4 / 1957.  
ABSTRACT: The article by POPKOV, V.I. in Zhurnal Tekhn. Fiz., 25, 13 is criticized. According to the author's opinion, the statement made here concerning the so-called critical gradients of the corona potential is erroneous. It is shown in what manner PIK, F. obtained the hypothesis on corona discharge at different gradients and in what way a hypothesis was spread which is by no means confirmed. POPKOV followed in the foot steps of PIK. His quantitative arguments are not convincing. Also his assumption that all negative ions decay at the ionization boundary is not confirmed and very doubtful. Even if this assumption were accepted, his conclusion that, with the increase of  $\frac{U}{U_{a.b.}}$ , if  $E_k^+ = E_{a.b.}$   $E_k^+$  decreases, cannot be agreed with. (U denotes the initial voltage of the bipolar corona). ( $E_k$  denotes the critical voltage necessary to maintain the discharge in the case of the presence of the ion-counter-current). It is shown that a steep rise of current ought

Card 1/2

PA - 2142

Concerning a wrong Hypothesis in the Theory of Corona Discharge.  
to have been observed which, however, neither the authors nor  
POPKOV were able to detect. (No illustrations).

ASSOCIATION: Politechnic Institute M.I.Kalinin, Leningrad.  
PRESENTED BY:  
SUBMITTED: 27.1.1956  
AVAILABLE: Library of Congress.

## AUTHOR

ALEKSANDROV, G.N.,

PA - 2806

## TITLE

Calculation of Characteristics of Corona on Spliced Wires in  
Electrotransmission.(Raschet kharakteristik korony na rasshcheplyennykh provodakh  
liniy elektroperedachi - Russian)

## PERIODICAL

Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 4, pp 784-802, (U.S.S.R.)

Received 5/1957

Reviewed 6/1957

## ABSTRACT

The period of the transition process investigated is divided into equal intervals. The corona current is assumed to be constant in each of these intervals. Every space charge formed during such an interval was investigated separately. The splicing of the leads makes calculation more complicated as the field voltage is distributed unequally on the conduction surface and the corona discharge is formed at first on the outer lines of the spliced leads. The relation between the amount and the distribution of the space charge in the intermediate space where the corona discharge takes place on the one hand and the magnitude of the charge of the leadson the other hand were determined by means of the method of a mirror image in a circle. The investigations proved the assumption that the space charge range is limited compared to the distances between the leads. On account of the investigations we can follow that the full power is formed within 3-4 half-periods. The distribution of the losses with respect to phases according to calculation agrees well with that of the measuring experiments. The

Card 1/2

AUTHORS

Aleksandrov, G.N. Shneyerson, G.A.

57-8-22/36

TITLE

Characteristics of Corona on split Wires at the Alternating Voltage.

(Kharakteristiki korony na rasshoheplennykh provodakh pri peremennom napryazhenii.)

PERIODICAL

Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 8, pp. 1811-1817 (USSR)

ABSTRACT

The conditions for the development of a corona on split wires were investigated and the characteristics of the corona in the case of transition- and steady operation were measured. The measurements of the corona characteristics were carried out in a cylinder of a diameter of 2 m at a wire split into three parts, the components of which are situated at the points of an equilateral triangle. Each of the components of the split wire was formed by a flat copper rod of a diameter of 0,79 cm and a length of 6 m. The authors show that the field voltage at the surface of the conducting cylinder in a field of a homogenously charged thread is equal to the double magnitude of the voltage component of the thread-field normal to the cylinder surface, which was measured at the same point when the cylinder was absent. The authors show that in the case of

CARD 1/3

Characteristics of Corona on split Wires at the Alternating Voltage. 57-8-22/36

a change of the ratio  $d/r_0$  ( $d$  = distance between the axes of the component of split wire,  $r_0$  = radius of the component) the initial corona voltage is practically constant within very wide limits. This fact coincides with the calculation results of initial corona voltages on split wires and single wires. The split wires used in practice have  $d/r_0 = 20$ . Under these conditions the influence of the neighbouring wires on the field character within the ionization-zone limits is little. Correspondingly the initial corona voltage on the surface of the components of split wires is practically equal to the initial corona voltage on the surface of single wires of the same construction. The oscillograms taken show that the transition process during the corona formation develops within three semi-periods. An essential difference of character of the transition process in the case of positive and negative polarity of the first voltage half-wave was not observed. The magnitude of the initial voltages of the positive and negative corona are practically equal to the voltages

CARD 2/3



Characteristics of Corona on split Wires at the Alternating Voltage.

57-8-22/36

on the occasion of the development of the losses on the corona which were determined with a stabilized corona, and which amounted to 94,5 kV in the case of a single wire and to 150 kV in the case of a split wire.  
(With 2 tables, 5 illustrations and 2 Slavic references)

ASSOCIATION: Leningrad Polytechnical Institute.  
(Leningradskiy politekhnicheskij institut.)  
SUBMITTED: October 26, 1956.  
AVAILABLE: Library of Congress.

CARD 3/3

ALEKSANDROV, G. N.,

"Estimation of Dimensions of Space Charge Region in Corona Gap During Application of Alternating Current," with KHOBERB, V. A., p 323.

"Electric Analog Modelling of A-C Corona Characteristics with the Aid of Electron Tube Circuits," with RYZHOV, G. M., and SHCHERBACHEV, O. V. p 329

"Some Basic Electrostatic Problems in High-Voltage Technique," with COREV, A. A., (Deceased); LEVINSHTEYN, M. L., FIRYAZEVA, A. I., and MIKHODEYEV, N. N., p 578.

High Voltage Technique, Moscow, Gosenergoizdat, 1958, 664pp  
(Series: its Trudy, No. 195)

This collection of articles sums up the principal results of investigations and studies made by Prof. A. A. Gorev, Dr. Tech. Sci., and his staff in the field of high voltage phenomena and techniques at LPI (Leningrad Polytech Inst.) It was at this institute that Prof. Gorev completed his higher scientific education and then taught and carried on his investigations in the field until his death in 1953. In 1956, by decree of Min of Higher Education, the High-Voltage Lab. at LPI was named after A. A. Gorev.

AUTHOR: Aleksandrov, G. N.

SOV/105-58-9-4/34

TITLE: A Transformed Method of Polar Coordinate Presentation and Its Application to Solving Two-Dimensional Electrostatic Problems (Preobrazovannyi metod izobrazheniya v krughe i yego ispol'zovaniye pri reshenii ploskikh elektrosticheskikh zadach)

PERIODICAL: Elektrichestvo, 1958, Nr 9, pp 20 - 23 (USSR)

ABSTRACT: According to the method of polar coordinate presentation (inversion) the problem of finding the field generated by a charge distributed linearly along the axis of a conducting cylinder can be reduced to the problem of finding the field of three linear charges without a cylinder. When an insulated conducting cylinder is introduced into an arbitrary homogeneous field the field component normal to the cylinder surface doubles. This well known fact can be considered a special case of the doubling of the normal field component on the surface of a cylinder located in an arbitrary homogeneous field. Formula (4) for the field strength on the surface of an insulated conducting cylinder is transformed into a more practical form.

Card 1/4

A Transformed Method of Polar Coordinate Presentation SOV/105-58-9-4/34  
and Its Application to Solving Two-Dimensional Electrostatic Problems

If two charged conductors are distributed symmetrically with respect to the angle reference axis passing through the center of the cylinder the field strength at the cylinder surface is determined by formula (6). The essential nature of the method of transformation of polar coordinate presentation advanced in this paper consists basically of a simplification of the method of computation, which is achieved by formulae (5) and (6). This method makes it possible to carry out a simple estimation of the accuracy of the approximative computations. It is shown that the field strength on the surface of a conducting cylinder in a system of an arbitrary number of parallel, arbitrarily charged cylinders can be computed with an accuracy to second order terms

$\frac{R^2}{2}$  inclusively, starting from the "zero" system of computation of the charges by means of formulae (5) and (6). In this investigation R denotes the radius of the cylinder under consideration, a - the distance between the axes of the cylinder under investigation and of the next cylinder.

Card 2/4

A Transformed Method of Polar Coordinate Presentation SOV/105-58-9-4/34  
and Its Application to Solving Two-Dimensional Electrostatic Problems

The "zero" system of charges is that which is obtained by transferring the charge of each cylinder to its axis. This circumstance considerably facilitates the computation of the field strength at the surface of stranded wires, which is a common case in practice. The field strength at an arbitrary point of the conductor denoted by the subscript  $s$  with the radius  $R_s$  can be determined according to formula (11). The method presented in this paper greatly simplifies the computation of field distributions on the surface of stranded wires. There are 5 figures and 4 references, 4 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskii institut im. Kalinina (Leningrad Polytechnical Institute imeni Kalinin)

SUBMITTED: May 4, 1958

Card 3/4

8(0)

SOV/112-59-4-6902

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 4, p 70 (USSR)

AUTHOR: Aleksandrov, G. N., and Khoberg, V. A.

TITLE: Estimation of the Space-Charge Region in an AC Corona-Displaying Gap

PERIODICAL: Tr. Leningr. politekhnich. in-ta, 1958, Nr 195, pp 323-328

ABSTRACT: The space-charge volume of a corona-displaying gap depends on the amplitude and frequency of the applied voltage and on the corona loss. Barriers set within the corona gap limit the space-charge region and lessen the losses. The space-charge region around a wire can be found by the deviation of  $P = f(U)$  characteristic from that pertaining to a free gap. Measurements were made in a cylinder of 2 m diameter and a wire of 0.37 cm diameter, at 25 and 50 cps, and with barriers of 15-50 cm. Formulae have been developed for the radius of the space-charge region and for the voltage on the wire, which permit evaluating the space-charge region around the wire and selecting the research cylinder size so that the measurements would not be distorted by a through convection current.

V.A.Kh.

Card 1/1

8(0)

SOV/112-59-4-6901

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 4, p 70 (USSR)

AUTHOR: Aleksandrov, G. N., Ryzhov, G. M., and Shcherbachev, O. V.

TITLE: Simulating the AC Corona Characteristics by Lamp Schemes

PERIODICAL: Tr. Leningr. politekhnich. in-ta, 1958, Nr 195, pp 329-341

ABSTRACT: Several versions of lamp models representing the corona dynamic characteristic  $Q = f(U)$  on the basis of a similar wire characteristic are analyzed. A 2-lamp model with two sources of opposing voltages, with a capacitor in series with one of the lamps, and with a capacitor and resistor in series with the other, is examined in detail. This model has the following peculiarities: (1) extinction of one lamp after the passage of the voltage maximum; (2) the voltage change, from the moment of that extinction to the moment of lighting up of the second lamp, exceeds  $2U_c$  (where  $U_c$  is the critical corona voltage), the phenomenon similar to the corona on the line. Data is offered for calculating the above models.

N.N.T.

Card 1/1

GOREV, A.A. [deceased]; ALEKSANDROV, G.N.; LEVINSHTEYN, M.L.; PIRYAZEV,  
A.I.; TIKHODEYEV, N.N.

Some basic electrostatic problems of high-voltage engineering.  
Trudy IPI no.195:578-619 '58. (MIRA 11:10)  
(Electric engineering--Problems, exercises, etc.)



ALEKSANDROV, G.N., kand.tekhn.nauk; SHCHERBAKOVA, G.A., inzh.

Characteristics of the corona of electric transmission lines  
with bundle conductors at sinusoidal voltage. Izv.vys.ucheb.  
zav.; energ. 2 no.9:24-30 S '59. (MIRA 13:2)

1. Leningradskiy politekhnicheskii institut im. N.I.Kalinina.  
(Electric lines) (Corona (Electricity))

ALEXANDROV, G.N.

64702

24/2/30

AUTHORS:

Gerasimov, V.I., Luk'yanov, G.G., Spivak, G.V. and Sitovskoi, I.G.  
Report on the Second All-Union Conference on Gas Electronics

TITLE:

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol. 4, Nr. 8, pp 1339 - 1398 (USSR)

ABSTRACT:

The conference was organized by the A.S. USSR, the Ministry of Higher Education and Moscow State University. Formation of a "breakdown".

L.I. Pivovarov and V.I. Gordiyenko - "Microdischarges and Pre-breakdown Currents Between Metal Electrodes in High Vacuum".  
V.A. Simeonov and G.P. Katukov - "Investigation of the Processes of Initiation and Development of a High-voltage Discharge in Vacuum".  
S.M. Rejzurnal and G.Y. Samuilovskaya - "The Characteristics of Ignition of Microdischarges in Magnetic Fields".  
L.I. Pivovarov et al. - "The Motion of Micro-particles of the pre-breakdown stage in vacuum".  
M.B. Rozanov et al. - "The Motion of Micro-particles of the pre-breakdown stage in vacuum".  
M.B. Rozanov et al. - "The Motion of Micro-particles of the pre-breakdown stage in vacuum".  
The third section dealt with the problems of electric sparks, corona and their practical applications. It was presided over by I.S. Stokol'nikov. The following papers were read:  
V.I. Lazikov et al. - "Probe Investigation of the a.c. Corona Field".  
V.I. Lazikov et al. - "Elementary Processes in the Ionization of Gases by Corona Discharges".  
V.A. Rumakina - "Appearance of a Corona Discharge in Hydrogen and Nitrogen".  
P.M. Chistyakov et al. - "Some Properties of the Corona Discharge in Hydrogen in Coaxial, Cylindrical Systems".  
A.S. Soboleva and B.M. Klyazfeld - "Appearance of Discharge Phenomena Between a Point and a Plane at Gas Pressures of 10<sup>-3</sup> - 1.0 mm Hg".  
Ya.Yu. Rayzel et al. - "Methods of Unipolar Ionization of Air by Means of Aero-Ionizers (see p 1355 of the journal)".  
M.P. Yanukov et al. - "Emission Spectra of the Cathode of a Spark Discharge in Inert Gases" (see p 1284 of the Journal).  
M.P. Yanukov and A.A. Mok - "Production of High Temperatures by Means of Spark Discharges".  
V.A. Pershin - "The Influence of the Magnetic Field of the Electric Discharge on the Dividing Surface of Two Media".  
S.G. Stokol'nikov - "New Data from the Study of Long Sparks".  
M.I. Simeonov - "Properties of the Breakdown of Compressed Air in a Comparatively Uniform Field in the Presence of Localized Non-uniformities".  
A.A. Vorob'ev et al. - "Pulse and Oscillographic Techniques for the Measurement of the Discharge Lag in Dielectrics" (see p 1257 of the journal).  
A paper by B.N. Zolotarev dealt with the problem of the basic theory of the electric erosion (see p 1350 of the journal).  
The fourth section was presided over by G.M. Luk'yanov and was concerned with the non-stationary and low-frequency discharges. The following papers were read:  
I.G. Makrakhovich and A.A. Labud - "The Nature of the Current Interruption During the Electric Explosion of a Metal Wire".  
V.A. Simeonov - "Propagation of Plasma from Local Pulse Sources".  
G.G. Timofeyev et al. - "Observation of an Electron-Optical Dynamically Compressed Arc by Means of an Electron-optical Camera".  
V.A. Rejzurnal and Ya.Yu. Yuzhachenko - "Investigation of the Radial Electric Field in an Ion Magnetron".  
V.A. Rejzurnal and M.K. Romanovskiy - "Experiments with an Electron Model of a System with Magnetic Samples".  
A.M. Andrianov et al. - "Distribution of Magnetic and Electric Fields in Powerful Pulse Discharges".  
G.M. Harding (England) - "Spectroscopic Determination of the Plasma Temperature in the 'Zeta' Equipment" (see p 1326 of the journal).  
The paper by Harding aroused a lot of interest and the author, A.G. Rejzurnal, expressed the opinion that the electron-optical camera used for the experiment should be of the same order of interest as the camera used for the electron-optical experiment. The author would order than that of the ion.

Card 7/19

24(3)

SOV/48-23-8-12/25

AUTHOR:

Aleksandrov, G. N.

TITLE:

Elementary Processes in the Ionization Zone of Corona-producing Conductor at Atmospheric Pressure

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 8, pp 989-994 (USSR)

ABSTRACT:

The present paper deals with the ionization zone in the corona space in order to explain the field intensity at the surface of corona-producing conductors. The formation of corona discharge in an unsteady field is described, and the existence of two sections in the discharge space is stated. The volume ionization by unipolar positive corona is investigated, and it is shown that ionization proceeds in an avalanchelike manner. It is pointed out that the negative corona is unsteady. Photoelectric processes are of little effect and therefore neglected. For both kinds of the corona, equations (1) and (2) are given for the calculation of ionization avalanches, and some results are added. Further, the bipolar discharge is analyzed, and the condition for the formation of a positive corona is given by equation (4) for bipolar procedure. The influence of

Card 1/2

SOV/48-23-8-12/25

Elementary Processes in the Ionization Zone of Corona-producing Conductor at Atmospheric Pressure

the ratio of positive to negative ions, their movement, and their recombination are discussed. In the following, the formation of a bipolar corona by direct- and alternating voltage is discussed. Results of measurement are given. The diagram of figure 1 shows the relationship between the direct-current component of the corona in a conductor and the voltage amplitude with industrial frequency. The relationship is described for a conductor with blank surface, as well as for a conductor surface covered by a soap film. The conductor is 0.588 mm thick. The volt-ampere characteristics of a unipolar positive corona of the conductor with and without soap film is shown in figure 2. No effect of the soap film was found. The volt-ampere characteristics of a negative corona, however, shows an effect of the soap film as represented by figure 3. Finally, the relation of the critical voltage of a positive corona at a conductor in reference to the ionic ratio is calculated by equation (4). The result is shown in figure 4. There are 4 figures and 11 references, 8 of which are Soviet.

Card 2/2

ALEKSANDROV, G.N., kand.tekhn.nauk (Leningrad)

Effect of corona on voltage surges in transmission lines under  
transient conditions. Elektrichestvo no.5:6-13 My '60.

(Corona (Electricity))

(Electric lines)

(MIRA 13:9)

ALEKSANDROV, G.N., kand.tekhn.nauk; SHCHERBAKOVA, G.A., inzh.

Generalizing the results of numerical calculations of corona characteristics on bundle conductors. Izv.vys.ucheb.zav.; energ. 3 no.1:11-18 Ja '60. (MIRA 13:1)

1. Leningradskiy politekhnicheskii institut im. M.I.Kalinina. (Corona(Electricity)) (Electric lines)

21543

S/057/61/031/004/009/018  
B125/B205

6.9419 (also 1144)

AUTHORS: Aleksandrov, G. N. and Aleksandrova, N. P.

TITLE: Initial and critical field strengths on the surface of corona-forming conductors

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 4, 1961, 450-458

TEXT: The present paper deals with the determination of the actual values of field strength on the surface of corona-forming conductors. This problem has been treated on the strength of modern conceptions of the physical nature of corona discharge. A corona shows either unipolar behavior at constant voltage in all unipolar systems (and at varying voltage and short discharge intervals) or bipolar behavior at varying voltage and a sufficiently long discharge interval, but also at constant voltage in the formation of a corona on parallel, oppositely charged conductors. A negative corona never shows a critical behavior. N. A. Kaptsov was the first to study the role of negative ions in a bipolar corona, but the authors believe that his paper contains essential errors. They also refer to an article of L. Leb and F. Pik (Dielektrische-  
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Card 1/5

Initial and critical field...

21543

S/057/61/031/004/009/018  
B125/B205

✓

skiyе yavleniya v tekhnike vysokikh napryazheniy, Gosenergoizdat, M.-L., 1934) on the voltage observed during the occurrence of a corona discharge. According to F. Pik (see above) there is a standard interrelation between the voltage and the losses due to the corona. Though this interrelation has an exponential character, the exponent  $n$  in the formula  $P = A(U - U_{cr})^n$  ( $U_{cr}$  - initial corona voltage) depends on the diameter and shape of the conductors. The values of this interrelation for several conductors are summarized in Table 1. In the following papers, use has been made of the method of self-maintaining forced rectification of the initial parts of the corona characteristics. Reference is made to papers by F. Pik, V. I. Popkov, and L. E. Tsyrlin. The measuring technique has now been improved by the authors. The current passing through the corona-forming part of the conductor at varying voltage was measured by a bridge circuit. The voltage of the beginning positive corona was ascertained on the screen of the oscilloscope, and the voltage was gradually increased for the purpose. The voltage of the negative corona could not be measured at constant voltage. Initial and critical voltages were measured with conductors of 0.196, 0.596, 0.89, 1.197, 1.792, 2.01, 2.98 cm in a cylinder

Card 2/g



Initial and critical field...

S/057/61/031/004/009/018  
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2 cm in diameter. The cylinder consisted of five insulated sections. Application of alternating voltage to smooth conductors having a pure surface produced a corona discharge when the voltage was gradually increased; the discharge vanished at different voltages when the voltage was lowered. This difference amounted to 2-3%. Unclean conductors do not exhibit this phenomenon. The initial corona voltages calculated from the voltage of the corona discharge (with increasing voltage) are listed in Table 2 which also contains the critical field strength of the a-c corona calculated from the voltage of the vanishing discharge as well as the maximum deviations from the mean values. The results of measurement are easily reproducible. Table 2 further contains the calculated critical field strength of the corona. In Fig. 3, the data of the present paper are compared with those of F. Pik. In the authors' view, the formula of A. M. Zalesskiy for the dependence of the initial field strengths of the corona upon the radius of the conductor is correct. According to Table 2, the dependences of the initial and the critical field strengths of an a-c corona upon the radius of the conductor are given by

Card 3/5

Initial and critical field...

$$E_{cr}^- = 18.8 \left( 1 + \frac{1.07}{r_0^{0.3}} \right) [\text{kV/cm}], \quad (5)$$

$$E_{cr,b} = 18.3 \left( 1 + \frac{1.07}{r_0^{0.3}} \right) [\text{kV/cm}]. \quad (6)$$

Thus, the voltage at which the corona becomes bipolar (on gradual increase of voltage) is determined by the instant at which the initial field strength of the negative corona is reached on the surface of the negatively charged conductor. On account of  $E_{cr}^+ < E_{cr}^-$ , the above formulated condition for the occurrence of bipolar behavior of the corona is not only necessary but also sufficient. In addition,

$$\frac{E_{cr}^+ - E_{cr}^+ \left( \frac{n^-}{n^+} = 0.3 \right)}{E_{cr}^+ - E_{cr}^+ \left( \frac{n^-}{n^+} = 1 \right)} = 0.55. \quad (7) \quad \text{holds.}$$

If the voltages are enhanced, the critical field strengths of the positive corona practically agree with the measured values of the critical field strengths  $E_{cr,b}$  in the case of bipolar behavior, and the

Card 4/5

21843

Initial and critical field...

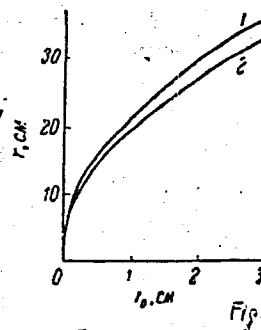
S/057/61/031/004/009/018  
B125/B205

critical field strengths of the bipolar corona agree with the initial field strengths of the bipolar corona. All results of the present paper were confirmed by studies of a bipolar corona at constant voltage. There are 3 figures, 2 tables, and 15 references: 14 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Politekhnikheskiy institut im. M. N. Kalinina Leningrad (Polytechnic Institute imeni M. N. Kalinin, Leningrad)

SUBMITTED: June 28, 1960

Legend to Fig. 1: Dependence of the radius of the surface reached by the negative ions  $k^- = 1.8 \text{ cm}^2/\text{sec}\cdot\text{v}$  which are closest to the conductor (at variable voltage close to the formation voltage of the corona; frequency (cps) 1-50, 2-60).



Card 5/5

ALEKSANDROV, G.N., kand.tekhn.nauk; KIZEVETTER, V.Ye., inzh.

Development of a discharge along the conducting surface of the high-voltage insulation of electrical networks. Izv.vys.ucheb. zav.; energ. 5 no.5:20-27 My '62. (MIRA 15:5)

1. Leningradskiy politekhnicheskii institut imeni M.I.Kalinina.  
Predstavlena kafedroy tekhniki vysokikh napryazheniy.  
(Electric power distribution)  
(Electric insulators and insulation)

ALEKSANDROV, G.N., kand.tekhn.nauk; IVANOV, V.L., inzh.

Study of the electrical strength of air gaps and suspension  
insulators in the presence of internal overvoltages.  
Elektrichestvo no.9:33-38 S '62. (MIRA 15:9)

1. Leningradskiy politekhnicheskii institut imeni  
Kalinina.

(Electric lines--Overhead)  
(Electric insulators and insulation)

ALEKSANDROV, G.N. (Leningrad); KOSTENKO, M.V. (Leningrad); POLOVOY, I.F.  
(Leningrad)

Problem concerning the prospective voltage step-up of overhead  
electric power transmission lines. Elektrichestvo no.11:20-25  
N '62. (MIRA 15:11)

1. Chlen-korrespondent AN SSSR (for Kostenko).  
(Electric lines--Overhead) (Electric power distribution)

ALEKSANDROV, G.N., kand.tekhn.nauk

Methodology for choosing the insulation of an electric power transmission line with consideration of operational reliability taking into account the action of internal overvoltages. Izv. vys. ucheb. zav.; energ. 5 no.7:16-24 J1 '62. (MIRA 15:7)

1. Leningradskiy politekhnicheskij institut imeni M.I.Kalinina.  
Predstavlena kafedroy tekhniki vysokikh napryazheniy.  
(Electric power distribution) (Electric lines--Overhead)

ALEKSANDROV, G.N., kand.tekhn.nauk (Leningrad); POLOVOY, I.F. (Leningrad)

Decrease of the insulation disruptive voltage in electric power  
systems during certain kinds of switching surges. Elektrichestvo  
no.7:86-87 J1 '63. (MIRA 16:9)  
(Electric insulators and insulation)



ALEKSANDROV, G.N., kand. tekhn. nauk, dotsent; OKOROKOV, V.R., inzh.

Statistical method for determining the dimensions of extra-high voltage power transmission line supports taking into account the operating voltage. Izv. vys. ucheb. zav.; energ. 6 no.11:1-7 N'63. (MIRA 17:2)

1. Leningradskiy politekhnicheskii institut imeni M.I. Kalinina. Predstavlena kafedroy tekhniki vysokikh napryazheniy.

ALEKSANDROV, G.N.

Nature of pulses of a negative corona current. Zhur.tekh.fiz. 33 no.2:  
223-230 F '63. (MIRA 16:5)

1. Leningradskiy politekhnicheskij institut imeni Kalinina.  
(Corona (Electricity))

AKOPYAN, A. A.; ALEKSANDROV, G. N.; YEMELYANOV, N. P.; LEVITOV, V. I.; MIROLYUBOV, A. V. //  
NAYASHKOV, I. S.; PANOV, A. V.; POPKOV, V. I.; ROKOTYAN, S. S.; SOKOLOV, N. N.;  
TIKHODEYEV, N. N.

"The 750 kV Experimental Commercial Transmission Line Konakovo-Moscow."

report submitted for Intl Conf on Large Electric Systems, 20th Biennial Session,  
Paris, 1-10 Jun 64.

ALEKSANDROV, G.N., kand. tekhn. nauk; KOMEL'KOV, V.S., doktor tekhn. nauk

[Discharge potentials of long air gaps and suspension insulators, 1961-1963] Razriadnye napriazheniia dlinnykh vozdushnykh promezhutkov i girliand izoliatorov 1961-1963. Moskva, 1964. 118 p. (MIRA 18:7)

1. Akademiya nauk SSSR. Institut nauchnoy informatsii.

ALEKSEANDROV, Georgiy Nikolayevich; RYABOV, B.M., red.

[Corona discharge on overhead power transmission lines]  
Koronnyyi razriad na liniyakh elektroperedachi. Moskva,  
Izd-vo "Energia," 1964. 227 p. (MIRA 17:7)

ALEKSANDROV, G.N., kand. tekhn. nauk; IVANOV, V.L., inzh.

Dependence of the electrical strength of long air gaps on the  
frequency of the oscillatory voltage. Elektrichestvo no.6:  
44-49 Je'64 (MIRA 17:7)

1. Leningradskiy politekhnicheskii institut.

ALEKSANDROV, G.N., kand.tekhn.nauk (Leningrad); KIZEVETTER, V.Ye.,  
inzh. (Leningrad); RUDAKOVA, V.M., inzh. (Leningrad);  
TUSHNOV, A.N. (Leningrad)

A.c. flashover voltages of long air clearances and insulator  
chains. Elektrichestvo no.5:27-32 My '62. (MIRA 15:5)  
(Electric lines---Poles and towers)

ALEKSANDROV, G.N., kand.tekhn.nauk, dotsent; POLOVOY, I.F., kand.tekhn.  
nauk

Increase in the operating voltage and choice of wires for extra high voltage transmission lines. Izv. vys. uchab. zav.; energ. 7 no. 4:18-22 Ap '64. (MIRA 17:5)

1. Leningradskiy politekhnicheskii institut imeni M.I.Kalinina. Predstavlena kafedroy tekhniki vysokikh napryazheniy.



ALEKSANDROV, G.N., kand. tekhn. nauk, dotsent

New trends in the development of high-voltage technology.

Izv.vys. ucheb. zav.; energ. 7 no.7:1-6 JI '64

(MIRA 17:8)

1. Leningradskiy politekhnicheskoy institut imeni M.I.  
Kalinina. Predstavleno kafedroy tekhniki vysokikh naprya-  
zheniy.

ALEKSANDROV, G.N., kand.tekhn.nauk; KIZEVETTER, V.Ye., inzh.

Statistical studies of the electrical strength of contaminated insulation. Elek. sta. 35 no. 4:70-73 Ap '64. (MIRA 17:7)

ALEKSANDROV, G.N., kand. tekhn. nauk; IVANOV, V.L., inzh.; REDKOV, V.P.,  
inzh.

Electrical strength of an air gap between the wire of a superhigh  
voltage transmission line and ground in the presence of internal  
overvoltages. Elektrichestvo no.4:20-24 Ap '65.

(MIRA 18:5)

1. Leningradskiy politekhnicheskii institut.

ALEKSANDROV, G.N., kand.tekhn.nauk, dotsent

Do all developments in high-tension engineering lead to direct current? *Izv.vys.ucheb.sav.; energ.* 8 no.3:112-114 Mr '65.

(MIRA 18:4)

1. Leningradskiy politekhnicheskoy institut imeni M.I.Kalinina.

ALEKSANDROV, G.N., kand. tekhn. nauk, dotsent; KALININ, N.D., inzh.

Wet discharging of potential insulator chains during internal overvoltages. Izv. vys. ucheb. zav.; energ. 8 no.5:6-12 My '65.  
(MIRA 18:6)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.  
Predstavlena kafedroy vysokikh napryazheniy.

ALEKSANDROV, G.N., kand. tekhn. nauk, dotsent

Critical gradient of positive corona. Izv. vys. ucheb. zav.; energ. 8  
no.6:110-111 Je '65. (MIRA 18:7)

1. Leningradskiy politekhnicheskii institut imeni Kalinina.

L 51971-65 EWT(1)/EWT(m)/EWG(m)/EEC(t)/T Pz-6 I.P(c) HWH/AT  
ACCESSION NR: AP5012052 UR/0017/65/035/005/0875/0882

AUTHOR: Aleksandrov, G.N.

TITLE: On the change in the discharge mechanism in air at atmospheric pressure when the gap length between plane electrodes is increased

SOURCE: Zhurnal tekhnicheskoy fiziki, vol.35, no. 5, 1965, 875-882

TOPIC TAGS: spark discharge, air, uniform electric field, avalanche, streamer, space charge, photoelectric effect

ABSTRACT: The breakdown of air at atmospheric pressure in a uniform electric field and the formation of a self-sustaining discharge is discussed with particular reference to the role of photoelectric processes. The purpose of the discussion is to elucidate the transition from the classical Townsend mechanism to the streamer formation mechanism. Calculations of the effect on the development of the discharge of photoelectrons released from the cathode by photons produced in the primary avalanche are compared with experimental data of H. Ritz (Arch. Elektro-techn., 26, 319, 1932) and others. It is concluded that at gap lengths up to 2 cm the distortion of the field by the space charge of the initial avalanche is

Card 1/2

L 51971-65

ACCESSION NR: AP5012052

negligible and the relation between breakdown potential and gap length can be explained with the aid of the photoelectric effect. In longer gaps the space charge of the initial avalanche strongly distorts the field and leads to streamer formation. In the longer gaps the total number of electrons in an avalanche cannot be correctly estimated without taking account of field distortion by the space charge. "In conclusion, I consider it my pleasant duty to express my gratitude to V.S.Komel'kov, Doctor of Technical Science, for his valuable remarks and advice during the performance of this work." Orig. art. has: 13 formulas, 8 figures, and 1 table.

ASSOCIATION: Leningradskiy politekhnicheskii institut im. M.I.Kalinina  
(Leningrad Polytechnic Institute)

SUBMITTED: 04Jun64/

ENCL: 00

SUB CODE: EM, MI

NR REF SOV: 003

OTHER: 007

*ml*  
Card 2/2



L 59492-65 EPA(a)-2/EPA(w)-2/EXT(1)/EJA(m)-2  
ACCESSION NR: AP5018300

UR/00:7/65/035/007/1225/1229  
537.514

AUTHOR: Aleksandrov, G. N.

TITLE: The transition mechanism of a corona discharge into a spark discharge in long air gaps

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 7, 1965, 1225-1229

TOPIC TAGS: corona discharge, spark discharge, long gap discharge, streamer corona

ABSTRACT: The formation of a spark channel in long air gaps with a sharply inhomogeneous field has been investigated. Such formations are preceded by "avalanche" and "streamer" corona discharges. In both cases the ionization is accomplished by the electron avalanches. Both forms of corona discharge require the presence of a region of high-intensity field (of the order of 30 kv/cm and stronger). Corona discharge is a cold discharge, while the channel of the spark discharge is highly heated. Thus, a thermal ionization occurs which determines the high conductivity of the channel. The transition from corona to spark discharge is therefore conditioned by the air heating up to a temperature sufficient for thermal ionization of the gas. A phenomenological picture of a discharge in a long gap is as follows:

Card 1/3

L 59492-65

ACCESSION NR: AP5018300

The gap is closed by a leader containing a bright channel 0.1--0.2 cm in diameter and surrounded by a region of diffuse luminescence. This luminous region is pierced by a cascade of luminous threads called streamers. Electrons moving along the streamer channel acquire energy which they transfer to the neutral molecules when they collide with them. The channel therefore gradually heats up and the heating is stronger when the number of electrons in the channel is greater and the radius of the streamer channel is smaller. When the field potential in the streamer channel  $E_{str} = 20$  kv/cm and the radius  $r_{str} = 0.05$  cm, the temperature  $\Delta T = 5500K$ . A high temperature in the channel causes thermal ionization and, consequently, high conductivity. As a result, a section of highly ionized channel--plasma--is created which causes a sharp increase in the field potential at the plasma boundary and the formation of a new streamer which spreads in some other direction. The heating up of the second streamer channel causes an elongation of the conductive (leader) channel. Continuous formation of the streamers one after another results in an interrupted flow of electrons through the leader channel and high temperature in the channel. Thus, the distortion of the breakdown strength of a long air gap with an inhomogeneous field is accomplished by the leader stage of a spark discharge. The condition for breakdown of the gap, therefore, appears to be the condition for the formation of the leader. The latter is completely determined by the thermal

Card 2/3

L 59192-65

ACCESSION NR: AP5018300

processes in the streamer channel, as proved by an investigation of the spectrum of the streamer channel radiation in the air along the surface of a dielectric. Orig. art. has: 3 formulas and 3 figures. [JA]

ASSOCIATION: Leningradskiy politekhnicheskii institut im. M. I. Kalinina (Leningrad Polytechnic Institute)

SUBMITTED: 02Oct64

ENCL: 00

SUB CODE: EM, ME

NO REF SOV: 010

OTHER: 002

ATD PRESS: 4053

Card <sup>ke</sup> 3/3

SMIRNOV, V.S.; KOSTENKO, M.P.; NEYMAN, L.R.; KOSTENKO, M.V.; DOMANSKIY,  
B.I.; ZALESSKIY, A.M.; USOV, S.V.; AYZENBERG, E.L.; DUBINSKIY,  
L.A.; ALEKSANDROV, G.N.; GRIBOV, A.N.; GRUZDEV, I.A.; LEVINSHTEYN,  
M.L.; MIKIRTICHEV, A.A.; MIKHAYLOVA, V.I.; RUZIN, Ya.L.; STEFANOV,  
K.S.; KHOBERG, V.A.; SHCHERBACHEV, O.V.

M.D. Kamenskii; on his 80th birthday. Izv. vys. ucheb. zav.;  
energ. 8 no.7:130-131 J1 '65. (MIRA 18:9)

MEDVEDEV, S.K., inzh.; KOSTENKO, M.V., prof.; ALEKSANDROY, G.N., kand.tekhn.  
nauk, dotsent; KUCHINSKIY, G.S., kand.tekhn.nauk, dotsent; ZALPSSKIY,  
A.M., prof.

Some critical remarks on I.U.G.Esikov's article "Distribution of the  
intensity of an electric field in a cylindrical condenser."  
Elektrichestvo no.10:89-92 0 '65. (MIRA 18:10)

1. Chlen-korrespondent AN SSSR (for Kostenko).

ALEKSANDROV, G.N., kand.tekhn.nauk; KIZEVETTER, V.Ie., inzh.

Study of the electrical strength of long suspension insulator  
chains at ordinary potentials. Elektrotehnika 36 no.10:55-58  
0 '65.

(MIRA 18:10)

ALEKSANDROV, G.N., kand. tekhn. nauk; GU LO-GUAN [Ku Lo-kuang], inzh.

Electrical strength of power line insulators with different  
degrees of contamination. Elektrotehnika 36 no.4:38-41  
Ap '65. (MIRA 18:5)

ALEKSANDROV, G.N. (Leningrad); OKOROKOV, V.R. (Leningrad):

Method for selecting the optimum length of the crossarm of a  
750 kv. overhead power transmission line tower. Izv. AN SSSR.  
Energ. i transp. no.3:68-76 My-Je '65.

(MIRA 18:12)

1. Submitted January 18, 1965.



ALEKSANDROV, G.N., kand. tekhn. nauk, dotsent

Concerning N.N. Krachkovskii's remarks. Izv. vys. ucheb. zav.;  
energ. 9 no.1:102-104 Ja '66. (MIRA 19:1)

1. Leningradskiy politekhnicheskiiy institut imeni M.I. Kalinina.  
Submitted June 29, 1965.

J. 22281-66 EWT(1)/FCC GW

ACC NR: AR6005187

SOURCE CODE: UR/0058/65/000/009/G017/G017

AUTHORS: Aleksandrov, G. N.; Rudakova, V. M.

TITLE: Investigation of the influence of the parameters of atmospheric air on the discharge voltages of long air gaps

49  
B

SOURCE: Ref. zh. Fizika, Abs. 9G144

REF. SOURCE: Sb. Probov dielektrikov i poluprovodnikov. M.-L., Energiya, 1964, 44-49

TOPIC TAGS: gas discharge, electric discharge, discharge gap, atmospheric density, atmospheric humidity, temperature dependence

TRANSLATION: Results are reported of an investigation of the influence of natural oscillations of the parameters of atmospheric air on the discharge voltages of rod-plane gaps of length 1, 2, 3, 5, and 7 meters. The measured discharge voltages are practically independent of the air density and of the absolute humidity (this being attributed to the correlated change in the temperature and humidity of air under natural conditions), but vary with changing atmospheric

Card 1/2

2

L 22281-66

ACC NR: AR6005187

pressure. With increasing length of the gap, the dependence of the discharge voltages on the atmospheric pressure decreases. The voltage referred to normal pressure was used to deduce the dependence of the discharge voltages on the temperature and humidity of the air. The elimination of the dependence of the discharge voltages on the humidity has made it possible to deduce the dependence of the discharge voltage on the air density. V. Ch.

SUB CODE: 20

Card 2/2 est

L 22149-66

ACC NR: AP6012968

SOURCE CODE: UR/0143/65/000/007/0130/0131

AUTHOR: Smirnov, V. S.; Kostenko, M. P.; Neyman, L. R.; Kostenko, M. V.;  
Domanskiy, B. I.; Zalesskiy, A. M.; Usov, S. V.; Ayzenberg, B. L.; Dubinskiy, L. A.;  
Aleksandrov, G. N.; Gribov, A. N.; Gruzdev, I. A.; Levinshcheyn, M. L.;  
Mikirtichev, A. A.; Mikhaylova, V. I.; Ruzin, Ya. L.; Stefanov, K. S.;  
Koberg, V. A.; Shcherbachev, O. V.

ORG: none

TITLE: Honoring the 80th birthday of Mikhail Davidovich Kamenskiy

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 7, 1965, 130-131

TOPIC TAGS: electric power engineering, electric engineering personnel,  
hydroelectric power plant, thermoelectric power plant

ABSTRACT: On 19 April 1965 Prof. Dr. Techn. Sci. Mikhail David-  
ovich Kamenskiy celebrated his 80th birthday and the 55th anni-  
versary of his active work as a power expert. Mikhail Davidovich  
is a 1909 graduate of the Petersburg Polytechnic Institute - since  
his graduation he has been associated with this institute, now  
renamed Leningrad Polytechnic Institute, as an instructor. He is  
a major scientist and specialist in electric power grids and sys-  
tems. He has been a major contributor to the establishment of  
the Leningrad Power Grid and various large thermal and hydro-

Cord 1/2

L 22149-66

ACC NR: AP6012968

electric power stations and an active participant in the design and construction of high- and low-voltage power systems in many cities of the Soviet Union. During the Siege of Leningrad in World War II he was a member of the Municipal Party Defense Committee. Since the war Mikhail Davidovich has been head of the Chair of Electric Power Grids and Systems at the Leningrad Polytechnic Institute and has been working on the methods of calculating the economic regimes of power system operation and on the problems of the present-day development of urban power systems. M.D. Kamenskiy has published more than 80 works, including both original studies as well as textbooks that are popular in the Soviet Union and abroad. He is the chairman of the Section on Power Systems and Grids under the Leningrad Division of the Scientific and Technical Division of the Power Industry and organizer of and participant in many scientific-technical conferences and meetings. His merits as an educator of a new school of Soviet power engineers are equally large. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 10 / SUBM DATE: none

Card 2/2 dda

ACC NR: AT6022762

(A)

SOURCE CODE: UR/2563/65/000/258/0026/0034

AUTHOR: Aleksandrov, G. N.; Kalinin, N. D.

ORG: none

TITLE: Investigation of the electric strength of insulator strings under rain and switching-surge conditions

SOURCE: Leningrad. Politekhnikheskiy institut. Trudy, no. 258, 1965.  
Vysokovol'tnaya izolyatsiya liniy i apparatov (High voltage insulation of lines and apparatus), 26-34

TOPIC TAGS: electric insulator, insulator electric strength

ABSTRACT: The experimentally obtained 50% wet-flashover voltages for a type PM-4,5 Soviet-made 7-insulator string are shown as functions of 0-3-mm/min spraying (artificial rain). At low rain intensities, the flashover voltage is higher (by 10-15%) with negative polarity than with positive; at high rain intensities, the flashover polarity becomes unimportant. It was found that, with dry or slightly-wet insulators, the flashover occurs during the pulse rise or near its peak (the flashover

Card 1/2

ACC NR: AT6022762

develops in air); under heavy-rain conditions, the flashovers happen after the pulse peak, the arc channel slips over the insulator surface, and the leakage current becomes relatively large. The above experimental data was used for calculating the probability of 7 x PM-4.5-insulator string flashover under rain conditions in the Leningrad region. Average duration of all rains was assumed to be 450 hrs per year; rain-distribution densities were taken from published sources. The probability of the above string flashover, for various rain intensity, is tabulated. To ensure reliable operation of insulator strings under switching-surge conditions, the effect of rains should be taken into account. Orig. art. has: 7 figures, 4 formulas, and 5 tables.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 001

Card 2/2

ACC NR: AP7011363

SOURCE CODE: UR/0105/67/000/001/0012/0016

AUTHOR: Aleksandrov, G. N. (Candidate of technical sciences; Leningrad);  
Lisochkina, T. V. (Engineer; Leningrad)

ORG: none

TITLE: Economic effectiveness of using expanded conductors on extremely  
high voltage power transmission lines

SOURCE: Elektrichestvo, no. 1, 1967, 12-16

TOPIC TAGS: electric wire, high voltage line, electric power transmission

SUB CODE: 09

ABSTRACT: The usage of expanded conductors improves the technical and  
economic indices of electric power transmission lines. The degree of this  
improvement is greater, the higher the voltage, the greater the line length  
and the less the transmitted power in comparison to the natural power. The  
usage of these conductors is particularly effective when climatic conditions  
require a reduction in the number of phase components. These conductors  
displace the area of economically transmitted powers toward lower powers for  
a given class of line, increasing the economic effectiveness of increased  
voltage.

Card 1/2

UDC: 621.315.1.004.15

093117416



ACC NR: AP7011363

Standards should be developed for wires from the point of view of selecting optimal ratios between radius and cross-section as quickly as possible. Orig. art. has: 4 figures, 12 formulas and 3 tables. [JPRS: 40,360]

Card 2/2

18

LIST AND JOB ORDERS PROCESSES AND PROPERTIES INDEX

CA

Rare earths and thorium from monazite. G. P. Alk-sandrov and Ya. P. Gokhshtein. Russ. 39,004, Oct. 31, 1954. Monazite is extd. with H<sub>2</sub>SO<sub>4</sub> or in chlorinated and extd. with water. The soln. is treated with Mg(HSO<sub>4</sub>)<sub>2</sub> and the ppt. worked up in the usual way.

450-55 A METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

COMMON VARIANTS INDEX

MATERIALS INDEX

COMMON VARIANTS INDEX

BC

A-1

PROCESSES AND PROPERTIES INDEX

Separation of calcium from rare earths by hydrolysis. G. P. ALEXANDROV. (Redk. Met., 1934, 3, No. 4, 52-53). H<sub>2</sub>O vapour was passed over a mixture of chlorides of the rare earths (I) and of Ca and Sr at 500-600°, converting (I) into oxychlorides. The product was digested with hot H<sub>2</sub>O, hydroxides of (I) being pptd., whilst the Sr and Ca dissolve. One further pptn. with H<sub>2</sub>C<sub>2</sub>O<sub>4</sub> then suffices to eliminate Ca. The method is applicable with large amounts of Ca. CH. ABS. (c)

ASM-31A METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

GROUPS

SUBGROUPS

LETTERS

INDEX

PROCESSES AND PROPERTIES INDEX

22

*CA*

Separating compounds of rare metals. G.-P. Aleksan-  
 dritskii. Russ. 41,510, Feb. 28, 1935. In the sepn. of rare  
 earth compds. from alk. earth compds., particularly of  
 those obtained in the chlorination of loyehorrite, the  
 solid product of chlorination is treated with steam at  
 500-600° to convert rare metal chlorides into oxychlorides.  
 The mass is then treated with H<sub>2</sub>O to dissolve the alk.  
 earth chlorides, and the soln. is sepd. from the insol. rare  
 earth hydroxides.

ASIA-51A METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

6

*ca*

Decomposition of zirconium silicate by chlorination.  
 G. P. Alexandrov. *Ukrain. Khim. Zhur.* 11, 287 (1938).  
 (English summary, 207) (1938). Working with  $ZrO_2 \cdot SiO_2$   
 ground up to 2500 mesh and made into briquets contg.  
 17.60 to 60.47% charcoal, A. found that 17-18% charcoal  
 is most favorable for the chlorination; the latter begins at  
 480-70° and proceeds most intensively at 800°; 90% of  
 the mineral undergoes change to  $ZrOCl_2 \cdot 2H_2O$  in 6 hrs.  
 J. G. Tolpin

ASME-SEA METALLURGICAL LITERATURE CLASSIFICATION

E.P. 12.11

1ST AND 2ND COLUMNS      3RD AND 4TH COLUMNS

PROCESSES AND PROPERTIES INDEX

bc a-1

Preparation of hafnium salts. G. P. ALIK, <sup>corresponding author</sup>  
A. P. BUKH, G. O. BYK, and J. P. HOSCHKEVICH (Ukrain.  
Chem. J., 1990, 11, 296-303).--The separation  
method of Prandl (A., 1933, 58) may be applied to  
the crude ZrOCl<sub>2</sub> mentioned (cf. preceding abstract).  
J. J. B.

A18-11A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND COLUMNS      3RD AND 4TH COLUMNS

1ST AND 2ND COLUMNS      3RD AND 4TH COLUMNS





18

CA

Compounds of iron and hafnium from monazite. G. A. Alexandrov. Russ. 57,668, Aug. 31, 1940. Monazite is chlorinated under pressure in the presence of a reducing agent and KCl and the chlorination product is worked up in the usual manner.

1ST AND 2ND COLUMNS      PROCESSES AND PROPERTIES INDEX      3RD AND 4TH COLUMNS

ALPHABETIC INDEX

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

SYMBOLS

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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CA

Rapid determination of calcium and magnesium in potassium minerals. G. P. Alexandrov and E. A. Shevchenko (Lvov Sect., Acad. Sci. S.S.R.), *Zhurnal Khim. 15*, 1474-5(1949).--Ca is detd. by KMnO<sub>4</sub> titration; Mg by alkalimetry. G. M. Kosolapov

180T88

USSR/Minerals - Analysis

NOV 50

"Colorimetric Determination of Boron in Natural Potassium Salts," G. P. Aleksandrov, S. M. Tsvilk, L'vov Affiliate, Acad Sci Ukrainian SSR

"Zsvod' Iad" No 11, pp 1396-1398

Evaluates various reagents, used in colorimetric determination of boron, and suggests carmine reaction as best method for determination of such small quantities of boron as they occur in natural potassium salts. Presence of ferric-iron ions, aluminum, magnesium, calcium, barium,

180T88

USSR/Minerals - Analysis (Contd)

NOV 50

chlorides and phosphates does not interfere with determination of boron. Therefore, used reaction for colorimetric determination of boron in borate pres. Describes procedure of method.

180T88

ALEKSANDROY, G. P.

Analytical Abst.  
Vol. 1 No. 1  
Jan. 1954  
Inorganic Analysis

(CA 47 no. 21:11074 '53)

L'viv Branch Inst. Geol. Sci.,  
Acad. Sci-Ukr.SSR.

86. Determination of iodine and bromine in mineral waters by means of differential titration; G. P. Aleksandrov and T. F. Levchenko (*Ukr. J. Chem.*, 1951, 26, 599-611).—A summary of existing methods for determination of iodine and bromine in naturally occurring compounds and mineral waters is given. Bromine was determined in standard solutions of salts of bromine, then in natural mineral waters and by addition of bromine to the latter. The influence of sodium chloride on the accuracy of determination of bromine was found to be negligible. On treatment of samples with hypochlorite, the iron contained in mineral waters separated as hydroxide. The influence of the acidity of the medium on the reactions of  $IO_3^-$  and  $I^-$ ,  $BrO_3^-$  and  $Br^-$ ; the acidity of the solution in which  $IO_3^-$  and  $I^-$  would react and  $BrO_3^-$  and  $Br^-$  not, corresponds to a concentration of hydrogen ions in which a solution of methyl orange keeps its red coloration at pH 3.1.

Differential titration: A saturated solution of NaCl (10 ml) is added to a mixture of standard solutions of mineral waters containing I and Br (50 ml), followed by potassium hypochlorite (10 ml), and the mixture is heated to 80° C. Boric acid (10 ml) is added and heating is continued for 5 min.; to this solution 4 per cent.  $H_2O_2$  (20 ml) is added and heated for a further 15 to 20 min. 0.5 N  $H_2SO_4$  (0.5 ml) is added to the solution followed by a 0.2 per cent. solution of starch (1 ml) and 10 per cent. solution of KI (4 ml); the iodine is titrated with 0.005 N solution of thiosulphate. Bromine is determined after iodine: to the solution 3 N  $H_2SO_4$  (15 ml) is added, 10 per cent. KI (8 ml), ammonium molybdate, and titration is carried out with a 0.005 N solution of thiosulphate. E. PRAMUZIC.

ALEKSANDROV, G.P.; LEVCHENKO, T.F.

Use of calcium hypochlorite in the determination of bromium and  
iodine by means of differentiated titration. Ukr.khim.zhur.17  
no.5:793-795 '51. (MIRA 9:9)

1.L'vovskiy filial Akademii nauk USSR.  
(Calcium hypochlorite) (Halogens) (Titration)

ALEXANDROV, G.P.; LEVCHENKO, T.F.

Bromine and iodine content in Zakarpatian salt. Gig. sanit., Munkva  
no. 1:43 Jan 1953. (GIML 24:2)

1. Of the Laboratory of Mineral Chemistry of the Institute of Mineral  
Resources of the Academy of Sciences Ukrainian SSR.

ALEXANDROV, G. I.

✓ 8273. Gravimetric determination of potassium in natural potassium salts by the nickel-sulfite method. G. P. Alexandrov and M. I. Lyntaya. *Zhur. Khim.* 1958, Abscr. No. 1149. Potassium is pptd. by a soln. containing 100 g of CaCl<sub>2</sub>·2H<sub>2</sub>O, 46 g of Ni(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O and 68 g of H<sub>2</sub>SO<sub>4</sub> in 100 ml of water to which 6 to 8 mg of KCl in 1 ml have been added; the soln. is set aside overnight and then filtered. The potassium salt (1 to 1.5 g) is dissolved in 100 ml of water containing 10 ml of 20 per cent HCl. To the soln. obtained, which contains insol. substances, are added slowly, while boiling, 10 ml of 10 per cent BaCl<sub>2</sub>·2H<sub>2</sub>O soln. After 2 hr. the ppt. is filtered off and washed with hot water. The filtrate is made up to 250 ml and 25 ml are evaporated to dryness. The residue is dissolved in a minimum vol. of H<sub>2</sub>O, 0.3 to 0.4 ml of 20 per cent HCl is added and the K is pptd. by 25 ml of the reagent. After standing for 1 hr. at 70° to 80° C and at room temp. overnight the ppt. is filtered off, washed with 75 per cent ethanol, std. with K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>, dried at 130° C and weighed. The max. error does not exceed 0.2 per cent. R. Lord.

UW

2

CM



ALEXANDROV, G.P.

1903. Determination of potassium sulphate in natural potassium salts by a volumetric method. G. P. Alexandrov and Ya. N. Shutor (Inst. Geology of the Acad. Sci., Ukr. SSR). *Zavod. Lab.*, 1955, 31 (12), 1432-1433. The powdered potassium salt (0.5 to 0.2 g) is boiled for 30 min. with 100 ml of water, and 3 per cent. Ba(OH)<sub>2</sub> solution (30 ml with sylvine, and 45 ml with kainite, langbeinite or polyhalite) is added to the boiling solution, which is then kept on a steam bath for 30 min. The next day the ppt. is filtered off and washed with cold water. A stream of CO<sub>2</sub> is passed through the filtrate for 15 min., the bicarbonate is decomposed by boiling for 20 min., the pptd. carbonates of the alkaline-earth metals are filtered off and washed with hot water, and the filtrate containing K<sub>2</sub>CO<sub>3</sub> is titrated cold with 0.1 N HCl to methyl red. G. S. SWINN

3/

4

PM 8/24

ALEKSANDROV, G.P.; TIKHONOVA, V.S.

Gravimetric determination of cerium by the periodate method. *Ukr. khim.zhur.* 22 no.3:379-382 '56. (MIRA 9:9)

1. Institut geologii poleznykh iskopayemykh AN USSR, Laboratoriya mineral'noy khimii.  
(Cerium) (Periodates)

ALEKSANDROV, G.P.; TIKHONOVA, V.S.

Preparation of a new sulfate fertilizer, kaluszite, from natural  
kainites. Zhur. prikl. khim. 31 no.10:1445-1453 0 '58. (MIRA 12:1)

1. Laboratoriya mineralnoy khimii instituta geologii poleznykh  
iskopeyemykh AN USSR.

(Kainite) (Fertilizers and manures)  
(Kaluszite)

AUTHOR: Aleksandrov, G. P. 130-5-18/22  
TITLE: A book for casting-bay workers. (Kniga dlya rabochikh razlivochnykh proletov).  
PERIODICAL: "Metallurg" (Metallurgist) 1957, No.5, pp.35-37 (USSR).  
ABSTRACT: This is a review, on the whole favourable, of the book "The Pouring of Steel" (Razlivka Stali") by D. P. Strugovshchikov, published by Metallurgizdat in 1956.

AVAILABLE:

Card 1/1

KLEMENT'YEVA, A.I.; SKOROKHODOV, M.A.: Primalni uchastiye: ALEKSANDROV, G.P.;  
BABUN, F.Ya.; BAYBARIN, P.P.; VAYNSHTEYN, TS.Z.; GUSEV, I.V.; ZHETVIN,  
N.P.; KONTSEVAYA, Ye.M.; LEVINA, M.M.; NOVLYANSKAYA, K.A.; POD-  
VOYSKIY, L.N.; TRUNTSEV, D.S.; FLEROV, N.G.; CHIKHACHEV, I.A.; YUROV,  
Yu.M.; GUDKOVA, N., red.; YEGOROVA, I., tekhn.red.

[Light over the gate] Svet nad zastavoi. Moskovskii rabochii,  
1959. 422 p. (MIRA 12:4)  
(Moscow--Metallurgical plants)



ALEKSANDROV, G.P.; TIKHONOVA, V.S.

Determination of ammonia in the presence of nitrites. Zav.lab.  
26 no.1:57 '60. (MIRA 13:5)

1. Institut geologii poleznykh iskopayemykh Akademii nauk USSR.  
(Nitrites) (Ammonia)

ALEKSANDROV, G.P.; TIKHONOVA, V.S.

Effect of the concentration of  $[\text{Ni}(\text{NO}_2)_6]^{4-}$  on the composition of mixed lanthanum and cerium hexanitronickelates with potassium. Ukr.khim.zhur. 27 no.5:592-598 '61. (MIRA 14:9)

1. Institut geologii poleznykh iskopayemykh AN USSR.  
(Rare earth compounds) (Nickel compounds)  
(Potassium compounds)



ALEKSANDROV, G.P.

Preparation of kaluzite from potassium sulfate salts and sulfate  
alkalis. Zhur. prikl. khim. 34 no.2:237-241 F '61. (MIRA 14:2)

1. Laboratoriya mineral'noy khimii Instituta geologii poleznykh  
iskopayemykh AN BSSR.

(Syngenite)

ALEKSANDROV, Grigoriy Petrovich[Aleksandrov, H.P.]; DUDNIK, Vera Nikolayevna[Dudnyk, V.M.]; KITYK, Vasiliy Ivanovich; SURZHOK, Grigoriy Dmitriyevich [Surzhok, H.D.]. Primal uchastiye SHEVCHENKO, Yu.V.; PORFIR'YEV, V.B., akademik, otv. red.; MEL'NIK, G.F.[Mel'nyk, H.F.], red. izd-va; DAKHNO, Yu.B., tekhn. red.

[Kalussite, a new potassium fertilizer]Kalushyt - novø kaliine dobryvo. [By]G.P.Aleksandrov ta inshi. Kyiv, Vyd-vo Akad.nauk URSR, 1962. 133 p. (MIRA 16:3)

1. Akademiya nauk Ukr. SSR (for Porfir'yev)  
(Ukraine--Kalussite)

ALEKSANDROV, G.P.; SHUTER, Ya.N.; SHEVCHENKO, Yu.V.

Volumetric determination of cobalt by means of potassium permanganate.  
Ukr.khim.zhur. 28 no.7:871-874 '62. (MIRA 15:12)

1. Institut geologii poleznykh iskopayemykh.  
(Cobalt—Analysis) (Potassium permanganate)

ALEKSANDROV, G.M., kand.tekhn.nauk

Principles for selecting the dimensions of extrahigh voltage  
power transmission lines. Izv.vys.ucheb.zav.;energ. 6 no.1:28-  
36 Ja '63. (MIRA 16:2)

1. Leningradskiy politekhnicheskii institut imeni M.I. Kalinina.  
Predstavlena kafedroy tekhniki vysokikh napryazheniy.  
(Electric power distribution--High tension)  
(Electric lines--Overhead)