

The Stresses in a Ponderable Medium Forming an  
Infinite Half-Plane Weakened by Two Circular  
Holes, by D. I. Sherman.

GERMAN, per, Prikladnaya Matematika i Mekhanika,  
Vol 15, 1951, pp 297-316.

NLL RTS 3029

*Russell*

Sci-Mech  
Nov 67

345,289

Chetaev, N. G.  
ON THE CHOICE OF THE PARAMETERS OF STABLE  
MECHANICAL SYSTEMS (O Vyboire Parametrov  
Ustoichivoi Mekhanicheskoi Sistemy) tr. by William G.  
Vogt. 7 Feb 62, 4p. 1 ref. Control Theory Group Tec-  
nical rept. no. 12.  
Order from Dept. of Electrical Engineering, U. of  
Pittsburgh, Pittsburgh 13, Pa.

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1951, v. 15, p. 371-372.

DESCRIPTORS: \*Equation of motion, Differential equa-  
tions, Stability, \*Mechanics, Control, Perturbation  
theory.

(Mathematics, TT, v. 9, no. 7)

62-34408

I. Chetaev, N. G.  
II. UP CTG/TR-12  
III. Pittsburgh U. School of  
Engineering, Pa.

Office of Technical Services

*Pisik Matematika Mekh*

1951

*Vol. XV, no. 4, pp. 409-432*

*Equations of Motion of a Viscous Gas -  
S. V. Vallander*

*Trudy 11236*

*A. 4151*

*U. T. - 9.30 (w/ate) SR*

Axisymmetric Elastic/Plastic Problem for Plate,  
Weakened by a Circular cut, by K. R. Shevchenko  
RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol 15, 1951, pp 519-520.

\*AEC 18/G/2482

NLL Ref. 5828.1F (12225)

Sci/Materials  
Nov 66

Stresses in a Plane, Ponderable Medium With Two  
Uniform, Symmetrically Placed ~~Two~~ Circular  
Holes, by D. I. Sherman, 13 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XV, No 6,  
1951, pp 751-761.

26, 765

Sci Nu Lib Tr 55/1325

Ref. No 471

Scientific - Physics

Sep 55 CTS

Some General Methods of Solving Problems in  
The Theory of Plasticity, by I. A. Birger,  
3 p.

RUSSIAN, par, Prikladnaya Matematika, 1951, Vol XV,  
pp 765-770.

ATB-77L35B

Sci.  
Apr 60  
Vol XII, No 2

113,579

Prikladnaya Matematika i Mekhanika / Applied Mathematics  
and Mechanics, Volume XV, No 6 (Nov/Dec 1951), pages  
771-2. FDD copy.

"Approximate Integration of Differential Equations with  
Lagging Argument"

author: L. E. El'sgol'ts (Moscow)

11640

ST-256

SR 26 Mar 52

Barenblatt, G.I.  
SOME IRREGULAR MOTIONS OF A LIQUID AND A  
GAS IN A POROUS MEDIUM. 17 p. 4 refs. MTWL: 627.  
Order from OIS or ETC \$1.85 61-17229

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1952, v. 16, no. 1, p. 67-78.

DESCRIPTORS: \*Porous materials, Fluid flow, Gas  
flow, \*Aerodynamics, \*Hydrodynamics, Theory.

61-17229

- I. Barenblatt, G.I.
- II. MTWL-627
- III. Stichting Moeilijk  
Toegankelijke Wetenschap-  
pelijke Literatuur

Office of Technical Services



The Impact on a Lamina With Discontinuous  
Streamline Flow, by M. I. Gurevich, 8 p.

RUSSIAN JOURNAL OF THEORETICAL AND APPLIED MECHANICS, 1952, Vol. 2, No. 5, p. 116.

CIA 59-15414

841  
Jan 60  
Vol 2, No 5

104,599

Gurevich, M. I.  
BREAKAWAY FLOW PAST A PLATE SUBJECTED TO  
IMPACT. [1951] (p. 4 refs.  
Order from RIS \$5.00

RIS S-2104

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1952, v. 16, no. 1, p. 116-118.

61-22199

1. Fluid flow--physical factor
2. Fluids--Hydrodynamic characteristics
- I. Gurevich, M. I.
- II. RIS S-2104
- III. Research Information Service, New York

(Mechanics--Hydrodynamics, IT, v. 5, no. 11)

Office of Technical Services

CAVITATION PROBLEMS: TRANSLATION OF THREE  
RUSSIAN PAPERS, tr. by Gerta Cohen and Hirsh  
Cohen. 3 Apr 59 [28]p. 15 refs. RPI Math Trans.  
no. 3.

Order from OTS or SIA \$2.60

59-14913

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1952, v. 16, no. 1, p. 116-[118]; #1958, v. 22, no. 4,  
p. 565-568; Akademiya Nauk SSSR. Doklady, 1956,  
v. 111, no. 2, p. 312-[315].

Each article is available separately elsewhere.

DESCRIPTORS: \*Cavitation, Fluid flow, Sheets,  
Hydrodynamics, Impact shock, Subsonic flow,  
Mathematical analysis.

Contents:

The impact on a lamina with discontinuous streamline  
flow, by M. I. Gurevich  
(Mechanics--Hydrodynamics, TT, v. 7, no. 12)(over)

59-14913

I. RPI Math Trans-3  
II. Rensselaer Polytechnic  
Inst., Troy, N. Y.

AEC-SEL-T-65-2  
6  
7

Office of Technical Services

Stresses and Strains in Cyclical Loading, by  
B Yu. N. Rabotnov, 5 pp. UNCLASSIFIED

RUSSIAN, per, Prik Matemat i Mek<sup>n</sup>, Vol XVI, No 1,  
1952, pp 121-122.

Sci Bu Lib No 54/2231

Scientific - Mathematics  
ENGINEERING

18,613

The Problem of a Submerged Jet, by Yu. B. Rumor.

Full translation.

RUSSIAN, bimo per, Prik Matemat i Mekh, Vol XVI,  
USSR, 1952, pp 255-256.

AEC Tr 1632

TT-333

Scientific - Mathematics

Aug 53 CTS

4824

On the Applicability of the Method of Variables  
to Problems of Small Plastic-Elastic Deformations,  
by V. N. Panferov

RUSSIAN, Prikl Mat i Mek, 1952, Vol XVI, No 3,  
pp 319-322.

BT 0307  
D.S.I.R. Tr No CTS 2

Scientific + Mathematics

List No 49, Apr 1953

1073

Theoretical Approach to the Determination of  
Added Mass of a Rectangular Plate, by K. K.  
Pyediyavskiy

RUSSIAN, per, Fizik Mat i Mekh, Vol XVI, 1952,  
pp 352-352.

A.R.E. Fort Halstead 7 OT/1991

Scientific - Mathematics

CIS/DEX

5  
8231

Malkin, I. G.

ON A PROBLEM IN THE STABILITY THEORY OF  
AUTOMATIC REGULATING SYSTEMS. [1961] [9]p.  
3 refs.

Order from OTS or SLA \$1.10

62-10146

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1952, v. 16, p. 365-368.

Another trans. is available from OTS \$1.10 as  
AD-264 067, July 61, 9p.

DESCRIPTORS: \*Control systems, \*Linear systems,  
Functions, Theory, Differential equations, Integral  
equations, Perturbation theory.

This paper is concerned with the problem proposed  
by Aizerman in regard to the stability of a set of non-  
linear differential equations. Conditions for stability  
are hypothesized by making a linear analogy to the  
original non-linear system. The validity of these  
(Mathematics, TT, v. 7, no. 9) (over)

62-10146

1. Title: Lyapunov method  
I. Malkin, I. G.

Office of Technical Services



Analytical Theory of Non-Linear Systems of  
Ordinary Differential Equations, by N. P. Erugin

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, No 4,  
1952, pp 465-486.

Co-op Tr Sch 36  
*See memo lib 55/2647*

Scientific - Mathematics  
CTS/DEX

Price 8.16s.(1.2s.)

*5558*

Malkin, I. G.

THE STABILITY OF AUTOMATIC REGULATION SYSTEMS (Ustoychivost' Sistem Avtomaticheskogo Regulirovaniya). Nov 60 [8]p. 1 ref. RTS 1698.  
Order from LC or S.L.A ml\$1.80, ph\$1.80 61-15210

Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1952, v. 16, no. 4, p. 495-499.

The stability problem of the system of type  $(dx_s/dt) = P_{s1}x_1 + \dots + P_{sn}x_n + P_s(x_1, \dots, x_n)$ , where  $s = 1, 2, \dots, n$ , is considered. For given conditions of  $P_s(x_1, \dots, x_n)$  these functions satisfy, in the region  $|x_s| \leq A$ , the inequalities  $|P_s(x_1, \dots, x_n)| < Q(|x_1| + \dots + |x_n|)$  where  $Q$  is a positive constant. The maximum values of this constant are found for which the equilibrium is asymptotically stable in the Lyapunov sense for any  $P_s$  function that satisfies the above conditions, and the permissible range of initial deviations are determined. A theorem in which these quantities are assessed is given: It is expressed directly in (Mathematics, TT, v. 5, no. 8) (over)

61-15210

1. Control systems-- Stability
2. Control systems-- Mathematical analysis

- I. Malkin, I. G.
- II. RTS-1698
- III. Department of Scientific and Industrial Research (G. Brit.)

151628

Office of Technical Services

Calculation of Vortex-Free Flow Over Profile  
Lattices and the Construction of Lattices on the  
Basis of a Given Velocity Distribution at the  
Profiles, by L. F. Dorfman, 18 pp.

RUSSIAN, per, Frik Matemat i Mekh, Vol XVI, 1952,  
pp 599-612. 9210852

(LOAN) NLL REC. 05 FEB 1962 (1327)  
A.C.S.I.L. Tr 1328

Sci - Math & Data Process  
Sep 63

344,182

A Study of Theories of Fracture Under Combined  
Stresses, by I. Cornet, R. C. Grassi; Physical  
Significance of Invariants of Stress Used in the  
Theory of Plasticity, by V. V. Novozhilov,  
45 pp.

RUSSIAN, per: Frik Matemat i Mekh, Vol XVI, 1952,  
pp 617-619.

ARC TO HP-6712

Sci - Phys

75 9 22

Sep 58

Stability of the Solution of a Certain Non-linear  
Third Order Equation, by E. A. Darbashin.

RUSSIAN, bimo per. Erik Matemat i Mekh, Vol XVI,  
No 5, 1952, pp 629-632.

Co-op Tr Sch 57

USSR  
Scientific - Mathematics

Feb 54 CTS

£1.12s. (4s. 0d.)

9602

Beilin, E. A. and Dzhaneldze, G. Yu.  
A SURVEY OF WRITINGS ON THE DYNAMIC  
STABILITY OF ELASTIC BODIES (Obzor Rabot po  
Dinamicheskoi Ustoichivosti Uprugikh Sistem). [1963]  
44p 41refs  
Order from OTS, SLA, or ETC \$4.60 TT-64-14269

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1952, v. 16 [no. 5] p. 635-648. (Abstract available)  
Another trans. is available from OTS \$3.60 as  
AD-269 945, 15 Nov 61, 32p.

DESCRIPTORS: \*Elasticity, \*Solids, Dynamics,  
Stability, Load distribution, Motion, Mathematical  
analysis, Partial differential equations, Theory,  
Reviews, Mechanics.

A survey of work published in the USSR on the problem  
of dynamic stability of elastic systems during the period  
1924-1951 is presented. The paper is divided into three  
(Mechanics, TT, v. 11, no. 7) (over)

TT-64-14269

I. Beilin, E. A.  
II. Dzhaneldze, G. Yu.

Office of Technical Services

Kopon, G. I.  
TWO-DIMENSIONAL IMPACT IN A SLIGHTLY COMPRESSIBLE IDEAL FLUID. [1961] 7p. 6 refs.  
Order from RIS \$5.00  
RIS S-2105

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1952, v. 16, no. 6, p. 719-722.

AED-50-4-65-268

(Techniques--Hydrodynamics, TT, v. 5, no. 11)

61-22200

1. Compressible flow--  
Physical factors
2. Liquids--physical factors
- I. Kopon, G. I.
- II. RIS S-2105
- III. Research Information  
Service, New York

ADVIS

Office of Technical Services

The Propagation of a Whirling Jet in an Infinite  
Space Filled With the Same Fluid, by  
L. G. Loitsyanskiy,

RUSSIAN, per, Prik Mat Mekh, Vol XVII, No 1,  
1953, pp 3-16.

ATS-22L29R

TPA3/TIB Tr No 4364

8

Scientific - Physics Mar 55 CTS

21,831



Canonical Transformations of Equations of the  
Theory of Automatic Controls, by V. A. Troitskii,  
14 pp.  
RUSSIAN, per, Prikladnaya Mate i Mekhanika, Vol 17,  
1953, pp 49-60.  
ARI/RSIC-Tr-961-69

Sci/Math  
Jul 70

A Method of Solution of a General Biharmonic Problem for a Rectangular Region, With Given Values of the Function and Its Normal Derivative on the Contour, by G. A. Grinberg, et al.

RUSSIAN, per, Prik Matemat. i Mekh, Vol XVII, 1953, pp 73-86.

DSIR LUU M.1492  
(loan)

128,829

Sci - Phys

Oct 60

Pyatnitskii, S. S.  
THE WINTER OAK AND THE SUMMER OAK (Dub-  
zimnyak i Dub-letnyak). [Nov 61] 11p. PL-480 Agr.  
Order from OTS \$0.50 60-21909

Trans. of Priroda (USSR) 1953, v. 42, p. 97-102.

DESCRIPTORS: \*Trees, \*Forestry, \*Plants, \*Ecology,  
Earth, \*Economics, Climatic factors

Discussions are presented on the distribution and  
characteristics of the two types, the origin of the two  
types, and the importance of both types in forestry.

(Biological Sciences--Botany, TT. v. 7, no. 2)

60-21909

- I. Pyatnitskii, S. S.
- II. PL-480 AGR (60-21909)
- III. National Science  
Foundation, Washington,  
D. C.

Office of Technical Services

Elastic Equilibrium of an Elliptical Ring, by  
M. P. Sharnak't'ov. URCL

RUSSIAN, part, Prikl Mat i Mekh, No 17, 1958,  
pp 107-113.

British Iron and Steel Ind  
(no number given)

Sci - Math  
Sep 59

98,385

The Oscillations of a Floating Body on the Surface  
of a Heavy Fluid, by M. D. Raskin. UNCLASSIFIED

RUSSIAN, Trizh Material i Mekh, Vol XVII, 1953.  
pp 165-170.

NAVY 2127/T-283

DTMB

Sci - Phys  
May 59

86,474

Estimation of Errors in the Approximate Solution  
of Linear Problems, by M. G. Slobodyanskiy, 23 pp.

RUSSIAN, bino per, Priklad Matemat i Mekh,  
Vol. XVII, No 2, Mar/Apr 1958, pp ~~229-244~~.

NACA N-37596

Scientific - Mathematics  
CTB 73/Oct 1955

27,168

Integral Equations of Constrained Torsion and Stability  
of Thin-walled Rods, by V. V. Bolotin, 7 pp.

RUSSIAN, bimbo per, Prik Matemat i Mekh, Vol XVII, No 2,  
Mar-Apr 1953, p 245-248.

*MACA*-N-37217

USSR

Sci - ~~Associates~~ *ENGINEERING*

*25,810*

Barenblatt, G. F.  
ON THE MOTION OF SUSPENDED PARTICLES IN A  
TURBULENT STREAM (O Dvishenu Vsveshennykh  
Chastits v Turbulentnom Potoke). [1961] 13p. 14 refs.  
[DSIR LLU] M. 2758.  
Order from OTS or SLA \$1.60

61-23311

Unedited trans. of Prikladnaya Matematika i  
Mekhanika (USSR) 1953, v. 17, p. 261-274.

DESCRIPTORS: \*Liquid jets, Turbulence \*Particles,  
Motion

From the general equation, an equation for the hori-  
zontal motion of a non-homogeneous liquid is obtained,  
where the liquid is homogeneous in the horizontal  
(direction) and stationary. (Author) (See also 60-23010)

(Physics, TT, v. 6, no. 9)

61-23311

I. Barenblatt, G. F.  
II. DSIR LLU M. 2758

185532

Office of Technical Services



Shimanov, S. N.  
ON THE STABILITY OF THE SOLUTION OF A  
NONLINEAR EQUATION OF THE THIRD ORDER.

[1961] [10]p. 4 refs.

Order from OTS or SLA \$1.10

62-10181

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, no. 3, p. 369-372.

Another trans. is available from OTS \$1.10 as  
AD-264 174, STL-TR-61-5110-2, Mar 61, 10p.

DESCRIPTORS: \*Satellite vehicle trajectories, \*Non-  
linear differential equations, Functions, Statistical  
tests, \*Perturbation theory, Nonlinear systems.

The stability is investigated of the null solution of a  
system characterized by the third-order nonlinear  
differential equation  $\ddot{x} + f(x, \dot{x})\dot{x} + bx + cx = 0$ , (1)  
which is equivalent to  $\dot{x} = y$ ,  $\dot{y} = z$ , and  $\dot{z} = -f(x, y)z$   
(Mathematics, TT, v. 8, no. 9) (over)

62-10181

I. Shimanov, S. N.  
II. STL-TR-61-5110-2

III. Periodical:

Prikladnaya Matematika i  
Mekhanika (USSR) 1953,  
v. 17

Office of Technical Services

Numerical Solution of a System of Differential  
Equations Application of the Method to the Calcu-  
lation of a Rotation Shell, by M. Sh. Mikeladze.  
9 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol 17, No 3, 1953, pp 382-386. 9700439  
FTD-TT-65-1439

Sci/Math  
Jun 66

302,534

A. M. Lyapunov's Method and Problems in Stability  
in Large, by N. P. Yerugin, 14 pp.  
RUSSIAN, per, Prikladnaya Matematika, Vol XVII, No 4,  
1953, pp 389-400. 9697594  
DUC RESC-434

Sci - Phys  
Aug 65

287,269

Stability of Control Systems with two Active  
Elements, by A. M. Letov.  
RUSSIAN, per, Prikladnaya Matematika i Mekh,  
Vol 17, No 4, 1953, pp 401-410.  
NAVY/APL/JHU-T-2570

Nov 71

On the Question of the Calculation of the Motion of a  
Gas in a Local Shock-free Supersonic Zone, by  
I. B. ~~Горюхов~~ Goroshchenko, 5 pp. UNCLASSIFIED

RUSSIAN, per, Prikl Mat i Mek, Vol XVII, 1953,  
pp 432-430.

Sci Nu Lib 54/~~1629~~ 1692

Scientific - Physics, Mathematics

17.729

On Propagation of Instantaneous Excitations in a  
Medium With a Nonlinear Dependence of Tensions on  
Deformations, by G. I. Barenblatt, 13 pp.

RUSSIAN, post, Prikhate i Mekh, Vol XVII, 1953,  
pp 455-460. 9216106

AEC-UCRL-27-989(L)

Sci - Nucl Sci  
Jan 64

246, 460

Some Problems of the Laminar Filtration of a Fluid  
in Heterogeneous Twisted Layers of Variable Thick-  
ness, by O. V. Golubeva, 7 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVII, 1953,  
pp 485-490.

Sci Tr Center  
RT-1488

Scientific - Mathematics

CTS/DEK

18,749

On Free Thermal Convection in Vertical Cylinders of  
Arbitrary Section, by G. A. Bugaenko, 5 pp.

RUSSIAN, per, iz Pril Matemat i Mekh, Vol XVII,  
1953, pp 496-500.

Sci Mus Lib No 54/1113

Scientific - Mathematics

Jun 54 CTS

15,107



On the Determination of the Equilibrium States of a  
~~RECTANGULAR~~ Circular Shell Under Axially-Symmetric Loading;  
by N. A. Aluzgaye, 25 pp.

RUSSIAN, bino per, Prik Matemat i Mekh, Vol XVII, No 5,  
1953, pp 517-528.

36,090  
Sci Tr Center RT-3647

Scientific - Physics

Jun 56/dex

Kamenkov, G. V. and Lebedev, A. A.  
ON STABILITY OF MOTION IN A FINITE TIME  
INTERVAL [AND] NOTES. [1963] [23]p. 6 refs.  
Free copies available from Boeing Scientific Research  
Labs. Library as Boeing Trans. R16 and R17. When  
supply is exhausted, order from OTS  
or SLA \$2.60

63-16987

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, p. 529-540; 1954, v. 18, p. 512.

DESCRIPTORS: \*Motion, \*Stability, Time, \*Differential  
equations, Perturbation theory, Numerical analysis,  
Integrals, Real variables.

The solution of the problem of stability is reduced to an  
investigation of the integrals of the equations of  
perturbed motion of the type

$$\frac{dx_1}{dt} = X_1, \dots, \frac{dx_n}{dt} = X_n,$$

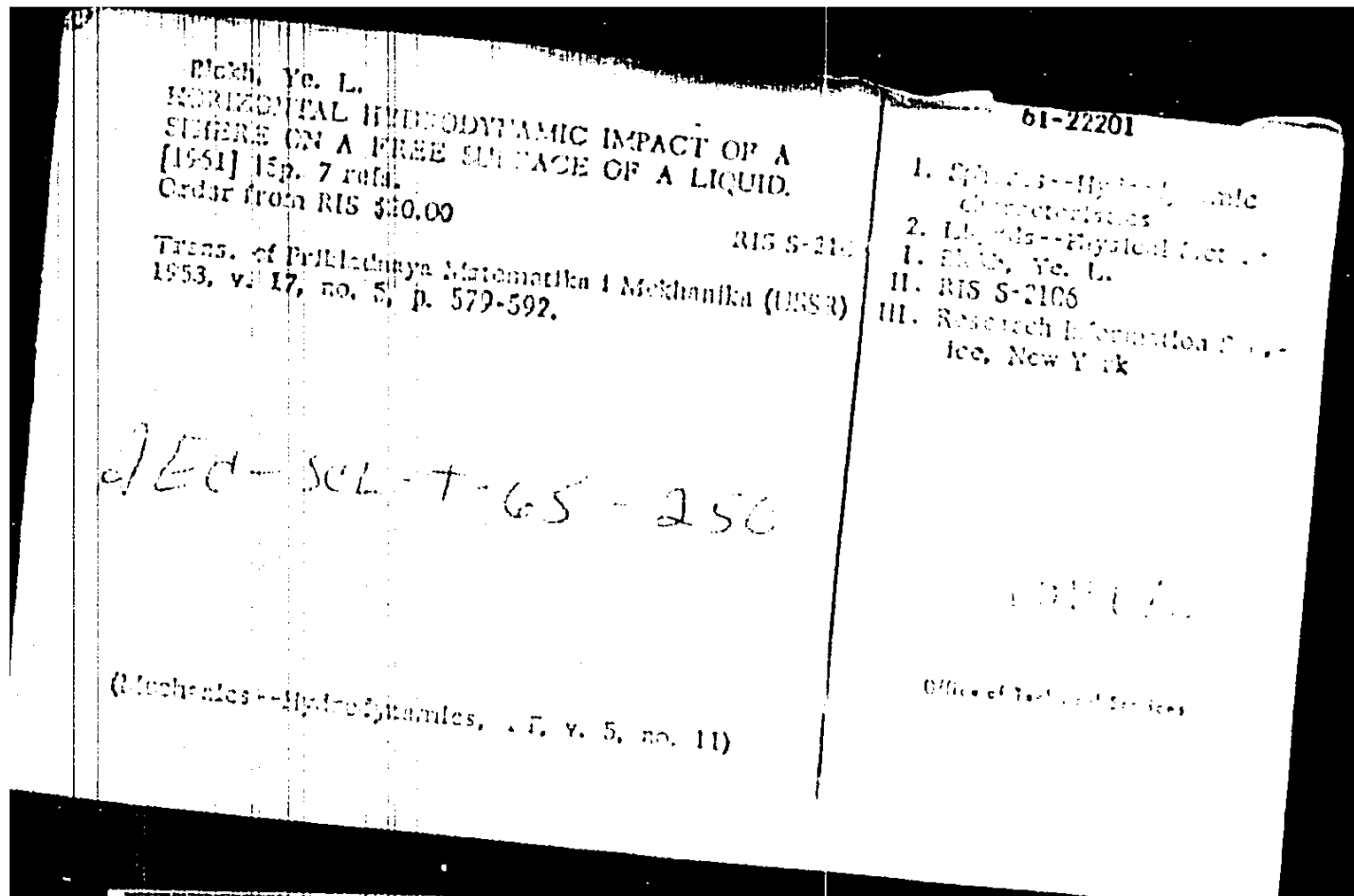
(Mechanics, TT, v. 10, no. 9)

(ov:rr)

63-16987

- I. Kamenkov, G. V.
- II. Lebedev, A. A.
- III. Boeing Trans-R(16-17)
- IV. Boeing Scientific Research  
Labs., Seattle, Wash.

Office of Technical Services



Cavity Flow Past a Contour Performing Small  
Oscillations, by M. I. Gurevich, M. D. Khaskind,

RUSSIAN, per, Prikl Matemat. Mekh, Vol XVII,  
1953, pp 599-603.

A/R.E. Ft Halstead  
Tr No 16, OT/1027

20,790

Scientific - Physics

Dec 1954 GTS

Calculation of the Profile of a Reservoir Piezometer Under Creep Conditions, by A. G. Kostikov  
UNCL

RUSSIAN, per, Prik Mat Mekh, Vol XVII, 1958,  
pp 615-618.

DSIR Lending Library Unit M.40

Sci - Math  
Apr 59

83,976

The Behavior of Dynamic Systems and Systems of  
Automatic Control Having Several Control Organs  
Near the Boundary of a Region of Stability, by  
V. A. Troitskii, 14 pp.  
RUSSIAN, per, Prik Mate i Mekh, Vol 17, 1953,  
pp 673-684.  
ARM/RSIC-Tr-968-69

Sci/Math  
Jul 70

Blokh, Ye. L.  
HORIZONTAL IMPACT OF AN ELLIPSOID OF RO-  
TATION ON AN IDEAL LIQUID HAVING A FREE  
SURFACE. [1961] 24p. 6 refs.  
Order from RIS \$25.00

RIS S-2107

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, no. 6, p. 705-726.

*AEC - SOL - T - 65 - 257*

(Miscellaneous Hydrodynamics, TT, v. 5, no. 11)

(1-22202

- I. Ellipsoids--Hydrodynamic characteristics
2. Liquids--Physical factors
- I. Blokh, Ye. L.
- II. RIS S-2107
- III. Research Information Service, New York

Office of Technical Services

Conventional Diffusion in a Submerged Jet, by Y. B.  
Rumer, 6 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika, Vol XVII, No 6,  
Nov/Dec 1953, pp 743, 744.

SLA Tr R-1119

(1119)

Sci - Mathematics

54,601

Oct 57



V  
The Determination of Large Deflections of a Cylindrical Panel, Resting on Flexible Inextensible Ribs, Subjected to External Normal Loading, by Kh. M. Mushtari, I. V. Svirski, 12 pp.

RUSSIAN, bimo per, Prik Matemst i Mekh, Vol XVII, No 6, 1953, pp 755-760.

Sci Tr Center RT-3646

Scientific - ~~Engineering~~

36, 128

Jun 56/dex

On the Problem of a Streamlined Profile  
in a Near-Sonic Flow, by A. F. Kryuchin.  
RUSSIAN, per, Prikladnaya Matematika i  
Mekhanika, Vol XVIII, 1954.  
OTS TT-64-71432

Jan 67

318,668

Feodos'ev, V. I.  
ON THE STABILITY OF A SPHERICAL SHELL, SUB-  
JECTED TO THE ACTION OF EXTERNAL HYDRO-  
STATIC PRESSURE [Neustanovivsheesya Dvizhenie  
Vyazkol Zhidosti Soudavaemoe Vrashchayushchimsya  
Diskom] tr. by George Herrmann. Mar 56 [16]p. 7 refs.  
DTMB Trans-266.  
Order from OTS or SLA \$1.60 63-15671

Trans. of Prikladnaya Matem[atika] i Mekh[anika]  
(USSR) 1954, v. 18 [no. 1] p. 35-42.  
Another trans. is available from OTS or SLA \$1.10 as  
62-23112, MDF F-104 [1961] 10p.

DESCRIPTORS: Elastic shells, Structural shells,  
Spheres, Stability, Pressure, \*Hydrostatic pressure.

(Mechanics, TT, v. 9, no. 10)

63-15671

- I. Title: Spherical shells
- I. Feodos'ev, V. I.
- II. DTMB Trans-266
- III. David Taylor Model Basin,  
Washington, D. C.

Office of Technical Services

Duvakin, A. N. and Letov, A. M.  
ON THE STABILITY OF CONTROL SYSTEMS WITH  
TWO CONTROLLERS. [1961] [11]p. 4 refs.  
Order from OTS or SLA \$1.60 62-10185

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1954, v. 18, p. 163-166.  
Another trans. is available from OTS \$1.60 as  
AD-264 153, STL-TR-61-5110-17, May 61, 12p.

DESCRIPTORS: \*Control systems, Linear systems,  
\*Differential equations, Perturbation theory, \*Func-  
tions, Inequalities, Stability, Theory, Time, Motion.

An analysis is presented on the control system de-  
scribed by a differential equation. The problem is to  
determine the sufficient conditions for the asymptotic  
stability of the trivial solution of the control system  
for any finite initial perturbations. Details are given  
on the construction of the Lyapunov function. Results  
(Mathematics, v. 8, no. 10) (over)

62-10185

- I. Title: Lyapunov functions
- I. Duvakin, A. N.
- II. Letov, A. M.

Office of Technical Services

Lebedev, A. A.  
**ON THE PROBLEM OF STABILITY OF MOTION IN  
A FINITE TIME INTERVAL. [1963] 32p 6refs**  
Free copies available from Boeing Scientific Research  
Labs. Library as Boeing Trans. R20. When supply  
is exhausted, order from OTS or SLA \$3.60

63-20238

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1954, v. 18, p. 75-94.

**DESCRIPTORS:** \*Perturbation theory, \*Stability,  
\*Motion, Equations of motion, Differential equations.

The method given by G. V. Kamenko is utilized to de-  
fine, with respect to equations of the first approxi-  
mation, conditions of stability of transient motion for  
finite initial, and finite, constantly acting perturbations.  
In this connection a method is given for determining  
the time interval in which unperturbed motion is stable.  
(Author)

63-20238

- I. Lebedev, A. A.
- II. Boeing Trans-R20
- III. Boeing Scientific  
Research Labs.,  
Seattle, Wash.

(Mechanics, TT v. 10, no. 12)

Office of Technical Services

Concerning the Invertibility of the Lyapunov's  
Theorem of Asymptotic Stability, by I. G. Malkin,  
13 p.  
RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol XVIII, 1954, pp 129-138. 9700469  
RSIC-526

Sci-Math  
Jul 66

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On the Analysis of Shells Subjected to Concentrated  
Loads, by A. L. Gol'denveizer, 13 pp.

RUSSIAN, biblio per, Prikl Matemat i Mekh, Vol XVIII,  
No 2, 1954, pp 181-186.

36,091  
Sci Tr Center RB-3644

Scientific - Physics

Jun 56/dex

Steady Motion of a Fluid Heated From Below, by  
V. S. Sorokin.

RUSSIAN, per, Prik Mat i Mekh, Vol XVIII, 1954,  
pp 197-204.

Sci Mus Lib Tr 57/0048

Sci - Physics  
Jul 57

49, 383



Application of the Galyerkin Method to the Problem of the Stability of Unevenly Heated Liquids, by E. B. Zhukhovitskii, 15 pp.  
RUSSIAN, per, Prikl Mat i Mekh, Vol 18, No 2, 1954, pp 205-211.  
F911042868  
AEC-IS-Tr-74

Sci-Phys  
Mar 58

349.337

On Waves of Loading and Unloading Arising From the Motion of an Elastic or Plastic Flexible Fibre, by H. Cristescu, 18 pp.

RUSSIAN, per, Pril Matemat i Mekhanika, Vol XVIII, May/June 1954, pp 257-264. CIA V 6922

Rand Corp

T-49

37,690

Sci - Physics

Aug 1956

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TT-64-71240

Bugaenko, G. A.  
ON FREE CONVECTION IN AN INCLINED CYLINDER (O Svobodnoi Konveksii v Naklonnom Tsilindre).  
July 61 [5]p. 2 refs. RTS 1884.  
Order from OTS or SLA \$1. 10

61-27041

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1954, v. 16, no. 2, p. 212-214.

DESCRIPTORS: \*Conical bodies, Continuous media,  
\*Convection, Mathematical analysis, Heat transfer.

(Physics--Thermodynamics, TT, v. 7, no. 2)

61-27041

- I. Bugaenko, G. A.
- II. RTS-1884
- III. Department of Scientific and Industrial Research (Gt. Brit.)

Office of Technical Services

Barbashin, E. A. and Krasovskii, N. N.  
ON THE EXISTENCE OF LYAPUNOV FUNCTIONS  
IN THE CASE OF ASYMPTOTIC STABILITY IN  
THE LARGE. [1961] [13]p. 5 refs.  
Order from OTS or SLA \$1.60

62-10184

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1954, v. 18, p. 345-350.  
Another trans. is available from OTS \$1.60 as AD-  
AD-264 150, STL-TR-61-5110-20, May 61, 12p.

DESCRIPTORS: Satellite vehicle trajectories, \*Flight  
paths, \*Spheres, \*Stability, Motion, Functions, Per-  
turbation theory, Differential equations, Partial dif-  
ferential equations

Definitions on stability are given among which is in-  
cluded a detailed definition of stability in the large of  
two systems with time delay. Two theorems are stated  
with detailed proofs for solution of these systems.  
(Mathematics, TT, v. 8, no. 9) (over)

62-10184

1. Title: Lyapunov functions
- I. Barbashin, E. A.
- II. Krasovskii, N. N.

Office of Technical Services

Unsteady Motion of a Viscous Fluid Created by a  
Rotating Disc, by D. E. Dolidze, 10 pp.

RUSSIAN, time per, Priklad Matemat. i Mekh.,  
Vol XVIII, 1954, p 371.

Morris D. Friedman D-113  
\$5.00

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Scientific - Physics

Q23 65/feb 55

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Bulakh, B. M.  
ON THE THEORY OF CONICAL FLOWS. [1963] 5p.  
1 ref.  
Free copies available from Boeing Scientific Research  
Labs. Library as Boeing Trans. R74. When supply is  
exhausted, order from OCS or SLA \$1.10, 63-18316

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1954, v. 18, no. 4, p. 452-453.

DESCRIPTORS: Gas flow, Velocity, Numerical analysis,  
\*Conical bodies, \*Supersonic flow, \*Axially symmetric  
flow.

(Mechanics--Aerodynamics, TT, v. 10, no. 8)

63-18316

- I. Bulakh, B. M.
- II. Boeing Trans-R74
- III. Boeing Scientific Research  
Labs., Seattle, Wash.

Office of Technical Services

On Conditions for the Existence of a Center,  
by L. N. Belyustina, 2 pp.

RUSSIAN, bimo per, Priklad Matemat i Mekh,  
Vol. XVIII, 1954, p 511.

Morris D. Friedman *B-107*  
\$1.00

USSR  
Scientific - Physics

CTS 65/Feb 55

*21,307*

Problem of Near Sonic Flow Past a Profile, by A. F. Kriuchin, 17 pp, (AF 653055).

RUSSIAN, per, Prik Matemat i Mekh, Vol XVIII, No 5, Moscow, 1954, pp 547-560.

G-2, GSUSA G-5036

USSR  
Scientific - Aeronautics

Aug 55

26, 380



Elsh, Ye. L.  
ON THE MOTION OF AN ELLIPSOID OF REVOLU-  
TION FLOATING ON THE SURFACE OF A HEAVY  
LIQUID. [1934] USSR. 2 refs.  
Order from RIS \$6.50

RIS S-2103

Trans. of ~~the~~ ~~USSR~~ Matematika i Mekhanika (USSR)  
1934, v. 18, no. 5, p. 631-636.

AEC-SC-T-65-269

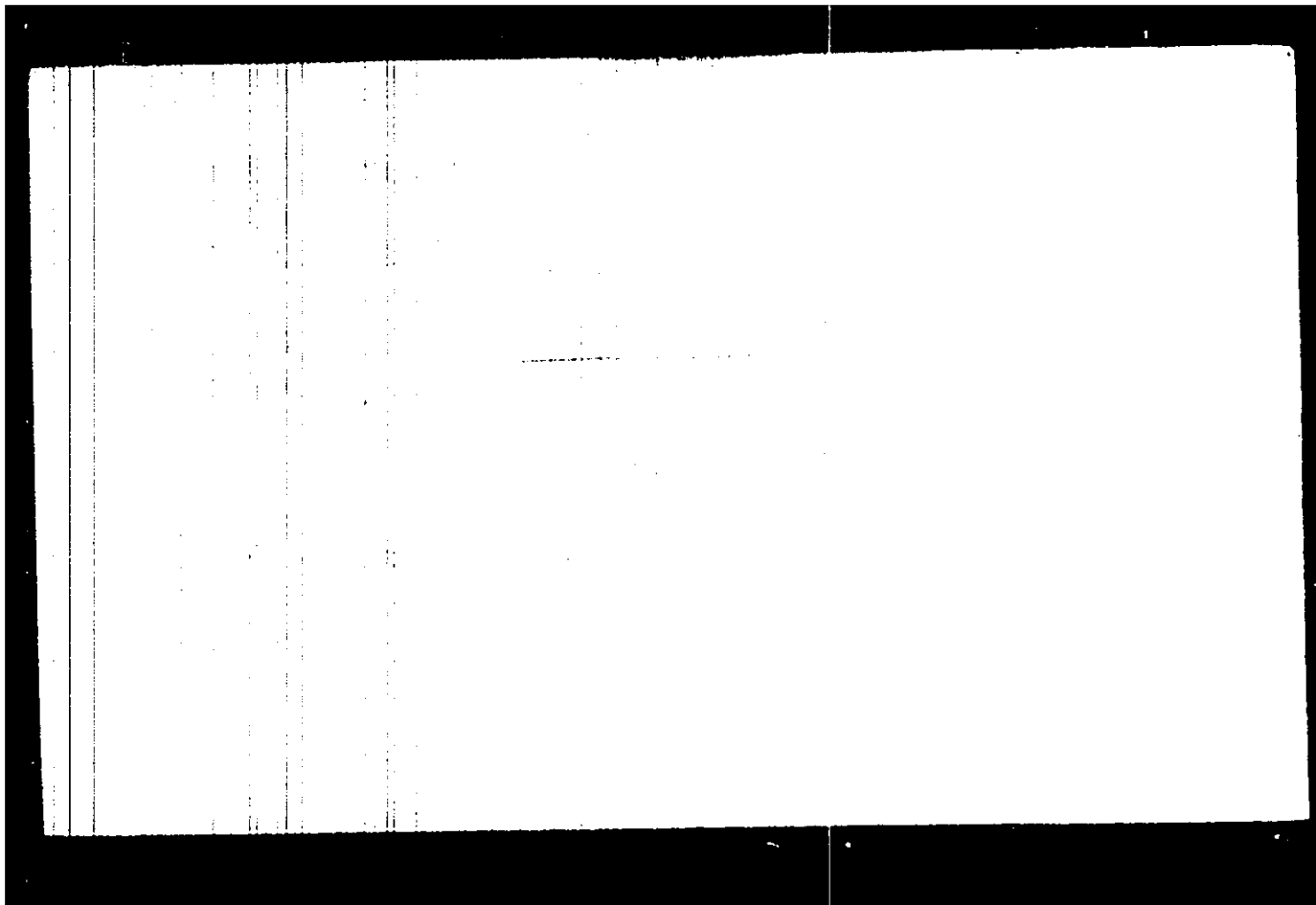
(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

61-27263

1. [unclear] [unclear]
2. [unclear] [unclear]
3. Elsh, Ye. L.
4. RIS S-2103
5. Research Information Service, New York

Office of Technical Services

APPROVED FOR RELEASE: 2005/08/30 CIA-RDP91-00772R000200960013-7



APPROVED FOR RELEASE: 2005/08/30 CIA-RDP91-00772R000200960013-7

Stability of Cylindrical and Conical Seals of  
Circular Cross Section, With Simultaneous Action  
of Axial Compression and External Normal Pressure,  
by Kh. M. Mushtari, A. V. Sachenkov, 15 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVIII, No 6,  
1954, pp 667-674.

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NACA TM 1433

Sci Math 8/10/58

Sci - Phys

May 58

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On the Propagation of Sound Waves in a Viscous  
Gas With Heat Conduction, by A. A. Kaspar'yants,  
9 pp.

RUSSIAN, bino per, Priklad Matemat i Mekh,  
Vol XVIII, 1954, p 729-737

No 4,

Morris D. Friedman K-108  
\$4.50

Scientific - Physics

CTB 67/Apr 55

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Concerning Stability of One Gyroscopic System,  
by I. Z. Pirogov.

RUSSIAN, per, Prikladnaya Matematika i  
Mekhanika, pp 1134-1136.

NERDL Ft Belvoir  
T-1109

Sci - Engr

Jun 61

Nozzle Design, by I. N. Yur'yev.  
RUSSIAN, per, Prikladnaya Matematika  
i Mekhanika, No XIX, 1955.

\*PTD-MT-65-384

*Changed to HT-66-157*

*April 14, 1966*

Sci-  
Sop 65

On the  $\mu$  Equations in the Theory of Plasticity,  
by V. V. Sokolovskiy, 21 pp.

RUSSIAN, bino per, Drik Matemat i Mekh, Vol  
XIX, 1955, pp 41-54.

*HEL Tex 3854*  
Sci Mus Lib - 56/0529

*SLAR-981*

Sci - Mathematics,

*36, 388*

Jul 1956

Vorobovskaya, E. V.  
ON THE MODIFICATION OF CHAPLYGIN'S METHOD  
FOR DIFFERENTIAL EQUATIONS OF FIRST ORDER.  
14p 2refs  
Order from OTS, SLA or ETC \$1.60 TT-64-16022  
Trans. of Prilozhaya Matematika i Mekhanika (USSR)  
1965, v. 19, no. 1, p. 121-126.

(Mathematics, TT, v. 12, no. 4)

TT-64-16022

L. Vorobovskaya, E. V.

Office of Technical Services



Zubov, V. I.  
QUESTIONS IN THE THEORY OF LYAPUNOV'S  
SECOND METHOD: THE CONSTRUCTION OF THE  
GENERAL SOLUTION IN THE DOMAIN OF ASYMPTOTIC STABILITY. Aug 62 [47]p. 8 refs.  
Order from OTS or SLA \$4.60 62-20253

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1955, v. 19 [no. 2] p. 179-210.

DESCRIPTORS: \*Control systems, \*Stability, Motion,  
Equations of motion, Differential equations, Real  
variables, Functions, Series.

This paper is the best source for "Zubov's Method",  
for constructing Lyapunov functions. It answers  
almost all theoretical questions concerning the concept  
of asymptotic stability. (Author)

(Engineering--Electronic, IT, v. 9, no. 11)

62-20253

1. Title: Lyapunov method
2. Title: Zubov's method
- I. Zubov, V. I.
- II. Lyapunov, A. M.
- III. Title: Construction ...

Office of Technical Services

On the Integration of a System of Differential  
Equations, by M. M. Smirnov, 6 pp.

RUSSIAN, per, Priklad. Mat. i Mekhan, Vol XIV,  
1955, pp 217, 218.

AEC/APEX-436

Sci - Phys  
Mar 59

82, 881

Method of Determining Conditions for the Existence  
of Periodic Solutions for Non-Linear Systems, by  
S.N. Shimanov.

RUSSIAN, mime per, Prikl Mat i Mekh, Vol XIX,  
No 2, 1955, pp 225-228.

T.I.L. T-4715

Sci - Physics

43, 248

On a Case of Pre-Critical State of Bending of a  
Cylindrical Shell, by N. A. Alfutov, 5 pp.

RUSSIAN, per, Prikl Matem i Mekh, Vol ~~XXXX~~ XIX,  
No 2, 1955, pp 249, 250.

Sci Tr Center  
RT - 3641

Sci - Physics

37,165

Aug 1956

On the Theory of Stability of a Spherical Shell Sub-  
jected to External Pressure (With Reference to the  
Paper by V. I. Feodos'ev), by Kh. N. Mushtari, 10 pp.

RUSSIAN, bino per, Prik Matemat i Mekh, Vol XIX, No 2,  
1955, pp 251-254.

36,127  
Sci Tr Center RT-3642

Scientific - Engineering

Jun 56/dex

APPROVED FOR RELEASE: 2005/08/30 CIA-RDP91-00772R000200960013-7

The Stability of Non-Steady Motions of Control  
Systems, by A. M. Letov.  
RUSSIAN, per, Prikladnaya Matematika i Mekh,  
Vol 19, No 3, 1955, pp 257-262.  
NAVY/APL/JHU-T-2568

Nov 71

APPROVED FOR RELEASE: 2005/08/30 CIA-RDP91-00772R000200960013-7

Razumikhin, B. S.  
ON THE STABILITY OF THE TRIVIAL SOLUTION OF  
SECOND ORDER SYSTEMS. Sep 62 [12]p. 6 refs.  
Order from OIS or SISA \$1.60 62-20396

Trans. of Prilozheniya Matematika i Mekhanika (USSR)  
1955, v. 19, no. 3, p. 279-286.

DESCRIPTORS: \*Differential equations. Equations of  
motion. Stability. \*Numerical methods and procedures  
Parabolic bodies. Geometry.

Various classes of second order systems which admit  
Liapunov functions of special forms are studied. The  
discussion is largely geometrical. (Author)

(Mathematics: TT, 9, 9, no. 7)

62-20396

1. Title: Lyapunov method
  2. Title: Stability analysis
- I. Razumikhin, B. S.

Office of Technical Services





Bloch, Ye. L.  
INFLUENCE OF THE DEPTH OF A SUBMERGED  
SPHERE ON THE COEFFICIENT OF ADDED MASS  
DURING HORIZONTAL IMPACT. [1961] 9p. 3 refs.  
Order from RIS \$4.50 RIS S-2109

Trans. of Fizicheskoy Matematika i Mekhanika (USSR)  
1965, v. 19, no. 3, p. 353-358.

HEC-SC-T-65-270

(Mechanics - Hydrodynamics, TT, v. 5, no. 11)

61-22004

- I. Spheres--Hydrodynamic characteristics
- I. Bloch, Ye. L.
- II. RIS S-2109
- III. Research Information Service, New York

Office of Technical Services

Example of a Transonic Flow With Supersonic  
Regions Which in the Direction of Flow is Limited  
by a Compression Jump Terminating Inside the  
Flow, by N. I. Frankl, 13 pp. CONFIDENTIAL.

RUSSIAN, blind par, Prikl Mat i Mekh, Vol XIX, No 6,  
1955, pp 385-392, BRM to IN-229-56, USAFE.  
CIA ID 813097

AF 726142

34, 550

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Sol. - Mathematics, Physics  
May 1955 CIB/dex

Svirskiy, I. V.  
ON THE QUESTION OF THE CONSTRUCTION OF  
VARIATIONAL CALCULATION METHODS. 1960 [26]p  
1 ref.

Order from LC or SLA m/\$2.70, ph/\$4.80 61-10402

Trans. of Fiziko[chnaya] Mat[ematika i] M[ekhanika]  
(USSR) 1955, v. 19, no. 4, p. 453-462.

Means are suggested for determining approximate  
solutions by means of Rayleigh procedures. The  
methods are illustrated by a number of examples.

(Mathematics, TT, v. 5, no. 10)

61-10402

1. Approximate computation--  
Theory.
  2. Title: Calculus of variations
  3. Title: Rayleigh procedure
- I. Svirskiy, I. V.

101550

Office of Technical Services

**Kronberg, V. A.**  
**ON THE FIRST VARIATION OF THE SOLUTION TO**  
**BOUNDARY PROBLEMS IN THE THEORY OF THE**  
**POTENTIAL FOR THE VARIATION OF THE BOUND-**  
**ARY SURFACE. 12p 2refs.**  
Order from OTS, SLA, or ETC \$1.60      **TT-64-16382**

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1955, v. 19, no. 4, p. 463-470.

(Mechanics--Aerodynamics, TT, v. 12, no. 4)

**TT-64-16382**

**L. Kronberg, V. A.**

**Office of Technical Services**

An Application of Dorodnitsyn's Variables in  
Boundary Layer Theory, by Yu. A. Demyanov.  
UNCLASSIFIED

RUSSIAN, per, Prik Mat i Mekh, Vol XIX, 1955,  
pp 507, 508.

RAB Tr 721

Sci - Phys  
Sep 58

72,180

Some Special Solutions of the Boundary Layer  
Equations for a Compressible Fluid, by A. Sh.  
Dorfman, E. T. Shvets, 8 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XIX, 1955,  
pp 509-512. CIA 9030257

Rand Corp T-88

Sci - Phys

Jul 58

TT-64-71367

67,015

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| <p>Krasovskiy, N. N.<br/><b>ON THE STABILITY IN FIRST APPROXIMATION.</b><br/>[1961] [28]p. 11 refs.<br/>Order from LC or SLA ml\$2.70, ph\$4.80 61-10773</p> <p>Trans. of Prikladnaya Matematika i Mekhanika (USSR)<br/>1955, v. 19, no. 5, p. 517-530.</p> <p>The second method of A. M. Liapunov is employed in<br/>studying the stability of solutions of perturbation<br/>equations.</p> <p style="text-align: center;">151852</p> <p>(Mathematics, TT, v. 5, no. 9)</p> | <p style="text-align: right;">61-10773</p> <ol style="list-style-type: none"><li>1. Differential equations--<br/>Theory</li><li>2. Perturbation theory</li></ol> <p>1. Krasovskiy, N. N.</p> <p style="text-align: right;">Office of Technical Services</p> |
|--|---|

Lotnyanski, I. G.  
HYDRODYNAMIC THEORY OF A SPHERICAL BEARING (Gidrodinamicheskaya Teoriya Sfericheskogo Podshlupnika). [1961] [23]p. (foreign text included)  
1 ref. [DSIR LLU] M. 2606.  
Order from OTS or SLA \$2.60

61-23272

Trans. of Prilozhniya Matematika i Mekhanika  
(USSR) 1955, v. 19 [no. 5] p. 531-540.

DESCRIPTORS: \*Bearings, Spheres, Lubrication,  
\*Hydrodynamics.

An approximate solution is presented of the problem of determination of pressure, force and moment acting on a spherical body which performs a general movement in a spherical space, filled with a viscous fluid. The velocity of translatory motion of the body and angular velocity of its rotation are assumed to be known and constant, and the motion is considered to be quasi-steady. The investigation is limited to the analysis of the par-  
(Machinery--Machine Parts, TT, v. 6, no. 4) (over)

61-23272

I. Lotnyanski, I. G.  
II. DSIR LLU M. 2606

177703

Office of Technical Services



XIX Qualitative Methods in the Theory of Stability,  
by N. P. Erugin, 30 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol. XIX, No. 5, 1955, pp 599-10.

OTS XJ 2-20394

230,617

Sci  
May 53

Barbashin, Ye. A. and Skalkina, M. A.  
ON THE QUESTION OF STABILITY IN FIRST AP-  
PROXIMATION. 30 Dec 60 [5]p. 2 refs.  
Order from OTS or SLA \$1.10

61-14763

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1955, v. 19, no. 5, p. 623-624.

DESCRIPTOR: Numerical analysis, \*Differential  
equations, Perturbation theory, Theory.

The author examines in a qualitative sense and pre-  
sents a theorem relating solutions of the homogeneous  
first order variational equations to solutions of the non-  
homogeneous equations given on exponentially bounded  
stable solution of the homogeneous equations and  
certain assumptions on the nature of the non-homogene-  
ous equations. (Translator)

(Mathematics, TT, v. 6, no. 1)

61-14763

I. Barbashin, Ye. A.  
II. Skalkina, M. A.

161798

Office of Technical Services

Theorem of the Uniqueness of the Solution of the  
Example of Circumflow of a Wedge-shaped Profile  
Within the Transonic Region, by A. F. Kryuchin,  
4 pp. CONFIDENTIAL

RUSSIAN, biblio per, Prik Mat i Mekh, Vol XIX, No 5,  
1955, pp 639, 640, Encl to IR-228-56, USAFE.  
CIA ID 413167

AF 726102

34 552

USSR  
Sci - Mathematics, Physics  
May 1956 CTS/dax

Kreyn, M. G.  
ON THE CRITERIA OF THE STABLE LIMITED-  
NESS OF THE SOLUTIONS FOR PERIODICAL  
CANONICAL SYSTEMS. [1961] [67]p. 13 refs.  
Order from LC or SLA ml\$3.90, pt\$10.80 61-10842

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1955, v. 19, no. 6, p. 644-680.

151871

(Mathematics, TT, v. 5, no. 9)

61-10842

1. Differential equations--  
Theory  
1. Kreyn, M. G.

Office of Technical Services