"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Some Geometric Properties of Normographic Equations

S/020/60/133/02/02/068
C111/C222

From (4) it follows that

(5) $C_1(f)p_{23}(u,v) + C_2(f)p_{31}(u,v) + C_3(f)p_{12}(u,v) = 0$ ,

where $p_{ik} = \begin{vmatrix} A_i(u) & A_k(u) \\ B_i(v) & B_k(v) \end{vmatrix}$ . Differentiating (5) with respect to u,v and forming under consideration of (5) the ratio $C_1(f) : C_2(f) : C_3(f)$ , then it can easily be proved that $\lambda(u,v)$ can be chosen so that the functions $P_{ik} = p_{ik}\ \lambda(u,v)$ satisfy the condition $P_{23}^2 + P_{31}^2 + P_{12}^2 = 1$ and that for them certain differential equations are simultaneously satisfied from which it follows that the lines u = const , v = const are geodesic lines on the sphere. From (5) it follows that the vector $\{ C_1 , C_2 , C_3 \}$ lies in the tangenting plane of the sphere and that the lines f(u,v) = c are geodesic lines too. For this interpretation the well-known condition of Gronwall means

Card 2/3

4

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

Some Geometric Properties of Normographic Equations

81852
S/020/60/133/02/02/068
C111/C222

that arbitrary values $(u,v) \subset g$ and the derivative $\frac{dv}{du} = -\frac{f'u}{f'v}$ which is determined from the equation $f(u,v) = c$, satisfy the differential equation of the geodesic line.
These results permit to develop a differential geometric theory of nomographic equations.
There are 3 references : 2 Soviet and 1 French.

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

PRESENTED: March 15, 1960, by P.S. Aleksandrov, Academician

SUBMITTED: March 11, 1960

Card 3/3

4

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ARISTARKHOV, N.T., inzh; BAKHVALOV, S.K., inzh.

Triple-layer drop forging of large-scale bottoms. Khim. i neft. mashinostr. no.5:40-41 N '64 (MIRA 18:2)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Sovmestnoye izgibaniye dvukh svyazannykh poverkhnostey. Matem. sb., 40 (1933), 150-167.
Ob odnom izgibanii normal'noy kongruentsii. Matem. sb., 1 (43), (1936), 243-252.
Ob. Odnom invariante asimptoticheskikh prebrazovaniy. DAN, 44 (1944), 95-96.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.

"On the Couples of Stratifiable Congruences which Lie at the Congruence of Bianchi," Dokl. AN SSSR, 23, No.8, 1939

Inst. Math. and Mech., Moscow State U.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S. V.

"Nil Aleksandrovich Glagolev," Usp. Mat. Nauk, 1, No.2, 1946

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

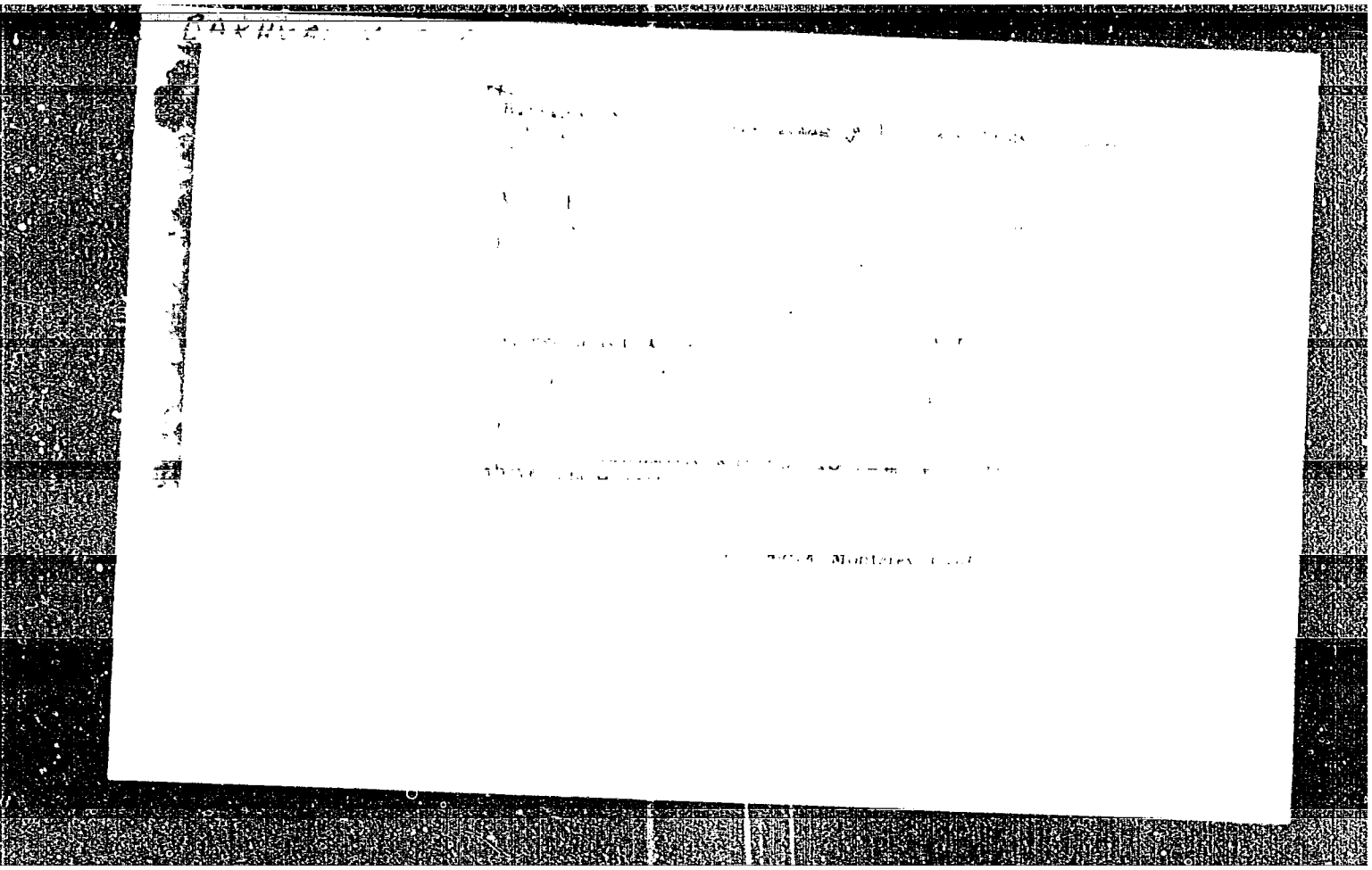
PETROVSKIY, I.G.; VOVCHENKO, G.D.; SALISHCHEV, K.A.; SERGEYEV, E.M.; MOSKVITIN, V.V.; SRETENSKIY, L.V.; GEL'FOND, A.D.; GOLUBEV, V.V.; ALEKSANDROV, P.S.; SOBOLEV, S.L.; BAKHVALOV, S.B.; OGUBALOV, P.M.; KREYNES, M.A.; MYASNIKOV, P.V.; ZHIDKOV, N.P.; GAL'PERN, S.A.; ZHEGALKINA-SLUDSKAYA, M.A.

Vsevolod Aleksandrovich Kudriavtsev; obituary. Vest.Mosk.un. 8 no.12:129 D '53. (MLRA 7:2)

(Kudriavtsev, Vsevolod Aleksandrovich, 1885-1953)

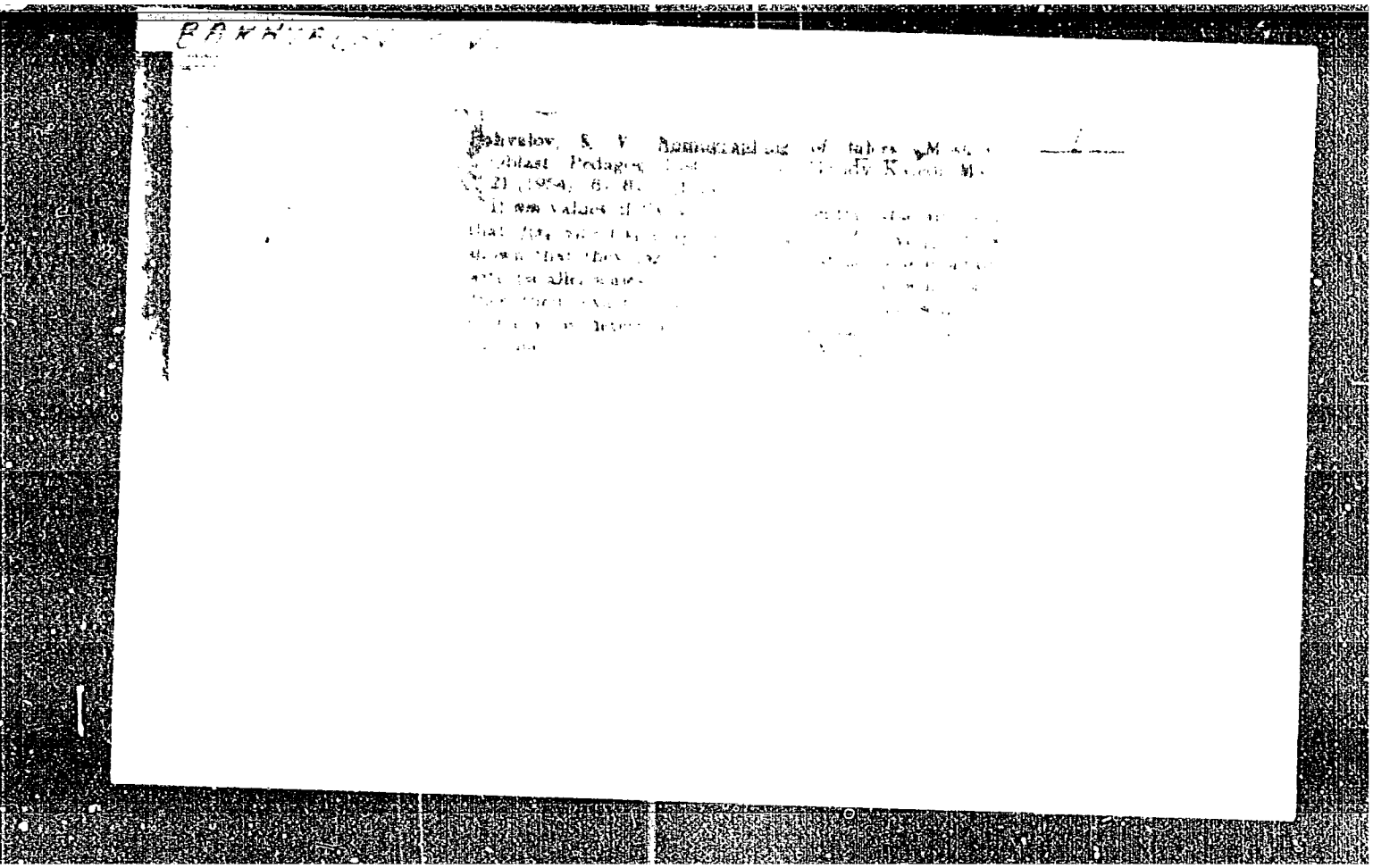
APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.; ZHIDKOV, N.P.; SAFRONOV, I.D.; LUPANOV, O.

Seventeenth mathematical olympiad for the schools of Moscow.
Usp.mat.nauk, 10 no1:213-215 '55. (MLRA 8:6)
(Moscow--Mathematics)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Representation of the function $z = f(x,y)$ in the form of $f(x,y) = \frac{A(x) - B(y)}{C(x) - D(y)}$. Uch. zap. MOPI 39 no.3:67-69 '56. (MLRA 10:4)

(Functions)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

Transactions of the Third All-union Mathematical Congress, Moscow, Jun-Jul '56
Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Call Nr: AF 1108825

Bakhvalov, S. V. (Moscow) and Zidkov, N. P. (Moscow).
Approximate Solution of the Direct Geodesic Problems.

138-140

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V., prof.; FINIKOV, S.P., prof., red.; KREYS, I.G., tekhn. red.

[Programs of pedagogical institutes; analytic geometry for physics and mathematics faculties; major: mathematics] Programmy pedagogicheskikh institutov; analiticheskaia geometriia dlia fiziko-matematicheskikh fakul'tetov. Spetsial'nost' - matematika. [Moskva] Uchpedgiz. 1957. 5 p. (MIRA 11:9)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye vysshikh i srednikh pedagogicheskikh uchebnykh zavedeniy.
(Geometry, Analytic--Study and teaching)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich, MODENOV, Petr Sergeyevich; PARKHOMENKO, Aleksey Serapionovich; TSVETKOV, A.T., redaktor; GAVRILOV, S.S., tekhnicheskiy redaktor

[Collection of problems in analytic geometry] Sbornik zadach po analiticheskoi geometrii. Izd. 2-oe, perer. Moskva, Oge. izd-vo tekhniko-teoret.lit-ry, 1957. 384 p. (MIRA 10:10)
(Geometry, Analytic--Problems, exercises, etc.)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

PEREPELKIN, D.I., prof.; BAKHVALOV, S.V., red.; MAKSAYEV, A.V., tekhn. red.

[Programs of pedagogical institutes; elements of geometry] Programmy pedagogicheskikh institutov; osnovaniia geometrii. [Moskva] Uchpedgiz, 1957. 5 p. (MIRA 11:9)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye vysshikh i srednikh pedagogicheskikh uchebnykh zavedeniy.
(Geometry--Study and teaching)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.; ZHIDKOV, N.P.

The direct geodesic problem. Vest.Mosk.un.Ser.mat., mekh., astron., fiz.,khim. 12 no.2:15-23 '57. (MIRA 10:12)

1.Kafedra vychislitel'noy matematiki Moskovskogo universiteta.
(Geodesy)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Inverse geodesic problem. Uch. zap. MOPI 57 no.4:143-151 '57.
(MIRA 11:6)
(Geodesy)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

PHASE I BOOK EXPLOITATION 795

Bakhvalov, Sergey Vladimirovich; Babushkin, Lev Ivanovich, and Ivanitskaya, Valentina Pavlovna

Analiticheskaya geometriya; uchebnik dlya pedagogicheskikh institutov (Analytic Geometry; a Textbook for Pedagogical Institutes) Moscow, Uchpedgiz, 1958. 326 p. 25,000 copies printed.

Ed. (title page): Bakhvalova, S.V.; Ed. (inside book): Ostianu, N.M.; Tech. Ed.: Natanov, M.I.

PURPOSE: This book is approved by the Ministry of Education of the RSFSR as a textbook for students at pedagogical institutes, although certain problems exceed the requirements of such a course.

COVERAGE: The book is a text for a classical course in plane and solid analytic geometry. The book deals with basic elements of analytic geometry. More extensive theories of conics and of

Card 1/13

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



quadric surfaces are presented. Fundamentals of vector algebra are given, which are applied to certain problems of the theory of a straight line and to coordinate transformations. Although there is no presentation of equations in vector form, certain equations in Cartesian coordinates are derived with the aid of vector algebra. No personalities are mentioned. There are 6 Soviet references.

TABLE OF CONTENTS:

Preface 3

Introduction 4

PART 1. STRAIGHT-LINE AND PLANE ANALYTIC GEOMETRY

Ch. I. Straight-line Geometry
1. Ray. Direction of a ray [Directed line] 5
2. Determination of the position of a point on a straight line with the aid of coordinates 6



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



3. Length of a segment and geometrical meaning of the sign of the difference of two-point coordinates 6
4. Division of a segment in a given ratio 8

Ch. II. Coordinate Method on a Plane 9
5. Rectangular Certesian coordinates 11
6. Distance between two points 12
7. Division of a segment in a given ratio 14
8. Polar coordinates of a point 16
9. Relations between polar and rectangular coordinates of a point 17
10. Generalized polar coordinates 18
11. Geometrical interpretation of an equation with two variables. Imaginary elements. Classification of lines. 26
12. Line as locus of points. Formation of an equation



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Ch. III. Elements of Vector Algebra
13. Same direction of two plane rays. Vector. Equality of vectors 32
14. Addition of vectors 34
15. Subtraction of vectors 36
16. Vector times scalar (number) 36
17. Resolution of a vector into two noncolinear directions 39
18. Affine coordinates. Coordinates of a point, coordinates of a vector 40
19. Problems on vectors with coordinates in orthogonal Cartesian coordinate system 43
20. Area of a triangle 47

Ch. IV. Straight Line
21. Various methods for determination of the position of a straight line 49
22. Straight-line equations in orthogonal Cartesian coordinates 49
23. Conditions under which two linear equations represent the same straight line 50
24. Conditions under which two straight lines are parallel or perpendicular 51



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



25. Normal equation of a straight line 52
26. Geometrical meaning of the sign of trinomial $Ax_1 + By_1 + C$ 53
27. The perpendicular distance from a point to a straight line 54
28. Parametric equation of a straight line. General equation of a straight line 56
29. Slope-intercept form of a straight line equation 58
30. The point-slope form of a straight line equation 59
31. Two-point form of a straight line equation. Condition where three points are on the same straight line 59
32. Intercept form of a straight-line equation 60
33. Point of intersection of two straight lines 60
34. Pencils of straight lines. Conditions where three straight lines belong to the same pencil 61



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



35. Angle of two straight lines in orthogonal coordinate system 63
36. Concept of a nomogram of adjusted points 66

Ch. V. The Study of Conics From Their Canonic Equations
37. Problems which reduce to conics 69
38. The circle 73
39. Ellipse. Canonic equation. Determination of the forms of ellipse from canonic equations 75
40. Ellipse as a result of uniform compression of a circle in the direction of a diameter 81
41. Parametric equation of an ellipse 82
42. Hyperbola. Canonic equation. Asymptotes. Determination of the form of a hyperbola from canonic equation 84
43. Parabola. Canonic equations. Determination of the form of a parabola from canonic equation 91
44. Diameters of conics 95
45. Tangents to conics 101
46. Directrices of conics 106
47. Equation of conics in polar coordinates 110
48. Conics as plane sections of [right circular] cone surface 114



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Ch. VI. Transformation of Coordinate System
49. Transformation of one affine coordinate system into another. Translation of axes. Transformation of a rectangular coordinate system into another rectangular system [Rotation of axes] 118

Ch. VII. General Theory of Conics 121
50. General form of conic equation 128
51. Reduction of general conic equation into equation with term x y missing 133
52. Further simplification of a general conic equation 143
53. Invariants of an equation after rotation of axis 148
54. Transformation by translation of axes and invariants of an equation 150
55. Invariants of a general conic equation after general transformation 151
56. Determination of the coefficients of reduced conic equations with the aid of invariants 154
57. Determination of the type of conics by invariants



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



58. The center of a conic 160
59. Determination of the location of central conic 162
60. Intersection of a conic with a straight line 163
61. Classification of a conic based on asymptotic directions 167
62. Diameters of a conic 168
63. Axes of a conic 170
64. Asymptotes of a conic 172
65. Tangent to a conic 174
66. Method of determining location of central conic 176
67. Determination of location of parabola 179
68. Construction of pair of parallel straight lines 181

## PART 2. SOLID ANALYTIC GEOMETRY

Ch. I. The Method of Coordinates in Space
1. Affine coordinates in space. Coordinate of a point 182

Ch. II. Elements of Vector Algebra
2. Projecting vector on axis parallel to a given plane 184
3. Resolution of a vector into three noncoplanar vectors. Coordinates of a vector and their properties 186



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



4. Scalar product of two vectors 189
5. Vector product and its properties 194
6. Products of three vectors. Scalar triple product. Vector triple product 198

Ch. III. Geometrical Meaning of One Equation and of a System of Two Equations With Three Variables
7. Equation of a surface 202
8. Equation of a line 205

Ch. IV. The Plane and the Straight Line
9. General equation of a plane 206
10. Analysis of the general equation of a plane 207
11. Geometrical meaning of sign of the expression $Ax_1 + By_1 + Cz_1 + D$ 210
12. Normal form of the equation of a plane 211
13. The equation of a plane passing through three given points 213



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



14. Relative positions of two planes 214
15. Angle between two planes. Conditions where two planes are parallel or perpendicular 215
16. Relative position of three planes 216
17. Pencil of planes 217
18. Parametric equation of a straight line 219
19. Canonic equation of a straight line 219
20. Equations of a straight line passing through two given points 220
21. Straight line as intersection of two planes 220
22. Reduction of the equations of a straight line to parametric form 220
23. Angle between two straight lines 222
24. The perpendicular distance from a point to a straight line 223
25. The shortest distance between two straight lines 224
26. Angle between a straight line and a plane 224
27. Determination of common points of straight line and plane 226
28. Conditions under which two straight lines lie in the same plane 226



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Ch. V. Quadric Surfaces and Their Canonic Equations
29. Surfaces of revolution 227
30. Quadric surfaces of revolution 229
31. Quadric surfaces and their canonic equations 232
32. Analysis of the type of quadric surfaces using plane sections of the surface 238
33. Ruled quadric surfaces 240

Ch. VI. Transformation of Coordinates
34. Transformation of affine coordinate system into another affine coordinate system 248
35. Transformation of rectangular Cartesian coordinate system into another rectangular Cartesian coordinate system 249
36. Translation of axes 251
37. Rotation of axes around one coordinate axis 251



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Ch. VII. General Theory of Quadric Surfaces
38. Simplification of the equation of quadric surfaces by rotation of axes around the origin 252
39. Further simplification of equation of quadric surfaces 263
40. Invariants of equations of quadric surfaces after transformation of rectangular coordinates into rectangular 268
41. Determination of the coefficients of reduced equations of quadric surfaces using invariants and identification of the type of surface with the aid of invariants 274
42. Intersection of quadric surface with a straight line 284
43. Asymptotic directions. Asymptotic cone 286
44. Center of quadric surfaces 291
45. Diametral planes of quadric surfaces. Principal diametric planes 295
46. Centre of plane section. Diameters 296
47. Tangent plane to a quadric surface at a given point 298



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Appendices
1. Method of abridged designations 300
2. Affine transformations 303
3. Equation of a conic in affine coordinates 310
4. Affine classification of quadrics 314
5. Problems for Chapter IV of Part I 317

AVAILABLE: Library of Congress

Card 13/13

LK/jmr
11-24-58

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

16(0) PHASE I BOOK EXPLOITATION SOV/3177

Matematika v SSSR za sorok let, 1917-1957. tom 1: Obzornyye stat'i (Mathematics in the USSR for Forty Years, 1917-1957) Vol 1: Review Articles) Moscow, Fizmatgiz, 1959. 1002 p. 5,500 copies printed.

Eds: A. G. Kurosh, (Chief Ed.), V. I. Bityutskov, V. G. Bdiyanskiy, Ye. B. Dynkin, G. Ye. Shilova, and A. P. Yushkevich; Ed. (Inside book): A. F. Lapko; Tech. Ed.: S. N. Akhlamov.

PURPOSE: This book is intended for mathematicians and historians of mathematics interested in Soviet contributions to the field.

COVERAGE: This book is Volume I of a major 2-volume work on the history of Soviet mathematics. Volume I surveys the chief contributions made by Soviet mathematicians during the period 1947-1957; Volume II will contain a bibliography of major works since 1917 and biographic sketches of some of the leading mathematicians. This work follows the tradition set by two earlier works: Matematika v SSSR za pyatnadtsat' let (Mathematics in the USSR for 15 Years) and Matematika v SSSR za tridtsat' let (Mathematics in the USSR for 30 Years). The book is divided into the major divisions of the field, i.e., algebra, topology, theory of probabilities, functional analysis, etc., and contributions and outstanding problems in each discussed. A listing of some 1400 Soviet mathematicians is included with references to their contributions in the field.


Lyapunov, A. A. Mathematical Studies Connected With the Use of Computers 857
1. Theoretical studies in programming 858
2. Nonarithmetical use of computers 863
3. Theoretical studies of control systems 869
4. Certain other problems of mathematical cybernetics 874

Shura-Bura, M. R. Programming 879

Bakhvalov, S. V. Nomography 887

Chetverukhin, N. F. Descriptive Geometry 893
1. Fundamental theorem of axonometry and its generalization 893
2. Multidimensional descriptive geometry 895
3. Parametric method of studying images. Positional and metric completeness 896
4. Other problems 897

Vasil'yev, A. M., Norden, A. P., and Finikov, S. P. Differential Geometry 899
1. Problems of classical differential geometry and their generalizations 899
2. Riemann spaces and spaces of affine connection 907
3. Theory of nets 911
4. Induced connections 913
5. Complex spaces 915
6. Theory of geometric objects 918

Yefimov, N. V. Geometry "in the Large" 925
1. Geometry on a convex surface 926
2. Single valued determination of convex surfaces 930
3. Regularity of convex surfaces with regular metric 932
4. General theory of surfaces. Polyhedra 933
5. Existence, uniqueness, and regularity of surfaces under given conditions of Gaussian curvature. Certain nonlinear boundary value problems 942
6. Singularity of surfaces given a function of the principle curvatures 944
7. Arithmetic invariants. Theorems on local deformations 946
8. Infinitessimal bendings 948
9. Certain results on synthetic geometry 951

Yushkevich, A. P., The History of Mathematics 953
1. Introduction 953
2. Mathematics of the ancient East 955
3. Mathematics of ancient Greece 957
4. Mathematics in the Middle Ages 960
5. Works of modern mathematicians 965
6. Works on the history of various disciplines and problems; works of a general nature 980

Author's Index 987


APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

S/055/60/000/03/03/010

AUTHORS: Bakhvalov, S.V., and Ivanitskaya, V.P.

TITLE: Orientated Angles and Their Properties

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya I, matematika, mekhanika, 1960, No. 3, pp. 20-30

TEXT: The totality of two rays with a common origin and one of the two domains bounded by these rays is called an angle. The angle is called orientated if both rays are considered in a fixed sequence. On the base of the system of axioms of Hilbert the authors prove several properties of orientated angles defined in this manner, e.g.:
Theorem 4: Two arbitrary angles which are orientated like a third one, are equally orientated.
The authors mention P.S.Modenov, P.K.Rashevskiy and V.F.Kagan. There are 3 figures and 4 references: 3 Soviet and 1 German.

ASSOCIATION: Kafedra vysshey geometrii (Department of Higher Geometry)

SUBMITTED: June 29, 1959

VB

Card 1/1

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.; IVANITSKAYA, V.P.

Oriented angles and their characteristics. Vest.Mosk.un.Ser.1: Mat., mekh. 15 no.3:20-30 My-Je '60. (MIRA 13:10)

1. Kafedra vysshey geometrii Moskovskogo universiteta.
(Angle)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Nomographic representation of equations. Uch. zap. MGPI 96: 231-237 '60. (MIRA 16:7)
(Nomography (Mathematics))
(Differential equations)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Some geometric properties of nomographable equations. Dokl. AN SSSR 133 no.2:258-260 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom P.S.Aleksandrovym.
(Equations)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

89564
S/055/61/000/001/001/005
C111/C222

16.5600

AUTHOR: Bakhvalov, S.V.

TITLE: A differential-geometrical method for solving the problem of general anamorphosis

PERIODICAL: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no.1, 1961, 24-32

TEXT: The equation

$$w = f(u,v) \tag{1}$$

is called nomographable if there exists a function

$$\Delta(u,v,w) = \begin{vmatrix} A_1(u) & A_2(u) & A_3(u) \\ B_1(v) & B_2(v) & B_3(v) \\ C_1(w) & C_2(w) & C_3(w) \end{vmatrix} \not\equiv 0 \tag{2}$$

which satisfies

$$\begin{vmatrix} A_1(u) & A_2(u) & A_3(u) \\ B_1(v) & B_2(v) & B_3(v) \\ C_1(f(u,v)) & C_2(f(u,v)) & C_3(f(u,v)) \end{vmatrix} \equiv 0. \tag{3}$$

Card 1/6

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



Then an alignment nomogram can be constructed of (1). The determination of (2) which satisfies (3) for (1) is called the problem of general anamorphosis. The author gives a differential geometrical method for solving the problem. The paper consists of three parts. Part I contains differential-geometrical remedies. Part II contains the given method. From (3) it follows

$$C_1(f)p_{23}(u,v)+C_2(f)p_{31}(uv)+C_3(f)p_{12} \equiv 0, \qquad (19)$$

where $p_{ik}(u,v) = \begin{vmatrix} A_i(u) & A_k(u) \\ B_i(v) & B_k(v) \end{vmatrix}$. The $p_{ik}$ satisfy

$$(\bar{p}\ \frac{\partial \bar{p}}{\partial u}\ \frac{\partial^2 \bar{p}}{\partial u^2}) \equiv 0, \qquad (20)$$

$$(\bar{p}\ \frac{\partial \bar{p}}{\partial v}\ \frac{\partial^2 \bar{p}}{\partial v^2}) \equiv 0, \qquad (21)$$

$$(\bar{p}\ \frac{\partial \bar{p}}{\partial u}\ \frac{\partial \bar{p}}{\partial v}) \not\equiv 0, \qquad (22)$$



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



A differential-geometrical method...

where $\bar{P}=\{p_{23},p_{31},p_{12}\}$. If $S(u,v)$ is determined so that $P_{ik}=S(u,v)p_{ik}$ satisfy the condition $P_{23}^2+P_{31}^2+P_{12}^2$ then the $P_{ik}$ can be interpreted as coordinates on the sphere. The $P_{ik}$ satisfy (20)-(22) too. From (20),(21) it follows

$$\frac{\partial^2 P_{ik}}{\partial u^2}=p_1\frac{\partial P_{ik}}{\partial u}+q_1P_{ik},\qquad \frac{\partial^2 P_{ik}}{\partial v^2}=p_2\frac{\partial P_{ik}}{\partial v}+q_2P_{ik},$$

and herefrom it follows that $\left\{\begin{matrix}11\\2\end{matrix}\right\}=0$, $\left\{\begin{matrix}22\\1\end{matrix}\right\}=0$, i.e. $u=\text{const}$ and $v=\text{const}$ are geodesics on the sphere. By differentiating (19) with respect to u and v and using the Gaussian derivation formulas

$$\frac{\partial^2\bar{P}}{\partial u^2}=\left\{\begin{matrix}1&1\\1\end{matrix}\right\}\frac{\partial\bar{P}}{\partial u}+D\bar{P},\qquad \frac{\partial^2\bar{P}}{\partial v^2}=\left\{\begin{matrix}2&2\\2\end{matrix}\right\}\frac{\partial\bar{P}}{\partial v}+D''\bar{P},\qquad (15)$$

$$\frac{\partial^2\bar{P}}{\partial u\,\partial v}=\left\{\begin{matrix}1&2\\1\end{matrix}\right\}\frac{\partial\bar{P}}{\partial u}+\left\{\begin{matrix}1&2\\2\end{matrix}\right\}\frac{\partial\bar{P}}{\partial v}+D'\bar{P},$$

where D,D',D" are coefficients of the second fundamental form of the

Card 3/6

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



A differential-geometrical method...

sphere, the author obtains the Gronwall condition in the form

$$\left(\begin{Bmatrix}1&1\\1\end{Bmatrix} - 2\begin{Bmatrix}1&2\\2\end{Bmatrix}\right)f'_v + \left(\begin{Bmatrix}2&2\\2\end{Bmatrix} - 2\begin{Bmatrix}1&2\\1\end{Bmatrix}\right)f'_u \equiv M(u,v),$$

where

$$M(u,v) = \frac{f''_{uu}f'^2_v - 2f''_{uv}f'_u f'_v + f''_{vv}f'^2_u}{f'_u f'_v},$$

or, after introducing the fundamental terms of first order, in the form:

$$\alpha(u,v)f'_v + \beta(u,v)f'_u \equiv M(u,v), \qquad (27)$$

where $\alpha$ and $\beta$ are given by

$$\alpha(u,v) = \frac{\partial}{\partial u}\ln\frac{E^{3/2}}{EG-F^2}, \qquad \beta(v) = \frac{\partial}{\partial v}\ln\frac{G^{3/2}}{EG-F^2}. \qquad (18'')$$

The lines $f(u,v) = \text{const.}$ are the geodesics on the sphere.
Let $w = f(u,v)$ satisfy the conditions:
1) $f(u,v)$ is defined for all $u,v$ of a neighborhood of $u_0, v_0$.



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



2) $f(u,v)$ and its two first derivatives are continuous in this neighborhood.

3) $\frac{\partial f(u,v)}{\partial v} \neq 0$ for $u = u_0$, $v = v_0$.

Then from $f(u,v) = c$ there results the relation $v = \sigma(u,c)$ and $v' = \sigma'_u(u,c)$, where

$$f(u, \sigma(u,c)) \equiv c. \tag{28}$$

Since the lines $f(u,v) = c$ are geodesic lines, $v = \sigma(u,c)$ and $v' = \sigma'_u(u,c)$ must satisfy the differential equation of the geodesics on the sphere. Therefrom it follows

$$\frac{d}{du} \ln \sigma'_u(u,c) \equiv \alpha(u, \sigma) - \beta(u, \sigma)\sigma'_u(u,c). \tag{29}$$

If (1) is nomographable then the lines $f(u,v) = c$ are geodesic lines on the sphere and (29) is satisfied identically. Inversely: If (29) is satisfied then (1) is nomographable.

Card 5/6

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

89564
S/055/61/000/001/001/005
C111/C222

A differential-geometrical method...

An example is considered ($w = \varphi(u) + \sqrt{\varphi^2(u) + \psi^2(v)}$).

There are 5 Soviet-bloc and 2 non-Soviet-bloc references.

ASSOCIATION: Kafedra vysshey geometrii i topologii (Chair of Higher Geometry and Topology)

SUBMITTED: June 7, 1960

Card 6/6

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich: VOVCHENKO, O.D., prof., otv.red.; BERNSHTEYN, S.B., prof., red.; VILENSKIY, D.G., prof., red. [deceased]; GORDEYEV, D.I., prof., red.; GUDZIY, N.K., prof., red.; ZAYONCHKOVSKIY, P.A., prof., red.; KECHEK'YAN, S.F., prof., red.; MEL'NIKOVA, K.P., kand.nauk, red.; POLYANSKIY, F.Ya., prof., red.; RYBNIKOV, K.A., prof., red.; SKAZKIN, S.D., akademik, red.; SOLOV'YEV, A.N., dotsent, red.; GOL'DENBERG, O.S., red.; GEORGIYEVA, O.I., tekhn.red.

Nil Aleksandrovich Glagolev. Moskva, Izd-vo Mosk.univ., 1961. 29 p. (Zamechatel'nye uchenye Moskovskogo universiteta, no.28). (MIRA 14:12)

(Glagolev, Nil Aleksandrovich, 1888-1945)
(Nomography (Mathematics)) (Geometry, Projective)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

GLAGOLEV, N.A. Prinimali uchastiye: GLAGOLEV, A.A.; BAKHVALOV, S.V.
SKLIVERSTOVA, A.I., red.izd-va; YEZHOVA, L.L., tekhn.red.

[Course in nomography] Kurs nomografii. Izd.2. Moskva,
Gos.izd-vo "Vysshaia shkola," 1961. 267 p.
(MIRA 15:2)

(Nomography (Mathematics))

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich; BABUSHKIN, Lev Ivanovich; IVANITSKAYA, Valentina Pavlovna; DOLGOPALOV, V.G., red.; SMIRNOVA, M.I., tekhn. red.

[Analytic geometry] Analiticheskaia geometriia; uchebnik dlia pedagogicheskikh institutov. Izd.2., perer. Moskva, Uchpedgiz, 1962. 367 p. (MIRA 16:10)
(Geometry, Analytic)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V. (Moskva)

Nomographic method of solving differential equations. Num. sbor. no.1:180-187 '62. (MIRA 16:5)

(Nomography (Mathematics))

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

Nomographing the solutions to a second-order differential equation. Dokl.AN SSSR 145 no.4:710-712 Ag '62. (MIRA 15:7)

1. Predstavleno akademikom P.S.Aleksandrovym.
(Differential equations) (Nomography (Mathematics))

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich; BABUSHKIN, Lev Ivanovich; IVANITSKAYA, Valentina Pavlovna; DOLGOPOLOV, V.G., red.; SMIRNOVA, M.I., tekhn. red.

[Analytic geometry; textbook for pedagogical institutes]Analiticheskaia geometriia; uchebnik dlia pedagogicheskikh institutov. Pod red. S.V.Bakhvalova. Izd.2., perer. Moskva, Uchpedgiz, 1962. 367 p. (MIRA 16:2)
(Geometry, Analytic)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, S.V.

15

PHASE I BOOK EXPLOITATION SOV/6352

Akademiya nauk SSSR. Vychislitel'nyy tsentr

Nomograficheskiy sbornik (Collected Papers on Nomography, no. 1.) Moscow, 1962. 248 p. 1800 copies printed.

Resp. Ed.: G. S. Khovanskiy, Candidate of Technical Sciences; I. A. Orlova; Tech. Ed.: A. I. Korkina.

PURPOSE: This collection of papers is intended for those engaged in research on and design of nomographs.

COVERAGE: This collection contains 27 papers concerning various aspects of the theory, construction, and use of nomograms for the solution of algebraic, functional, transcendental, and differential equations. No personalities are mentioned. There are 122 references: 102 Soviet (1 of which is a translation from the English), 8 German, 5 French, 2 English, 2 Spanish, 2 Rumanian, and 1 Czech.

Card 1/10

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3





XX. Bakhvalov, S. V., Moscow. Constructing Nomograms for Solutions of Differential Equations 180

XXI. Kuz'min, Ye. N. Projective Equivalence of the Nomograms Obtained by Kellogg's Method for an Equation of the Third Nomographic Order. 188

XXII. Kuz'min, Ye. N. Solution of the Problem of Anamorphosis for an Equation of the Third Nomographic Order 192

XXIII. Bukhvalov, A. M. Representations by Nomograms of Equations of Aligned Point of Zero Genus 205

XXIV. Bukhvalov, A. M. Representation of the Empirical Relationships Between Three Variables, Given in Tabular Form by Nomograms of Aligned Points of Zero Genus 212



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich; MODENOV, Petr Sergeyevich; PARKHOMENKO, Aleksey Serapionovich; MOROZOVA, I.Ye., red.

[Problems in analytic geometry] Sbornik zadach po analiticheskoi geometrii. Izd.3., perer. Moskva, Nauka, 1964. 440 p. (MIRA 17:10)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Sergey Vladimirovich; BABUSHKIN, Lev Ivanovich; IVANITSKAYA, Valentina Pavlovna; DOLGOPOLOV, V.G., red.

[Analytic geometry; textbook for pedagogical institutes] Analiticheskaia geometriia; uchebnik dlia pedagogicheskikh institutov. Pod red. S.V.Bakhvalova. Izd.3. Moskva, Prosveshchenie, 1965. 367 p. (MIRA 18:12)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, V.M.; GOROKHOVSKIY, Yu.N.

Sensitometry of multi-layered photographic color materials. Part 5. Criteria for photosensitivity of color materials. Usp.nauch.fot. no.4:29-43 '55. (MLRA 9:4)
(Color photography) (Photographic sensitometry)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

AUTHOR: Bakhvalov, V.M. 48-11-11/13

TITLE: The Investigation Method of the Capacity of Reflection of Colored Photographic Papers (Metodika issledovaniya otrazhatel'noy sposobnosti tsvetnykh fotograficheskikh bumag).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 11, pp. 1534-1540 (USSR)

ABSTRACT: The test-data given in this treatise which result from the work carried out, show the influence of the surface-reflection on the absorption curve obtained by measuring in reflected light. The following was stated on the strength of the tests:

1) The baryta base with the gelatin-film applied on it, shows a directed surface-reflection. In the case of a smooth gelatin film obtained by unrolling on a glass, the surface-reflection is near to that of the mirror.

2) With the determination of the absorption-(reflection)-curve of the photographic paper which contains transparent dyes in the gelatin film, accessories for

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



the spectrophotometers should be used, the construction of which prevents the inciding of the surface component of the reflected light into the measuring device of the apparatus.

3) Two conditions must be complied with, with the elaboration of other accessories for the spectrophotometers for measuring the reflection-curves of photographic papers:

a) The angle of the light inciding the sample must range within the limits from 0 to approx. 40 to 50°, since with any further enlargement of the angle the quantity of the light reflected on the surface would increase intensively.

b) The angle under which the measuring is carried out, must form at least 15° with the direction of the specular reflection. There are 6 figures, 1 table, and 3 references, 1 of which is Slavic.

ASSOCIATION: Laboratory for Aeromethods AN USSR (Laboratoriya aerometodov Akademii nauk SSSR).

AVAILABLE: Library of Congress



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, V.M.

Comparative characteristics of the color separation properties of "Fotosvet" printing papers. Zhur.nauch.i prikl.fot. i kin. 5 no.6: 446-447 N-D '60. (MIRA 14:1)

1. Laboratoriya aerometodov AN SSSR.
(Color photography—Printing processes)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

S/058/63/000/003/051/104
A062/A101

AUTHOR: Bakhvalov, V. M.

TITLE: Features of densitometry of color photographic papers and determination of dye concentrations in separate layers

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 87 - 88, abstract 3D592 ("Uspekhi nauchn. fotogr.", 1962, v. 8, 216 - 224)

TEXT: A method of densitometry of color photographic papers is described, which permits to determine the surface dye concentration in elementary layers. It is proposed to measure the densities in color light by means of a special glass disk, brought into contact with the sample being measured; such an arrangement removes the effect of light scattering on the magnitude of the density being measured. On the basis of the measurements with the disk, calibration curves are plotted, and systems of computation equations are found for determining the surface dyestuff concentrations in "Photocolor" paper for measurements with the disk and usual measurements. A color separation test of this paper is carried out in accordance with the NIKFI method.
[Abstracter's note: Complete translation] D. Balabukha

Card 1/1

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 07238-67 EWT(1)/FSS-2 IJP(c) JGS/GW/GD

ACC NR: AT6026451 (A) SOURCE CODE: UR/0000/66/000/000/0016/0027

52
51
B+1

AUTHOR: Bakhvalov, V. M.

ORG: none

TITLE: The estimate of the spectral brightness of haze and its influence on the photo interpretation of aerial photographs 20

SOURCE: AN SSR. Mezhduvedomstvennaya komissiya po aeros"yemke. Teoriya i praktika deshifrirovaniya aerosnimkov (Interpretation of aerial photographs in theory and practice). Moscow, Izd-vo Nauka, 1966, 16-27

TOPIC TAGS: aerial photography, atmospheric optics, atmospheric scatter, atmospheric visibility, atmospheric transparency, photo interpretation

ABSTRACT: During aerial photography exposures through haze, the brightness of haze combines with the brightness of terrestrial objects and thus distorts their spectral brightness. Consequently, the author determines in a wide spectral range (visible and near infrared) the curves of spectral brightness of the skies which with insignificant corrections may be interpreted as curves of the spectral brightness of haze as photographed from high altitudes. The overall brightness of the haze may vary within wide limits, its spectral brightness, however, changes only in its short-wave region which is usually excluded during high-altitude photography. The spectral brightness of haze in the near infrared region (700—1,000 mμ) is quite constant. The shape of

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 07238-67
ACC NR: AT6026451

the general atmospheric light scattering characteristics depends on the wavelength, and this must be taken into account during measurements as well as during the introduction of corrections into the brightness of the skies. Data were collected at Baku (1960) and Leningrad (1961) with the participation of N. G. Rastorguyev. The paper contains a detailed discussion of the theoretical foundations of the problem and of the experimental methodology. Orig. art. has: 14 formulas, 1 table, and 7 figures.

SUB CODE: 14,04 SUBM DATE: 21Jan66/ ORIG REF: 008

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

AVILOV-KARNAUKHOV, B.N.; BATURO, V.I.; BAKHVALOV, Yu.A.; BOGUSH, A.G.; BOLYAYEV, I.P.; GIKIS, A.F.; DROZDOV, A.D.; KAYALOV, G.M.; KLEYMENOV, V.V.; KOLESNIKOV, E.V.; MALOV, D.I.

Professor Efim Markovich Sinel'nikov, 1905- ; on his 60th birthday. Elektrichestvo no.9:89 S '65. (MIRA 18:10)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 22425-66 EWT(d)/EWP(k)/EWP(l)
ACC NR: AT6013623 SOURCE CODE: UR/0105/65/000/009/0089/0090

AUTHOR: Avilov-Karnaukhov, B. N.; Baturo, V. I.; Bakhvalov, Yu. A.; Bogush, A. G.; Bolyayev, I. P.; Gikis, A. F.; Drozdov, A. D.; Kayalov, G. M.; Kleymenov, V. V.; Kolesnikov, E. V.; Malov, D. I.

ORG: none

TITLE: Honoring the 60th birthday of Professor Yefim Markovich Sinel'nikov

SOURCE: Elektrichestvo, no. 9, 1965, 89-90

TOPIC TAGS: academic personnel, electric engineering personnel, computer research

ABSTRACT: Professor Sinel'nikov was born 11 May 1905 in Yekaterinoslav (now Dnepropetrovsk) in the family of a clerk. Following his graduation from the Khar'kov Electrical Engineering Institute in 1930 he was appointed chief of the Technical Division on Electric Drive at the Khar'kov Electrical Machinery Plant. Subsequently he was appointed research engineer at the Vol'ta Plant and later on transferred to Moscow, to the Institute of Experimental Medicine, while at the same time he continued his studies. In 1946 he started working as a senior scientific researcher at the All-Union Electrical Engineering Institute. Since September 1953 Professor Sinel'nikov has been working at the Novocherkassk Polytechnic Institute. At present he is head of the Chair of

Card 1/2 UDC: 621.313

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 22425-66
ACC NR: AP6013623

Electrical Machinery, Apparatus, and Computers and Mathematical Devices. He has been instrumental in establishing the computer laboratory at this institute, where research is being performed on the problems of utilizing computer engineering in the design and calculation of electromagnetic, mechanical, and thermal processes in electrical machinery and equipment. Since 1958 Professor Sinel'nikov has been Coordinating Editor of the journal Elektromekhanika (Electromechanics) - one of the series published under the aegis of Izvestiya Vysshikh Uchebnykh Zavedeniy (News of Higher Schools). Yefim Markovich is moreover a prominent educator and the holder of many social honors and consultant to a series of industrial enterprises. For his great merits as an educator and for his scientific contributions he has been awarded the Order of Labor Red Banner. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09 / SUBM DATE: none

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

S/144/62/000/002/005/007
D289/D301

AUTHOR: Bakhvalov, Yuriy Alekseyevich, Assistent (see Association)

TITLE: Mathematical simulator of transient processes in synchronous machines based on experimental dynamic characteristics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 2, 1962, 155 - 167

TEXT: Since dynamic characteristics of synchronous machines are non-linear, analog computers may be used for simulation. However, these are limited in the range of calculation and have no memory; therefore, quite a lot of experimental data is required. The article shows how an electronic model is employed using experimental dynamic characteristics which by the use of Laplace-Carson transforms gives parameters of electrical circuits having analogous characteristics. Electrical processes of these circuits are simulated on analog computers. A synchronous machine is considered as magnetically linked coils with steel cores. Initially the author descri-

Card 1/3

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



oes a simulator with saturation neglected. Stator equations are of the form

$$u_d = i_d r + \frac{d\Psi_d}{dt} - \omega\Psi_q, \qquad (1)$$

and

$$u_q = i_q r + \frac{d\Psi_q}{dt} + \omega\Psi_d. \qquad (2)$$

Equations for field winding are of the form: $v_f = i_f r_f + d\Psi_f/dt$, where v, i, r, t, $\Psi$ are the voltage, current, resistance, time and flux linkages respectively, suffixes d and q refer to direct and quadrature axes. Equation of motion and other ones are considered. Additional parameters e.g. damper windings make these equations difficult to simulate. Therefore, experimental data are used and equations are transformed into functions of the operator p. Functions of time are obtained by Laplace transforms. A simulator network is shown with 9 amplifiers. The author shows that by adding one nonlinear block and one solving amplifier, saturation can be taken into account. The author concludes that comparatively small computers



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



may be used, that simulation based on Park-Gorev equations gives sufficiently close results to test and that dynamic characteristics have to be provided apart from static as essential machine data. In the appendices the author describes an analog simulator for a coil with steel core, gives the resolution of experimental transient characteristics into a sum of exponents, and, as a check, gives a comparison between experimental oscillograms and graphs obtained from the simulator for 7kVA, 220 V, 18.5 A, 1000 rpm synchronous motor loaded by a 19 kW, 220 V, 87 A, 1050 rpm d.c. generator. Coefficients in all the equations are inserted and transient curves compared. There are 9 figures and 11 references: 10 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Kafedra electricheskikh mashin i apparatov, Novocherkasskiy politekhnicheskiy institut (Department of Electrical Machines and Instruments, Novocherkassk Politechnic Institute)

SUBMITTED: November 30, 1961



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Yuriy Alekseyevich, assistent; KOLESNIKOV, Erno Viktorovich, aspirant

"Theoretical fundamentals of electrical engineering" by L.A.Bessonov. Reviewed by IU.A. Bakhvalov and E.V.Kolesnikov. Izv. vys. ucheb. zav.; elektromekh. 5 no.12:1431-1432 '62. (MIRA 16:6)

1. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta (for Bakhvalov). 2. Kafedra teoreticheskikh osnov elektrotekhniki Novocherkasskogo politekhnicheskogo instituta (for Kolesnikov).
(Electric engineering) (Bessonov, L.A.)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Yuriy Alekseyevich, assistant

Use of analog computers for determining the heating of synchronous motors with variable loads. Izv. vys. ucheb. zav.; elektromekh. 6 no.1:90-102 '63. (MIRA 16:5)

1. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta.
(Electric motors, Synchronous)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOV, Yu.A., kand.tekhn.nauk; NIKITENKO, A.G., kand.tekhn.nauk

Use of electronic computers in the study and design of electrical machines and apparatus. Elektrichestvo no.4:31-38 Ap '64. (MIRA 17:4)

1. Novocherkasskiy politekhnicheskiy institut.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BRAND, Izrail' Al'bertovich; LERNER, Lev Grigor'yevich, aspirant; MAKAROVSKIY, Sergey Aleksandrovich; SIVKOV, Arkadiy Petrovich, inzh.; BAKHVALOV, Yuriy Alekseyevich, kand.tekhn.nauk, dotsent

Use of digital computers in the design of electric machinery and apparatus. Izv.vys.ucheb.zav.; elektromekh. 7 no.12:1501-1505 '64. (MIRA 18:2)

1. Nachal'nik vychislitel'nogo tsentra firmy ChKD [Ceskomoravska-Kolben-Danek], Praga (for Brand). 2. Institut elektromekhaniki Gosudarstvennogo komiteta po elektrotekhnike pri Gosplane SSSR (for Lerner). 3. Zamestitel' nachal'nika raschetnogo otdela TSentral'nogo konstruktorskogo byuro krupnykh elektricheskikh mashin peremennogo toka Gosudarstvennogo komiteta po elektrotekhnike pri Gosplane SSSR (for Makarovskiy). 4. Nachal'nik laboratorii schetnoreshayushchikh ustroystv Leningradskogo filiala Vsesoyuznogo nauchno-issledovatel'skogo instituta elektromekhaniki (for Sivkov). 5. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta (for Bakhvalov).

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BEIETSKIY, Z.M., inzh.; BAKHVALOV, Yu.A., kand. tekhn. nauk

Use of electronic computers in studying internal overvoltages in transformers. Elektrotekhnika 35 no.7:19-22 '64. (MIRA 17:11)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

KOMAROV, A., doktor tekhn. nauk; FROLOV, G., inzh.; BAKHVALOVA, L., ekonomist; SOYUZOV, A., doktor tekhn. nauk; KOVALEV, A., inzh.; KOLESNIKOV, V., kand. tekhn. nauk

The system of general transportation indicators. Rech. transp. 24 no.7:3-7 '65. (MIRA 18:8)

1. Institut kompleksnykh transportnykh problem pri Gosekonomsovete SSSR (for Bakhvalova). 2. Odesskiy institut inzhenerov morskogo flota (for Soyuzov). 3. TSentral'nyy nauchno-issledovatel'skiy institut ekonomiki i ekspluatatsii vodnogo transporta (for Kovalev). 4. Gosudarstvennyy proyektno-konstruktorskiy i nauchno-issledovatel'skiy institut morskogo transporta (for Kolesnikov).

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

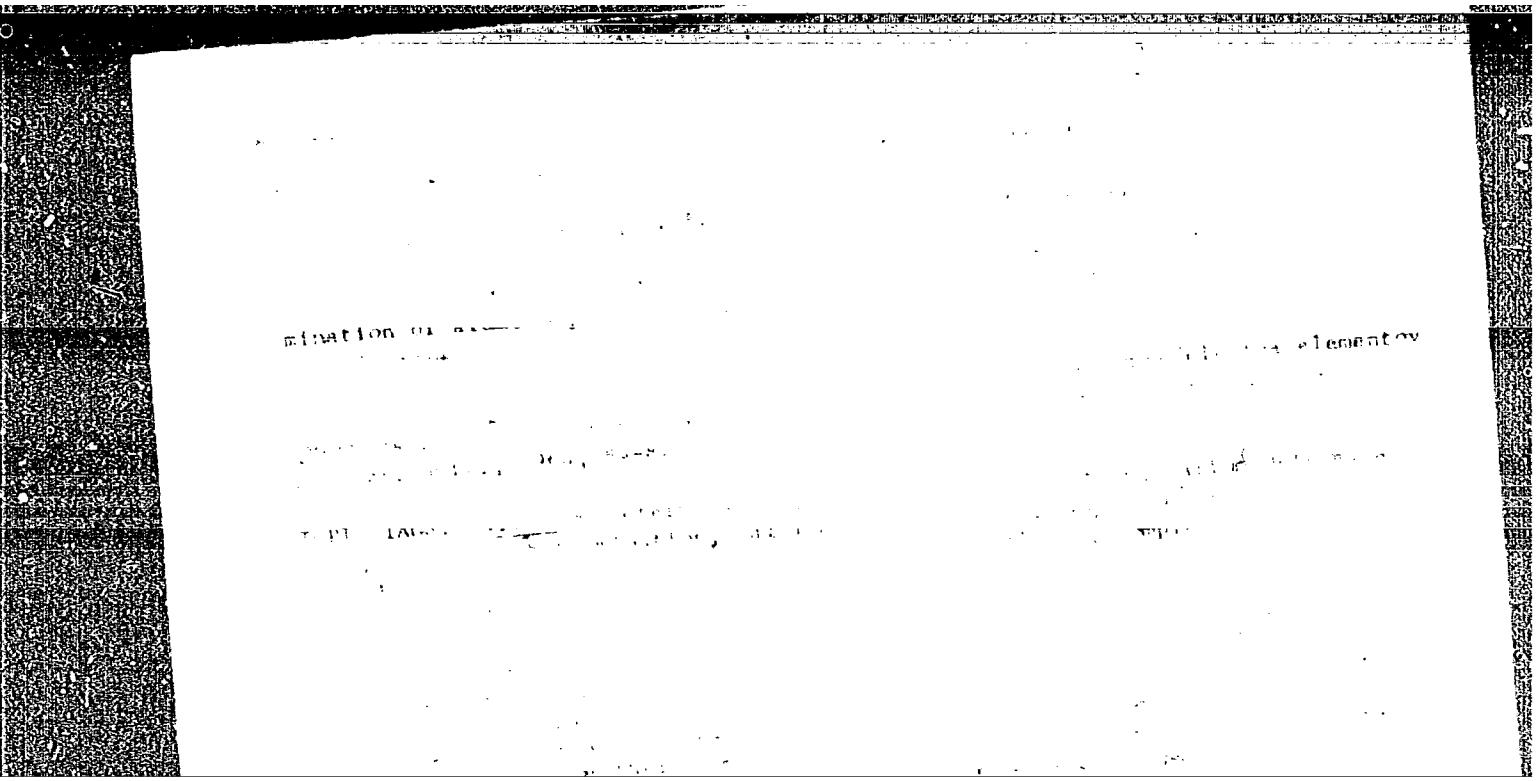
"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

VINITSKIY, A.M., kand.tekhn.nauk; FIGOTIN, L.I., inzh.; BAKHVALOVA, L.B., inzh.

Automation of autoclave processing of building elements using a programmed temperature regulator. Stroi.mat. 8 no.7:23-25 Jl '62. (MIRA 15:8)
(Autoclaves) (Automatic control) (Temperature regulators)

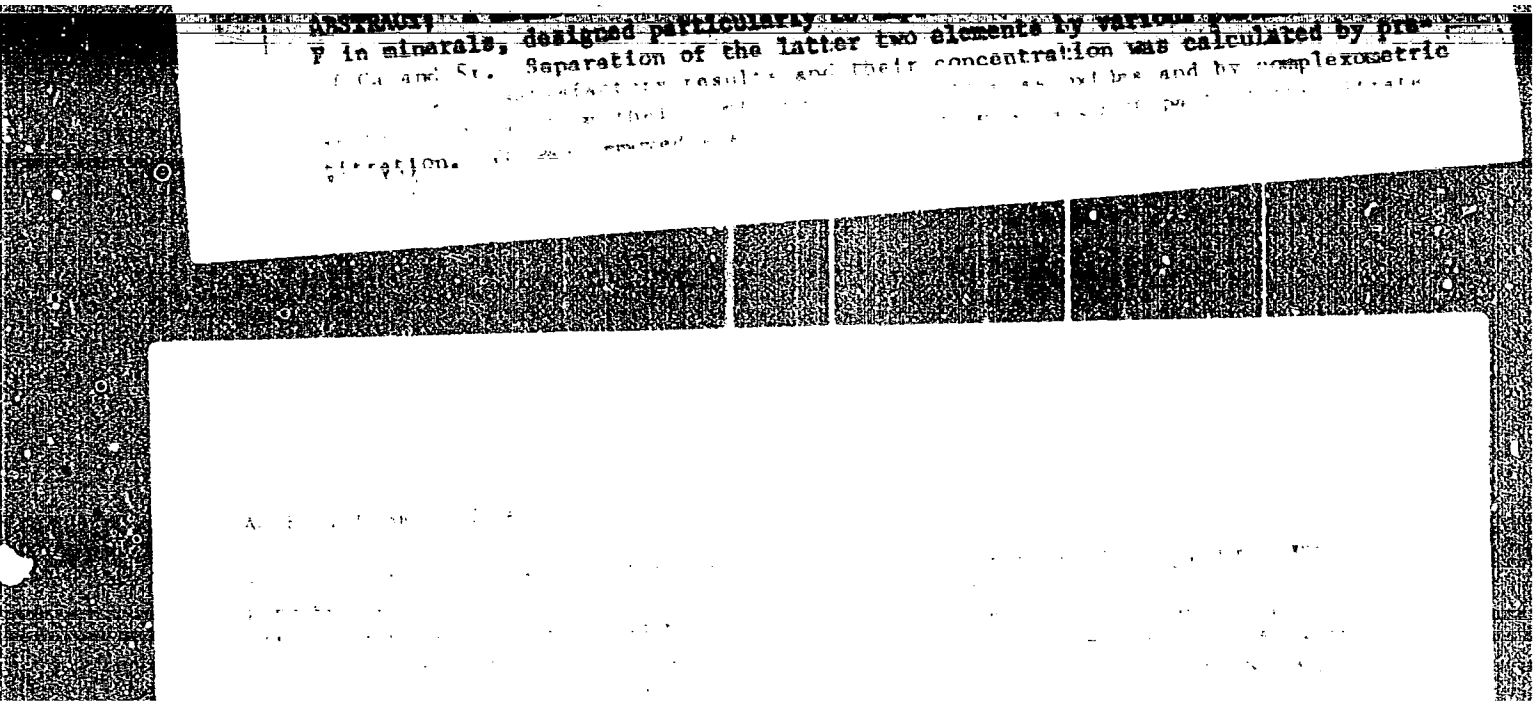
APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

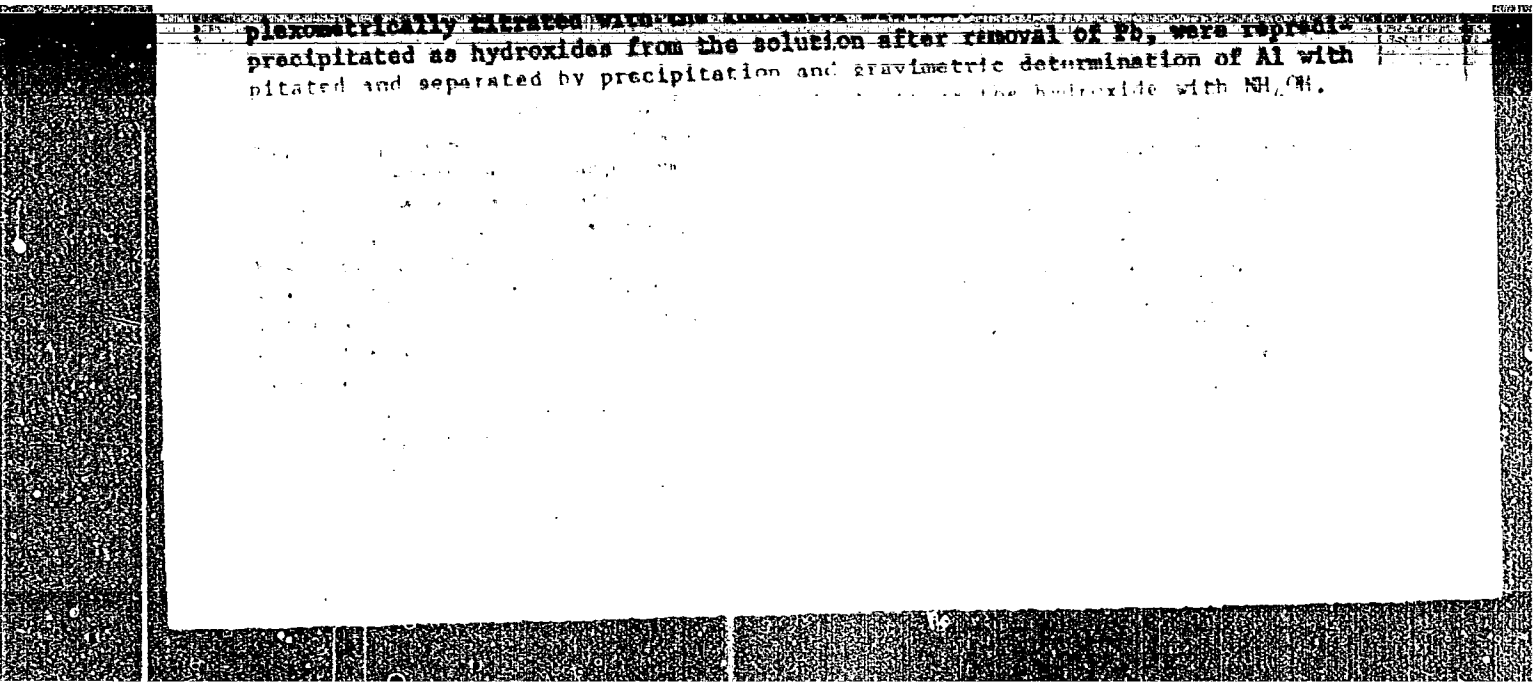
"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



F in minerals, designed particularly [illegible] calculated by pre-
[illegible] Ca and Sr. Separation of the latter two elements by [illegible] and by complexometric
[illegible] titration.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

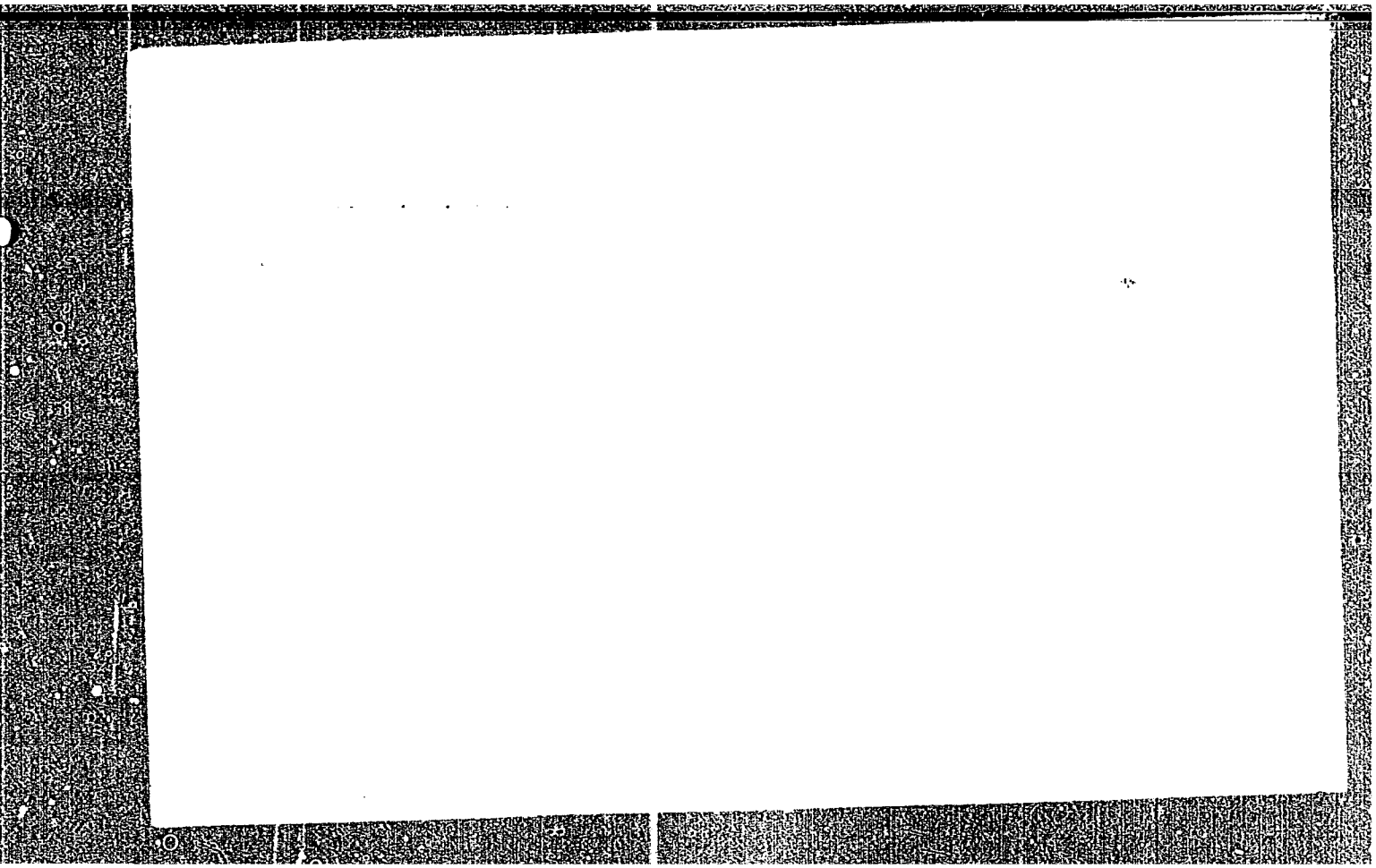
"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



plexometrically titrated with [illegible] precipitated as hydroxides from the solution after removal of Pb, were reprecipitated and separated by precipitation and gravimetric determination of Al with [illegible] the hydroxide with $NH_4OH$.

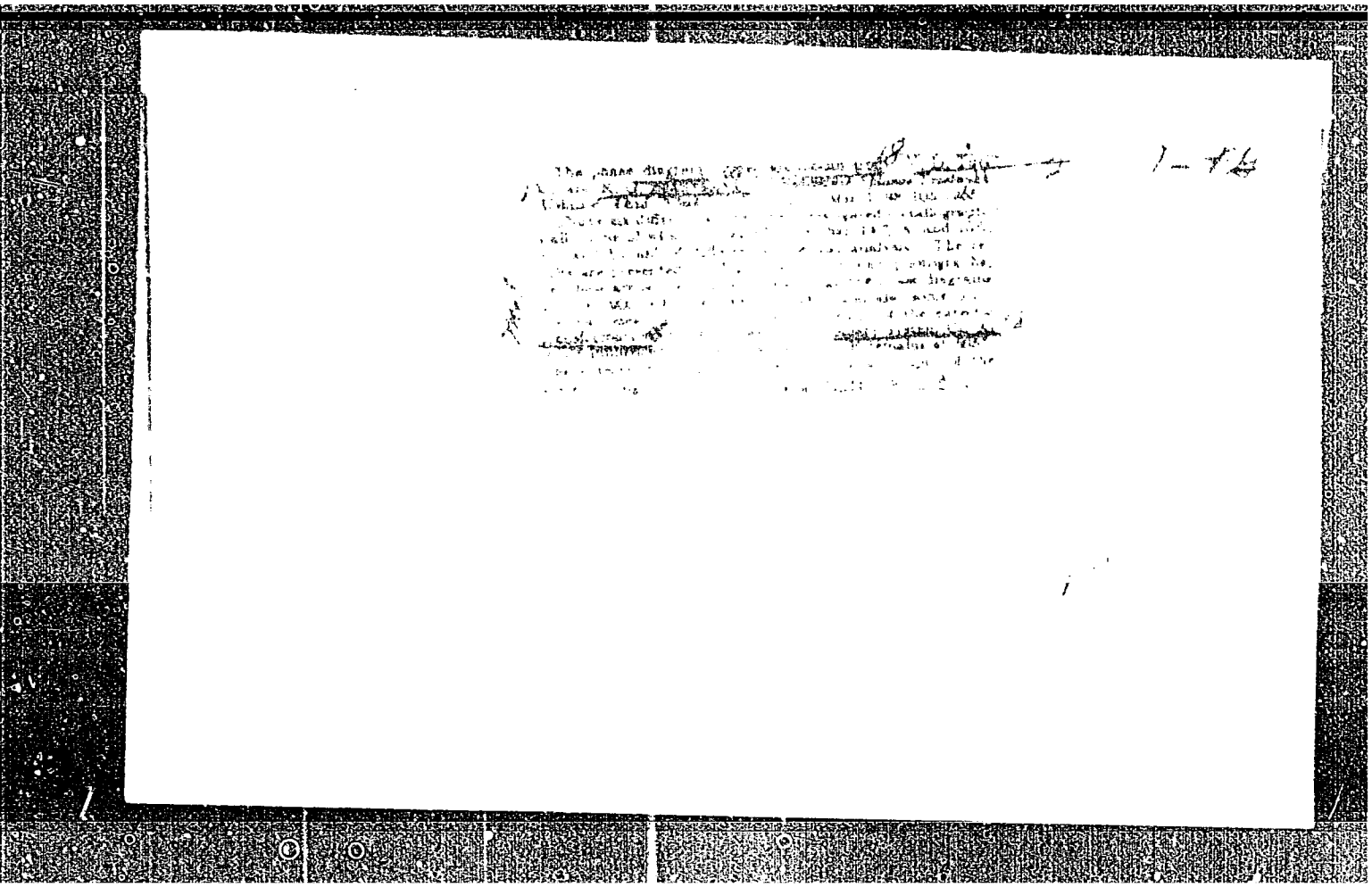
APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

10.4000A
28(3)

69183
S/115/60/000/03/007/031
D002/D002

AUTHOR: Zhokhovskiy, M.K., Bakhvalova, V.V.

TITLE: High-Pressure Resistance Differential Pressure Gauge

PERIODICAL: Izmeritel'naya tekhnika, 1960, Nr 3, pp 12-15 (USSR)

ABSTRACT: The article contains the description of a differential pressure gauge (Figure 1) whose application was treated previously by M.K. Zhokhovskiy [Ref 1], as well as some investigations carried out with this gage. It consists of two transmitters and two resistance coils, both ends of which are lead out through conical electric inlets, the cavities holding the coils being connected to the sources of high-pressures, whose difference is to be measured. The coils are connected to a bridge circuit with a compensating arm (Figure 2). The differential pressure gauge can be used for direct measurements of each separate pressure, as well as for indirect determi-

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

69183

S/115/60/000/03/007/031
D002/D002

High-Pressure Resistance Differential Pressure Gauge

nation of the difference of the pressures. Its characteristic feature is that it can measure very small differances of high pressures, e.g. used with the usual bridge circuit and a conventional galvanometer it can determine differences of 0.2 kg/cm$^2$ at pressures of 7000 kg/cm$^2$. The sensitivity of the device is such that a resistance change of 0.01 ohm causes a swing of 160 divisions on the scale, i.e. 4.2 divisions per 1 kg/cm$^2$. There are 2 diagrams, 1 graph, 1 table, and 2 Soviet references.

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 34087-66

ACC NR: AP6025517 SOURCE CODE: UR/0115/66/000/001/0044/0048

AUTHOR: Bakhvalova, V. V.

ORG: none

TITLE: Effective area of an undeformed piston in a distorted piston system

SOURCE: Izmeritel'naya tekhnika, no. 1, 1966, 44-48

TOPIC TAGS: manometer, material deformation, mathematic deduction

ABSTRACT: Formulas are derived for calculating the effective area of a distorted manometer in the general form in terms of geometric parameters of the system. It is shown that simpler formulas may be used for expressing the effective area in terms of the average radius, especially for piston pairs in which the clearance has a complex shape. These formulas also give a physical interpretation of the concept of effective area of a distorted piston manometer. The solutions given in this paper may be used for complete analysis of the phenomena which take place in the gap of a piston manometer. These solutions are necessary for studying reference manometers since they can be used to calculate the effect of small deviations from the true shape resulting from errors in manufacturing the piston systems. The formulas derived in this paper are used as the basis for a separate article on deformation errors in piston manometers. Orig. art. has: 2 figures, 30 formulas and 1 table. [JPRS: 35,995]

SUB CODE: 20, 12 / SUBM DATE: none / ORIG REF: 003

Card 1/1

0916 0897

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOVA, V.V.

Experimental investigation of deformation errors of piston manometers with upper measurement range up to 2,500 kgf/cm$^2$. Izm. tekh. no.1:21-23 Ja '64.

(MIRA 17:11)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ZHOKHOVSKIY, M.K.; BAKHVALOVA, V.V.

Investigating a manometer with a pressure resistant effective piston surface. Izm. tekh. no.3:24-27 Mr '64
(MIRA 17:8)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ZHOKHOVSKIY, M.K.; [illegible], V.V.

Errors due to deformations of piston manometers at pressures up to 10,000 kg-wt/cm$^2$. Izm.tekh. no.12:23-26 D '61. (MIRA 15:1)
(Manometer)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOVA, V.V.; SEMIN, V.P.

Unit with a standard piston manometer for pressures up to 20,000 kgf/cm$^2$. Trudy inst.Kom.stand.mer i izm.prib. no.75:5-8 '64. (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOVA, V.V.; ZHOKHOVSKIY, M.K.

Experimental investigation of deformation errors of piston manometers at pressures up to 10,000 kgf/cm$^2$. Trudy Inst.Kom.stand.mer i izm.prib. no.75:9-27 '64.

Manometer with an effective piston area inalterable by pressure. Ibid.:28-35 (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHVALOVA, V.V.; ZHOKHOVSKIY, M.K.

High pressure differential resistance manometer. Trudy Inst. Kom. standartov i izm.prib. no.75:55-59 '64.

(MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ARKHIPOVA, L.I.; BARABANSHCHIKOV, V.V.; BAKHVALOVA, Z.M.; BOROVINSKAYA, M.A.; GOLOVCHINER, I.Ye.; DZHANGAROVA, P.G.; YEVDOKIMOV, S.V.; KABANOV, M.M.; KNYAZEVA, T.D.; KOBOZEVA, N.V.; KOLEGOV, N.I.; LOPOTKO, I.A.; NEGUREY, A.P.; POLYAKOVA, Z.P.; ROMM, S.Z.; SVETLICHNYY, V.A.; STRAKUN, I.M.; TYAGUN, V.N.; FREYDLIN, S.Ya., prof.

[Dispensary service for the urban population] Dispanserizatsiia gorodskogo naseleniia. Leningrad, Meditsina, 1964. 349 p. (MIRA 17:8)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ACC NR: AP7002835 (A) SOURCE CODE: UR/0233/66/000/004/0028/0034

AUTHOR: Bakhyshev, Sh. M.

ORG: none

TITLE: Determining a temperature field in a finite cylindrical shell

SOURCE: AN Azer.SSR. Izvestiya. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, no. 4, 1966, 28-34

TOPIC TAGS: temperature field, thermal stress, cylindrical shell structure, thin shell structure, isotropic shell structure, temperature distribution

ABSTRACT: Thermal stress distribution in a thin circular cylindrical shell caused by its nonuniform heating is examined. The shell is isotropic, the temperatures inside and outside the shell are different and vary along the longitude of the shell, and with time. Determining the temperature at any point of the shell is reduced to solving the heat-conductivity equation which satisfies the boundary and initial conditions. Expressions are derived from which the temperature field can be determined point-by-point. The temperature distribution in an infinite cylindrical shell subjected to stationary symmetrical heating is analyzed as an example, and a formula for determining the temperature in the shell is derived. An analogous formula is derived for a horizontal cylindrical shell of finite length, heated symmetrically to the vertical plane passing through its middle point. This solution can be applied

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

ACC NR: AP7002835

in calculating the thermal stresses generated in face-to-face welding of cylindrical shells, in developing a method for residual-stress relief after welding, etc. The solutions obtained approximately satisfy the heat-conductivity equation, and exactly satisfy the boundary conditions on the inner and outer surfaces, and on the faces. Orig. art. has: 28 formulas. [WA-52]

SUB CODE: 20/ SUBM DATE: none

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

USSR/Electricity - Dielectrics C-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6944

Author : Kochargi, K., Dakhyshov, A.
Title : Temperature Dissociation in Liquid Dielectrics

Orig Pub : Elmiyesirlor. Azerb. universitoti, Uch. zap. Azerb. un-t, 1955, No 12, 31-36

Abstract : To determine the temperature dissociation and the structure of pure MK-22 oil and MK-22 oil with 3, 5, 10 and 20% of nitrobenzol admixture (I), the temperature dependences of the electric conductivity $\sigma$ and of the viscosity $\nu$ of these substances have been investigated. The following results were obtained: 1) an increase in the percentage of I in the oil causes an increase in $\sigma$ and a decrease in $\nu$, 2) the temperature dependence of $\sigma$ and $\nu$ for oil and for the mixtures are exponential in nature, 3) $\sigma$ of the oil increases with mobility and with dissociation, 4) the temperature dissociation of the mixture depends little on the percentage content of I, 5) in the pure oil the molecular bond is weaker than the ionic bond, and in the mixture the molecular bond is stronger than the ionic bond.

Card : 1/1

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

33690
S/058/61/000/012/081/083
A058/A101

Ж4,2600 (1114, 1138, 1147)

AUTHORS: Bakhyshov, A. E., Abdullayev, G. B.

TITLE: Some characteristics of selenium rectifying photoelectric cells

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1961, 421, abstract 12Zh177 ("Dokl. AN AzerbSSR", 1961, v.17, no. 1, 9-12, Azerb. summary)

TEXT: The effect of electric fields and of light on the photocurrent generated by x-rays in rectifying photoelectric cells interlaminated with $Tl_2Se$, TlS, $Tl_2S$, InSe, CdSe and CdS was investigated under both photodiode and rectifying operating conditions. Light intensity was selected so that photocurrent $I_1$ generated by the light would be of the order of photocurrent $I_x$ generated by the x-rays. It was established that under joint action of x-rays and light rays, total current $I = I_x + I_1$. It was found that selenium rectifying photoelectric cells are 800 times more sensitive to x-rays under photodiode operating conditions than under rectifying operating conditions [Editor's note: something is missing in the original text.] device in which the receiver simultaneously [Editor's note: something is missing in the original text.] photocurrent $I_f$ is proportional to x-ray line intensity F. For high voltages $I_f = cF^{\alpha}$, where

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

33690

Some characteristics of selenium ...

S/058/61/000/012/081/083
A058/A101

$\alpha < 1$. The experimental results pertaining to the variation of photocurrent with x-ray intensity for constant applied voltage are interesting from the standpoint of x-ray dosimetry.

O. Shustova

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHYSHOV, A.E.; AKHUNDOV, G.A.

Photoelectric properties of indium selenide , and InSe - Se barrier-layer photocells. Izv. AN Azerb.SSR.Ser.fiz.-mat. i tekh. nauk no.4:45-50 '61. (MIRA 14:12)

(Photoelectricity)
(Indium selenide)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHYSHOV, A.E.

Static and photoelectric characteristics of selenium photocells with InSe and TlSe coatings. Izv. AN Azerb.SSR.Ser.fiz.-mat. i tekh. nauk no.4:65-72 '61. (MIRA 14:12)

(Photoelectric cells)
(Indium selenide)
(Thallium selenide)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHYSHOV, A.E.

Effect of impurities on the temperature coefficient of the direct resistance of selenium rectifiers. Uch. zap. AGU. Ser. fiz.-mat. i khim. nauk no.5:145-147 '61. (MIRA 16:6)
(Electric current rectifiers)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 11047-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3 Pz-4 AT/IJP(C)

ACCESSION NR: AT3002972 S/2927/62/000/000/0005/0012

AUTHOR: Abdullayev, G. B.; Bakirov, M. Ya.; Gasy*mov, R. B.; Bakhy*shov, A. E.

TITLE: Investigating the nature of p-n junction in selenium photocells [Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 October 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody* v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 5-12

TOPIC TAGS: selenium photocell, p-n junction of photocell

ABSTRACT: Although selenium photocells have been widely used, many physical phenomena transpiring in them are not entirely clear. Experiments have shown that the junction is formed at the contact of two different semiconductors (e.g., Se and CdSe); the theory of such junctions has been developed. The article describes experimental studies of the p-n junction in and aging of selenium photocells. Also attempts to create a highly sensitive and stable photocell by coating Se with an electron-type semiconductor are reported. Photocurrent and photo-emf of Se coated with Al, Cu, Zn, Ga, Ag, Cd, In, Sn, Au, Hg, Pb, Bi were measured. Effects of thermal and electrical forming on the photocell characteristics were investigated.

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

L 11047-63
ACCESSION NR: AT3002972

It was found that aging of selenium photocells is due to excessive thickening of the selenide coating (over the optimum thickness of 5 x 10 sup -5 cm). Four sets of artificial n-layer electrodes, Se-GaSe, Se-InSe, Se-CdSe, and Se-HgSe, were investigated in detail. Current-voltage, sensitivity spectral distribution, and illumination characteristics were determined for the above combinations (curves given), as well as all pertinent electrical and photoelectrical data (tabulated). With a solar-radiation intensity of 10 millivatt per sq cm, current up to 3 ma per sq cm, and emf 0.6 v (efficiency about 1 per cent) were obtained for Se-CdSe combination. It is concluded that, in the selenium photocells, the p-n junction can be obtained by coating selenium with a thin layer of an electron-type semiconductor. Orig. art, has: 5 figures, 5 formulas, and 1 table.

ASSOCIATION: Akad. nauk SSSR(Academy of Sciences SSSR); Akad nauk UzSSR(Academy of Sciences UzSSR); Tashkentskiy gosuniversitet im. V. I. Lenina (Tashkent State University)

SUBMITTED: 00 DATE ACQ: 15May63 ENCL: 00

SUB CODE: 00 NO REF SOV: 010 OTHER: 003

kes|WR
Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHYSHOV, A.E.; DZHAFAROVA, E.A.

Dependence of the capacity of a Se—TlSe, Se—InSe rectifier on the voltage. Uch. zap. AGU. Ser. fiz.-mat. nauk no.4: 97-101 '63. (MIRA 17:12)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

BAKHYSHOV, A.Ye.; ABDULLAYEV, G.B.

Photoelectric properties of semiconductor systems $Tl_2Se$ - Se and InSe - Se in X rays. Dokl.AN Azerb.SSR 16 no.5:437-441 '60. (MIRA13:8)

1. Institut fiziki AN AzerSSR.
(Semiconductors) (Selenium compounds)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3

MARIC, I.

Comparative analysis of the Duro Dakovic locomotive, machinery, and bridge industry and related enterprises. p. 465.
TEHNIKA, Beograd, Vol. 10, no. 4, 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, no. 10, Oct. 1955, Uncl.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000103120001-3"