

Deformation Correction and the Precise  
Representation of the Bühler Method of  
Direct Determination of Residual Stresses.

S/032/00/026/012/019/036  
B020/B0-6

the diagrams given in Fig. 4. The curves of the axial and diametral deformation for the ground and treated sections of a brass cylinder are given, in which the direct Sachs method was used. Table 2 compares the axial, circular, and radial residual stresses for a final ground section determined by three methods of calculation. The results obtained show that the quantities found by means of the single formulas using the single deformation curves and the separate procedures show full agreement. There are 4 figures, 2 tables, and 8 references: 5 Soviet and 3 German.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'-nykh konstruktsey (Central Scientific Research Institute of Structural Parts). Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva (All-Union Scientific Research Institute of Agricultural Mechanization) ✓

KOBRIN, M.M.; DEKHTYAR', L.I.

Using Sachs' method of determining internal stresses in pressed joints. Zav. lab. 27 no. 12:1523-1527 '61. (MIRA 15:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruksiy i Gosudarstvennyy vesesoyuznyy nauchno-issledovatel'skiy tekhnologicheskii institut remonta i ekspluatatsii mashinno-traktornogo parka.

(Cylinders—Testing) (Strains and stresses)

KOBRIN, M.M., kand.tekhn.nauk; SVERCHKOV, A.G., inzh.

Raising the fatigue durability of the ends of reinforcing bars  
by surface cold hardening. Trudy NIIZHB no.23:58-73 '61.

(Concrete reinforcement)

(MIRA 14:12)

ROBRIN, M.M.

28  
45

Soveshchaniye po ustalosti resheniya. (Sov. Akad. Nauk, 1965).  
 Tsiklicheskaya preobrazheniya ustalosti resheniya v...  
 po ustalosti resheniya...  
 Strength; Fatigue; Resonance; Solution; Fatigue; Resonance;  
 Hobals, held May 25-26, 1965, Institute of Problems in Mechanics,  
 330 p. Kuznetsov, I. P. (Ed.).

Resp. Ed.: I. A. Odian, Chairman, Institute of Problems in Mechanics,  
 Sciences of the USSR; Ed.: I. P. Kuznetsov, Institute of Problems in  
 Tech. Ed.: A. P. Guseva.

**PURPOSE:** This collection of papers is intended for the use of  
 research workers and students.

**COVERAGE:** The collection covers the results of research conducted  
 at the second conference on the problems of fatigue and resonance  
 at the Institute of Problems in Mechanics, USSR Academy of Sciences,  
 with the nature of fatigue and resonance.

Card 1/2

Cyclic Metal Strength (Cont.)

45  
SOV/6025

and growth of fatigue cracks, the role of plastic deformation in fatigue fracture, an accelerated method of determining fatigue strength, the plotting of fatigue diagrams, and various fatigue test methods. New data are presented on the sensitivity of high-strength steel to stress concentration, the effect of stress concentration on the criterion of fatigue failure, the effect of the size factor on the strength of metal under cyclic loads, and results of endurance tests of various machine parts. Problems connected with cyclic metal toughness, internal friction, and the effect of corrosion media and temperature on the fatigue strength of metals are also discussed. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

NATURE OF FATIGUE FRACTURE

Oding, I. A. Diffusionless Mechanism of Formation and Growth of a Fatigue Crack  
Card 2/4

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Cyclic Metal Strength (Cont.)

SOV/6025

Zaytsev, G. Z. Accumulation of Plastic Strain Under Cyclic Loading

61

Grigorovich, V. K. Fatigue Fracture in Relation to the Fibre Orientation in Steel Parts

73

Zaytsev, A. M. Investigation of Laws Governing the Formation of Fatigue Fractures

82

Kobrin, M. M., and P. I. Sokolovskiy. Special Features of Steel Fracture Under Cyclic Loads in Relation to Anisotropy of Its Structure

94

FATIGUE TEST METHODS

Ivanova, V. S. and S. Ye Gurevich. Experimental Verification of the Accelerated Method for Determining Fatigue Strength

110

Elyasheva, M. A. Investigating the Possibility of Applying the Accelerated Method for Determining the Fatigue Strength Card 4/9

10.6200

40671

S/032/62/028/009/005/009  
B104/B102

AUTHORS: Kobrin, M. M., and Dekhtyar', L. I.

TITLE: Improved extrapolation and checking of the incomplete diagram  
in determining residual stresses by the Sachs method

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 9, 1962, 1117 - 1121

TEXT: It is suggested that when determining the residual stresses according to G. Sachs (Z. Metallkunde, 18, 9, 352 (1927)) the extrapolation of the final section of the deformation curve should be replaced by interpolation. The cylindrical samples are indented on one side only and their deformation makes it possible to draw complete and incomplete diagrams of the residual stresses. The initial and final sections of the deformation curves can be determined. The difficult operation of cutting the samples in order to establish the incomplete diagram for the peripheral zones is limited to partial cuts. The validity of the principle of fictitious deformation and of the assumed conservation of residual stresses in the remaining portion when the material is cut on one side only is examined. There are 3 figures.

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Improved extrapolation and checking of ...

S/032/62/028/009/005/009  
B104/B102

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy (Central Scientific Research Institute of  
Structural Parts). Gosudarstvennyy nauchno-issledovatel'skiy  
tekhnologicheskii institut remonta i ekspluatatsii mashino-  
traktornogo parka (State Scientific Research Technological  
Institute for the Repair and Utilization of Tractors and  
Agricultural Machinery)

Card 2/2



8/137/62/000/011/024/045  
A052/A101AUTHORS: Kobrin, M. M., Sokolovskiy, P. I.

TITLE: Characteristics of steel rupture under cyclic loads in connection with the anisotropy of its structure

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 46, abstract 111290 (In collection: "Tsiklich. prochnost' metallov", Moscow, AN SSSR, 1962, 94 - 109)

TEXT: Various kinds of mechanical tests (torsion and tension of a "laminated" sample) are considered from the viewpoint of their suitability for evaluating the tendency to cleavage of a wide row of products and materials of anisotropic structure. The investigations were carried out on special "laminated" samples prepared of sheet material 12 mm thick [14 Г2, 15 ГС (1402, 150S) steels] and of a rod 25 mm in diameter [CT 3 (St.3)]. Torsion tests were carried out on a crankshaft-type fatigue machine (loading frequency = 1,400 cycle/min.). It is pointed out that cyclic torsion is a more sensitive method of revealing the tendency to cleavage than static torsion. Under conditions of cyclic torsion,

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Characteristics of steel rupture under...

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A052/A101

the characteristics of the cycle (alternation, assymetry) are not so important as its loading frequency to produce a cleavage-type fracture. To investigate the tendency to cleavage at tension a new "laminated" type of a sample (the cutting scheme and the form of the sample are given) is proposed. The mentioned samples were tested under asymmetric one-sign cycle on a modernized inertia-type machine; loading frequency = 3,000 cycle/min. The cleavage test reveals a new property of an anisotropic material which cannot be detected by the usual method of anisotropy evaluation by comparing properties of longitudinal and lateral samples. The results of an investigation of rod steel have shown that all laws, established for sheet steel, hold true for it; the rolling resistance in the direction perpendicular to the planes of cleavage is lower than in any direction along these planes. Photos of fractures are presented of the samples with a different orientation in relation to the direction of rolling, and characteristics of cyclic rupture of sheet and rod steel discovered in the process of fatigue tests of "laminated" samples are discussed. ✓

[Abstracter's note; Complete translation]

Z. Fridman

Card 2/2

KOBRIN, Mikhail Moiseyevich; ROZENBERG, A.N., retsentsent; RAYER, G.A.,  
nauchnyy red.; MIKITINA, R.D., red.; SHISHKOVA, L.M., tekhn.  
red.

[Strength of rotating disks] Prochnost' vrashchayushchikhsia  
diskov. Leningrad, Sudpromgiz, 1963. 339 p. (MIRA 16:4)  
(Disks, Rotating--Testing)

S/122/63/000/001/010/012  
D263/D308

AUTHOR:

Kobrin, N.M., Candidate of Technical Sciences

TITLE:

Residual stress curves of plastic surface deformation for contact and contact/slide patterns

PERIODICAL:

Vestnik mashinostroyeniya, no. 1, 1963, 56-60

TEXT:

The author proposes a new qualitative theory explaining the origin of various forms of residual stress curves in plastic surface deformations. It is based on the analysis of stress conditions in the focal area of the plastic deformation of the reinforced product. Residual stress curves obtained with ball burnishing, cold working by a stream of shots, centrifugal cold ball working, roller burnishing and treatment by beating are analyzed and discussed in detail. Conclusions: The residual stress distribution in the metal depth depends on the method of treatment, i.e. whether the deforming movement is normal or tangential to the worked surface and also on the freedom of the working instrument (the notion of freedom is introduced by the author). Maximum residual stress on the surface

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Residual stress curves ...

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is obtained by treating the surface in contact/slide patterns (beating roller burnishing). There are 7 figures.

Card 2/2

KOBRIN, M.M.; DEKHTYAR', L.I.

Dependence of the fatigue strength of steel on its properties and the residual stresses in hard-faced metal. Avtom. svar. 16 no.9; 19-25 3 '63.  
(MIRA 16:10)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsey Akademii stroitel'stva i arkhitektury SSSR (for Kobrin). 2. Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskiy institut remonta i ekspluatatsii mashinno-traktornogo parka (for Dekhtyar').

KOBRIN, M.M., kand.tekhn.nauk; LEL'CHUK, L.M.

Fatigue testing of motortruck frames on stands. Avt.prom. 29  
no.1:25-28 Ja '63. (MIRA 16:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktaiy i Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy  
tehnologicheskiy institut remonta i ekspluatatsii mashinno-  
traktornogo parka.

(Motortrucks--Frames--Testing)

KOBRIN, M.M.; MALINKOVICH, Ye.M.

Thyratron drive of fatigue testing machines with inertia excitation.  
Zav.lab. 29 no.5:616-617 '63. (MIRA 16:5)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy.

(Fatigue testing machines)



KOBRIN, M.M., kand. tekhn. nauk; LE'CHUK, L.M.

Fatigue strength of low-alloyed steels in specimens and frame structures made of bent sections. Avt. prom. 29 no.11:34-36 N '63. (MIRA 16:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsey i Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskiy institut remonta i ekspluatatsii mashinno-traktornogo parka.

KOBRIN, M.M., kand.tekhn.nauk

Residual stress diagrams for contact and contact-shifting flow  
of surface plastic deformations. Vest.mashinostr. 43 no.1:56-  
60 Ja '63. (MIRA 16:2)

(Deformations (Mechanics))

KOBRIN, M.M. kand. tekhn. nauk

Stability of tight joints subjected to cyclic loading. Vest.  
mashinostr. 43 no.10:39-40 0 '63.  
(MIRA 16:11)

KOBRIN, M.M., kand. tekhn. nauk, dotsent; PROSHKO, V.M., kand. tekhn.nauk,  
dotsent; SORKIN, L.S., aspirant

Using analytic methods and electronic computers in calculating  
residual stresses. Izv. vys. ucheb. zav.; mashinost. no.10;  
78-92 '64 (MIRA 18:1)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.

KOBIN, M.M.; DEKHTYAR', L.I.

Through determination of residual stresses and the control of  
incomplete strain-stress diagrams in long rods of small diameters.  
Zav.lab. 30 no.4:472-476 '64. (MIRA 17:4)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy i Kishinevskiy sel'skokhozyaystvennyy institut.

KOBRIN, M.M., kand. tekhn. nauk; ZAKS, M.N., inzh.; BELOKUROV, V.N.

Studying the joints of the frames of farm trailers. Trakt. i sel'khoz mash.  
no.7:15-17 JI '65. (MIRA 18:7)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh kon-  
struktsiy (for Kobrin). 2. Mytishchinskiy mashinostroitel'nyy zavod  
(for Zaks, Belokurov).

KOBRIN, M.M., kand.tekhn.nauk

Cyclic strength of press-fitted joints with variable rigidity.  
Vest.mashinotr. 45 no.2:29-34 P 165.

(MIRA 18:4)

KOBRIN, M.M., kand. tekhn. nauk; DEKHTYAR', L.I., inzh.

Cast and weld-on steels are cyclically durable materials for  
press-fitted parts. Vest. mashinostr. 45 no.7:36-40 J1 '65.  
(MIRA 18:10)



AGBRIN, M.M.; FROCHKO, V.M.; POPKIN, I.S.

Use of electronic digital computers in determining residual  
addresses. Sov. Lab. J. no. 4:500-502 1965.

(MIRA 1965:4)  
1. Tsentral'nyy nauchno-issledovatel'skiy institut avtomaticheskikh  
konstruktsiy i Moskovskiy institut khimicheskoy fiziki i biologii.

L 27600-66

ACC NR: AP6018411

SOURCE CODE: UR/0032/66/032/003/0377/0378

AUTHOR: Kobrin, N. M.; Proshko, V. M.; Sorokin, L. S.

41  
B

ORG: Central Scientific Research Institute of Structural Designs (Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktov)

TITLE: Use of analog computers to determine residual stresses

SOURCE: Zavodskaya laboratoriya, v. 32, no. 3, 1966, 377-378

TOPIC TAGS: stress analysis, digital computer, residual computer/MN-8 analog computer

ABSTRACT: The authors start out by stating that in an earlier article (Zavodskaya Laboratoriya, Vol 31, No 4, Apr 65, p 500) they reported the results of having used a digital computer to determine residual stresses. In this work they briefly described their results in an effort to determine the feasibility of using an analog computer to achieve the same data. Residual stresses were determined for a steel cylinder (156 mm in diameter, 134 mm long) using an MN-8 analog computer. The cylinder had been surface cold-worked. Strain curves were plotted from experimental data obtained in the process of layer sectioning of the cylinder. This data was also stored in the computer. A structural diagram of the analog computer is given which shows the function of each block. Satisfactory coincidence of the stress strain-curves allowed the conclusion to be made that analog computers can be successfully used to determine residual stresses in materials. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 09, 20 / SUM DATE: none / ORIG REF: 003

Card 1/1 00

DOC: 681,142

KOBRIN, M.M. (Review)

USSR/ Physics Radio wave propagation

Card : 1/1 Pub, 118 - 7/7

Authors : Getmantsev, O. O., Zhevakin, S. A., Kobrin, M. M., and Miller, M. A.

Title : Propagation of radio waves

Periodical : Usp. fiz. nauk 53/2, 298 - 303, June 1954

Abstract : The book "Propagation of Radio Waves", written by V. N. Kessenikh, is criticised. Many fundamental errors in interpretation of the subject covered by the book were found. Also, the unmethodical arrangement of many experimental data, included in the book, render it useless even for reference. In short, the publication of the book by the "Gostekhizdat" (State Publ. House for Tech. Literature) is considered to be erroneous.

Institution : ....

Submitted : ....

Category : USSR/Radiophysics - Application of Radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1981

Author : Kobrin, M.M.

Title : On a Phase Radar Method for Measuring the Distance to the Moon

Orig Pub : Tr. 5-go soveshchaniya po voпр. kosmogonii. 1955, g. M., AN SSSR, 1956,  
141-145 diskus. 146

Abstract : The cathodes of now-available pulse tubes become damaged when the pulses last longer than  $5 \mu$  sec. To transmit radar signals to the moon with pulses on the order of  $2 \mu$  sec in the centimeter band, it is necessary to have a pulse power on the order of 1-2 megawatts. It is therefore advisable to use the phase method which requires less power. Owing to the complicated character of the reflection of centimeter radio waves from the moon, it is necessary to employ not the direct phase method, but a modification of the method, by which the radio signal is modulated with a low frequency and the phase difference between the modulation frequency of the signal reflected from the moon and of the direct signal is measured. The modulation frequency is determined by the dimensions of the reflecting area on the moon, which depends in turn on the width of the directivity pattern of the antenna employed. Estimates made for a 16-meter antenna at a 400 cycle modulation frequency show that the measurement accuracy reaches 1.2 km at a power of 2000 watts.

Card : 1/1

KOBRIN, M.M.

USSR / Radio Physics. Propagation of Radio Waves.

I-6

Abs Jour : Ref Zhur - Fizika No 3, 1957, No 7318

Author : Zhevakin, S.A., Kobrin, M.M.

Inst: : Gor'kov University

Title : Calculation of the Field Intensity of the Sky Wave at Short Radial Waves.

Orig Pub : Uch. zap. Gor'kovsk. un-ta, 1956, 30, 92-136

Abstract : A method is proposed for calculating the field intensity of the space wave in the case of ionospheric propagation; this method takes into account separately the absorption in various ionizing layers. Calculations are given for the absorption in the D layer and for the case of reflection from the E, F<sub>1</sub>, and F<sub>2</sub> layer. Equations for the absorption coefficient, obtained by using a model of a simple layer, make it possible to calculate the field intensity from specified radiation and propagation conditions (transmitter power, directivity pattern and impedance of the antenna, wavelength, zenith angle of the sun, and the length and

Card : 1/2

USSR / APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723410019-4

USSR / Propagation of Radio Waves.

I-6

Abs Jour : Ref Zhur - Fizika No 3, 1957, No 7318

Abstract : direction of the communication route) using the quantity  $f_{0E} = f_{crE} \cos^2 \chi$  ( $f_{crE}$  is the critical frequency of the E layer), which depends on the solar activity, and using the universal constants  $B_p$  and  $A_p$ , determined from the field-comparison results. The equations obtained were experimentally confirmed in the 25 -- 120 meter band. Empirical equations suitable for the field intensity during night time propagation, as well as many nomograms to facilitate the calculations, are also given. Bibliography, 36 titles.

Card : 2/2

80V/169-60-1-1063

Translation from: Referativnyy zhurnal, Geofizika, 1960, Nr 1, p 141 (USSR)

AUTHORS: Zhestyannikov, L.A., Kobrin, M.M.

TITLE: The F2-Layer of the Ionosphere During the Solar Eclipse on February 25, 1952, in Gor'kiy

PERIODICAL: V sb.: Polnyye solnechn. zatmeniya Febr. 25, 1952, and June 30, 1954. Moscow, AS USSR, 1958, pp 351 - 355

ABSTRACT: Results of a vertical sounding of the ionosphere in Gor'kiy during the eclipse on February 25, 1952, are described; the results were obtained by a manual ionospheric station having a range from 3.5 to 12.0 Mops. The course of the visual eclipse was computed, for comparison for altitudes of 0, 400, and 600 km from faculas, hydrogen filaments, and the corona, taking into consideration the distribution of the green corona line. The computations of the true distribution of the electron concentration along the altitude of the F2-layer showed that the F2-layer strongly differed from the parabolic, both in the day of eclipse and in the control days. The authors assume that the

Card 1/2



**Name** : KOBRIN, M.  
**Title** : Candidate of Physical and Mathematical Sciences  
**Remarks** : M. Kobrin is the author of an article entitled "Radio-Electronics and the Study of the Moon." The article is about various electronic devices which are used by astronomers for studying the moon. Among the devices which the author lists are radiotelescopes, radar, and electronic devices and instruments used in rockets and satellites.  
**Source** : N: Izvestiya, No. 8, 10 January 1959, p. 3, c. 1-5

35.

KOBRIN, M.

Space in the American way. NTO 4 no.10:55-57 0 '62.

(United States--Outer space exploration) (MIRA 15:9)



KOBRIN, M.

The great business. WFO 4 no.11:55-57 N '62.  
(United States—Space flight)

(MIRA 16:1)

KAPLAN, S.A.; ZAYTSEV, V.V.; KISLYAKOV, A.Q.; KOBRIN, M.M.; TSEYTLIN, N.M.

Fourth All-Union Conference on Radio Astronomy. Izv. vys. ucheb.  
sav.; radiofiz. 6 no.4:861-869 '63. (MIRA 16:12)

POLOTSKIY, A.; ROBIN, S.

Prospective development of the mixed feed industry in Kazakhstan.  
Muk.-elev. prom. 24 no.7:18 JI '58. (MIRA 11:10)

1. Glavnoye upravleniye mukemel'noy, krupyanoy i kombikormovoy promyshlennosti Ministerstva khleboproduktov Kazakhskoy SSR.  
(Kazakhstan--Feed mills)

KOBRIN, V.A.

Semiautomatic pipette (PAP-1). Apt. delo 9 no. 5:61-63 S-0 '60.  
(MIRA 13:10)

1. Kafedra tekhnologii lekarstv i galenovykh preparatov Pyatigorskogo  
farmatsevticheskogo instituta (sav. - prof. I.A. Murav'yev).  
(PHARMACY—EQUIPMENT AND SUPPLIES)

KOBRIN, V.A. [Kobrin, V.O.]

New model of the standard graduated pipette. Farmatsev. zhur. 19 no.  
4:6-11 '64. (MIRA 17:11)

1. Pyatigorskiy farmatsevticheskiy institut.

**KVESH, L.D., insh.; KOTOV, B.I., insh.; KOBRIK, V.M., insh.**

Converter steel produced by means of an oxygen blow. Met.  
proisv. no.1:8-31 '59. (MIRA 13:6)

1. Zavod "Krasnyy kotel'shchik."  
(Bessemer process)  
(Oxygen--Industrial applications)

TROSHCHENKO, A.T., KOBRIN, V.S.

Chemical composition of *Saussurea frolovii*, Ldb. Part 1:  
Saussureol, triterpene alcohol. *Khim.prirod.socd.* no.4:  
256-262 '65.

(MIRA 1961)

1. Novosibirskiy institut organicheskoy khimii Sibirskogo  
otdeleniya AN SSSR. Submitted March 1, 1965.

KOBRIN, V.U.; PEREVOZCHIKOV, S.N.; SHAPIRO, A.S., starshiy master

Noncontact back current relay for multiple-unit rail cars.  
Elek. i tepl. tiaga no.6:21 Je '62. (MIRA 15:7)

1. Rukovoditeli grupp nauchno-issledovatel'skogo otdela  
Leningradskogo instituta inzhenerov shelezhdorozhnogo transporta  
(for Kobrin, Perevoschikov). 2. TSekh tekushchego remonta depo  
Leningrad-Finlyandskiy (for Shapiro).

(Railroad motorcars)  
(Railroads—Electric equipment)  
(Electric relays)



KOBRIN, Ya.

Need for an error correction in the price for leather raw materials  
in the 31-01 price list. Mias.ind.SSSR 34 no.3:37-38 '63.

1. Volgogradskiy myasokombinat.

(MIRA 16:7)

NIKOLENKO, L.N.; YEREMINA, O.I.; KARPOVA, Ye.N.; MIKHAYLOVA, I.F.;  
KOBRINA, L.S.

Synthesis and properties of acid monoazo dyes. Zhur.prikl.khim.  
33 no.7:1617-1623 J1 '60. (MIRA 13:7)  
(Azo dyes)

NIKOLENKO, L.N.; KARPOVA, Ye. N.; KOBRINA, L.S.

Aromatic compounds with a long side chain. Part 6: Synthesis  
of *p*-*sec*-alkylanilines. Zhur. ob. khim. 31 no.4:1266-1269  
Ap '61. (MIRA 14:4)

1. Moakvoskiy khimiko-tehnologicheskiy institut imeni D. I.  
Mendeleeva.

(Aniline)

**YAKOBSON, G.G.; KOBRINA, L.S.; RUBINA, T.D.; VOROZHTSOV mladshiy, M.N.**

**Aromatic nucleophilic substitution. Part 1: Amination of poly-chlorobenzenes. Zhur.ob.khim. 33 no.4:1273-1277 Ap '63.  
(MIRA 16:5)**

**1. Novosibirskiy institut organicheskiy khimii Sibirakogo otdeleniya AN SSSR.**

**(Benzene)**

**(Amination)**

KOBRINA, L.S.; YAKOBSON, O.O.

Aromatic nucleophilic substitution. Part 2: Pentachlorophenol,  
pentachlorothiophenol, and their methyl ethers. Zhur.ob.khim.  
33 no.10:3309-3312. O '63. (MIRA 16:11)

1. Novosibirskiy institut organicheskoy khimii Sibirskogo ot-  
deleniya AN SSSR.

SEMIN, G.K.; ROBAS, V.I.; KOBRINA, L.S.; YAKOBSON, G.G.

Nuclear quadrupole resonance spectra of  $C^{13}$  and  $Br^{79}$  of halo derivatives of benzene of the  $C_6X_5Y$  types. Zhur. strukt. khim. 5 no.6:915-918 N-D '64. (MIRA 18:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

YAKOBSON, G.G.; KURINA L.S.; VOSENETSOV P.D.; Ishiy, N.N.

Aromatic nucleophilic substitution. Part 4: Reaction of  
pentachloro derivatives of benzene with sodium ethylate.  
Zhur. ob. khim. 35 no.1:137-141 Jan '65.

(MIRA 18:2)

1. Institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

YAKOBSON, G.G.; KOBRINA, L.S.; BELOVA, L.F.; VOROZHTSOV mladshiy, N.N.

Aromatic nucleophilic substitution. Part 5: Reaction of polychloro-  
benzenes with an aqueous solution of dimethylamine. Zhur. ob. khim.  
35 no.1:142-145 Ja '65. (MIRA 18:2)

1. Novosibirskiy institut organicheskoy khimii Sibirakogo otdeleniya  
AN SSSR.





BEHJA, Zh. [Benoit, J.]; LNERJA, P.; VENDERLI, K.; VENDERLI, R.;  
KOBHMA, M.B. [translator]

Phenotypes of the bill of the first and second generation  
Pekin ducks given injections of desocytiribonucleinic acid from  
Khaki-Campbell ducks. *Agrobiologii* no.1:131-133 Ja-F '59.  
(MIRA 12:4)

1. Laboratoriya gistofiziologii Kollesh-de-Frans, i Laboratoriya  
fotobiologii Natsional'nogo nauchno-issledovatel'skogo tsentra,  
Parish; Nauchno-issledovatel'skiy institut markomolekul  
Natsional'nogo nauchno-issledovatel'skogo tsentra, Strasburg.  
(Duck breeding) (Nucleic acids)

VUKALOVICH, M.P.; GROMOV, N.K.; IMRITSKIY, M.I.; KARTOSHKIN,  
M.D.; KOERINA, R.B.; LEONOVA, A.Ya.; TROYANSKIY, Ye.A.;  
MANUYLOV, P.N.; SHUKHER, S.H., red.

[Heat engineer's handbook] Spravochnaya knizhka teplo-  
tekhnika. Izd.2., perer. i dop. Moskva, Energiya, 1964.  
287 p. (MIRA 17:12)

DUBINSKIY, R.A.; KOBRINA, Ye.L.

Determination of the gravimetric dust concentration in the air using  
a photoelectrocolorimeter. Lab. delo 8 no.3:47-50 Mr '62.

(MIRA 15:5)

1. Laboratoriya kurortnoy gigiyeny (zav. R.A.Dubinskiy) Gosudarstvennogo  
nauchno-issledovatel'skogo bol'neologicheskogo instituta (dir. P.G.  
TSarfis), Pyatigorsk.

(DUST)

(COLORIMETRY)

GONCHAROVA, I.A.; KOCHAROVA, N.N.; KOBRINA, Yu.P.; ZVIGUR Ye.S.

Effect of yeastlike fungi on the yield and quality of baker's yeast. Mikrobiologiya 34 no.1:157-162 Ja-F '65.

(MIRA 18:7)

1. Leningradskiy meshotraslevoy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti.

ROMANKOVA, A. G.; KOBRINA, Yu. P.

Antagonistic properties of *Penicillium* from various systematic groups. *Mikrobiologiya* 24 no.1:73-74 Ja-P '55. (MLRA 8:4)

1. Biologicheskii institut Leningrafskogo gosudarstvennogo universiteta im. A. A. Zhdanov.  
(PENICILLIUM, antagonists)

DANILIN, Boris Stepanovich; TSEYTLIN, A.B., nauchnyy red.; KOBRINSKAYA,  
M.V., red.; GOROKHOV, Yu.N., tekhn.red.

[Vacuum and its applications] Vakuum i ego primeneniye. Moskva,  
Vses.uchebno-pedagog.izd-vo Trudreservizdat, 1958. 87 p.  
(Vacuum apparatus) (MIRA 12:4)

**NAKHUTIN, Isaak Pinkusovich; KUZNETSKIY, Gennadiy Ivanovich; SMIRNOV, B.V., nauchnyy red.; KOBRINSKAYA, M.V., red.; NEMYSLOVA, L.M., tekhn. red.**

**[Manual on practical problems in electrical engineering] Posobie dlia prakticheskikh zadaniy po elektrotekhnike. Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 66 p. (MIRA 14:8)  
(Electric engineering—Handbooks, manuals, etc.)**



GETLING, Boris Vladimirovich; BARANOVSKIY, M.A., nauchnyy red.; KOPYLOV, V.P., nauchnyy red.; KOBRINSKAYA, M.V., red.; TOKER, A.M., tekhn. red.

[Reading circuits and diagrams of electrical systems] Chtenie skhem i chertezhei elektroustanovok. Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 195 p. (MIRA 14:8)  
(Electric circuits) (Electric networks)

SEREBRYAKOV, Aleksey Alekseyevich; YANKOVSKIY, Konstantin Arten'yevich;  
PLESHKIN, Mikhail Mikhaylovich; LEVITSKIY, V.S., nauchnyy red.;  
BABULIN, N.A., nauchnyy red.; BARANOVSKIY, M.A., nauchnyy red.;  
KOBRYNSKAYA, M.V., red.; PERSON, M.N., tekhn. red.

[Mechanical drawing] *Cherchenie. 6., ispr. izd. Moskva, Vses.  
uchebno-pedagog.izd-vo Proftekhizdat, 1961. 225 p. (MIRA 14:11)*  
(Mechanical drawing—Study and teaching)

ENGEL'-KHON, Igor' Vladimirovich; MOLOCHEK, V.A., nauchnyy red.;  
KOBINSKAYA, M.V., red.; PERSON, M.N., tekhn. red.

[Mechanic's manual for repairing turbine and chemical shop  
equipment] Slesar' po remontu oborudovaniia turbinnykh i khi-  
micheskikh tsekhov. Moskva, Proftekhizdat, 1962. 291 p.  
(MIRA 16:2)  
(Electric power plants--Equipment and supplies)

VINOGRADOV, Nikolay Vladimirovich; KLOKOV, B.K., nauchn. red.;  
KOBRIKSKAYA, M.V., red.; NESVYSLOVA, L.M., tekhn.red.

[Electrician's manual on the repair of electrical machines]  
Elektroslesar' po remontu elektricheskikh mashin. Moskva,  
Proftekhizdat, 1963. 239 p. (MIRA 16:9)  
(Electric machinery--Maintenance and repair)

MINSKER, Yefim Grigor'yevich; ANSHIN, Vladimir Shayevich;  
KOBRINSKAYA, M.V., red.

[Assembly of oil-filled transformers] Sborka maslianykh  
transformatorov. Moskva, Vysshaya shkola, 1964. 252 p.  
(MIRA 17:5)

1. Rabotniki Moskovskogo elektrozavoda in. Kuybysheva (for  
Minsker, Anshin).

MATVEYEV, Arkadiy Arkad'yevich; BORISOV, Dmitriy Mikhaylovich;  
BARANOVSKIY, M.A., nauchn. red.; SIDOROV, N.I., nauchn.  
red.; KOBRINSKAYA, M.V., red.

[Mechanical drawing] *Cherchenie*. 4. perer. i dop. izd.  
Moskva, Vysshaya shkola, 1964. 311 p. (MIRA 18:2)

FRUSLIN, Zalman Mendeleovich, kand. tekhn. nauk; MIRNOVA, Margarita  
Aleksandrovna, inzh.; OSHER, D.N., nauchn. red.;  
KOBRINSKAYA, M.V., red.

[Radio engineering and electronics] Radiotekhnika i elekt-  
ronika. Moskva, Vysshaya shkola, 1965. 370 p.

(MIRA 18:3)

VINOGRADOV, Nikolay Vladimirovich; ATABEKOV, V.B., nauchn. red.;  
KOBINSKAYA, M.V., red.

[Electric machinery winder] Obmotchik elektricheskikh ma-  
shin. 6. izd., perer. i dop. Moskva, Vysshaya shkola,  
1965. 342 p. (MIRA 18:7)



TRUNKOVSKIY, Lazar' Yemel'yanovich; KHRUMCHENKO, O.Ye., nauchn.  
red.; KOBRINSKAYA, M.V., red.

[Maintenance electrician of industrial electric power  
systems] Elektromonter po ekspluatatsii promyshlennykh  
elektroustanovok. Moskva, Vysshaya shkola, 1965. 363 p.  
(MIRA 18:8)

BRAYNES, S.M., prof., red.; MAPALKOV, A.V., red.; KONEV, S.V., red.;  
KORZHOV, V.A., red.; FEDYANIN, G.P., red.; KOBRINSKAYA, O.Ye.,  
red.; KUCHINA, Ye.V., red.

[Problems in experimental pathology; collection of articles from  
the experimental pathology laboratory] Voprosy eksperimental'noi  
patologii; sbornik rabot laboratorii eksperimental'noi patologii.  
Pod obshchimi red. S.M.Brainsa. Moskva, 1959. 339 p.

(MIRA 14:2)

1. Akademiya meditsinskikh nauk SSSR. Institut psikiatrii.  
(NERVOUS SYSTEM--DISEASES)

*Кобрина Скныа, О. Я.*

Report presented at the Moscow University Institute on Operations during 1951-59  
Annual year (under direction of A. N. Logunov)  
Approved in Publishing Committee, No. 3, 1960, p. 173

- 1. A. B. Mal'nev, Second International Congress on Operations (3 March 1951) contents of the paper were published in the second issue of *Elektronika* in the "Reviews" section.
- 2. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 3. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 4. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 5. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 6. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 7. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 8. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 9. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).
- 10. A. B. Mal'nev, Report on the results of the 10th (14 December 1954) session of the Scientific Council of the Academy of Sciences (11 October 1954).

L 10939-67 EWT(d)/EWP(1) IJP(c) BB/GO/GD

ACC NR: AT6022291

SOURCE CODE: UR/000J/66/000/000/0039/0044

AUTHOR: Bushara, I. V.; Kobrinskaya, O. Ya.; Muchnik, I. B.

39

ORG: none

TITLE: An approach to the study of visual image formation processes

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya bioniki. Doklady. Moscow, 1966, 39-44 and pages 123-124

TOPIC TAGS: bionics, model, vision, perception, pattern recognition

ABSTRACT: Although perception is a classic problem of psychology, it has been only recently simulated, particularly in connection with visual observations. Among the various approaches, the one due to E. M. Braverman (Avtomatika i telemekhanika, 1962, t. 23, No. 3) is connected with the compactness hypothesis. The paper presents a brief outline of this compactness hypothesis, and on the basis of 24 Soviet and foreign references it surveys the advances in this field of simulating visual image perception.

SUB CODE: 06/ SUBM DATE: 08Apr66/ ORIG REF: 011/ OTH REF: 013

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L 46101-66

EWT(d)/T/EWP(1)

IJP(c)

BB/GG/GD/JXT(CZ)

ACC NR: AT6022679

SOURCE CODE: UR/0000/66/000/000/0106/0112

AUTHOR: Kobrinakaya, S. Ya.; Kolesova, I. V.; Kuchina, Ye. V.; Muchnik, I. B.

ORG: none

39  
B-1

TITLE: Experiments on the differentiation of groups of compact images

SOURCE: Moscow. Institut avtomatiki i telemekhaniki. Samoobuchayushchiyaya avtomaticheskaya sistema (Self-instructing automatic systems). Moscow, Izd-vo Nauka, 1966, 108-112

TOPIC TAGS: optic image, pattern recognition

ABSTRACT: The results of image perception experiments on animals and humans, conducted by the Biocybernetics Laboratory of the Institute im. Vishnevskiy and Laboratory No. 25 of the Institute of Automation and Telemechanics are described. In tests on both animals and humans, inkblot cards with various images were used. The animals were placed on a laboratory rig (similar to that developed by Sutherland) and confronted with a choice of one of two cards from groups A and B. The selection of inkblot cards from group A was the approved response; upon selecting group B, the animal was punished with an electric shock. Results on conditioned response and differential learning rates are graphed. The human test subjects were confronted with 10 inkblots (5 from group A and 5 from group B) and instructed to divide the inkblot images into two groups according

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L 46101-66

ACC NR: AT6022679

to common features. The subjects were drawn from children of pre-school age through the eighth grade of secondary school. Test results for the various groups are graphed. The authors conclude that the sense of differentiating between two groups of compact images can be developed in both man and animals. Orig. art. has: 6 figures. [14]

SUB CODE: 05/      SUBM DATE: 02Mar66/      ORIG REF: 001/      ATD PRESS: 5085

Card 2/2      blg

VISHIK, S.M.; KOBRINSKIY, A.A.; ROZENTAL', A.L. (Moscow)

Dividing partitions for a finite system of measures. Teor.  
veroiat. i ee prim. 9 no.1:165-167 '64. (MIRA 17:4)

KOBRINSKIY, A. Ye., Engr.

Cand. Tech. Sci.

Dissertation: "Influence of the Elasticity of Links on the Kinematics of Certain Cam Gears." Inst of Machine Studies, Acad Sci USSR, 12 Mar 47.

SO: Vechernyaya Moskva, Mar, 1947 (Project #17836)



25(7)

SOV/25-59-2-5/48

AUTHOR: Kobrinskiy, A.Ye., Doctor of Technical Sciences

TITLE: Program-Controlled Machines (Stanki s programmymupravleniyem)

PERIODICAL: Nauka i zhizn', 1959, Nr 2, p 12-16 and p 1 of centerfold (USSR)

ABSTRACT: The author gives a description of the working organism of a program-controlled milling machine of the block type. By way of comparison he also deals with specialized and copying machines. He says that the ever-increasing automation in production (at Avtomaticheskiy zavod porshney (Automatic Piston Plant), which was put into operation in 1950, produces more than 2 million pistons per year; the Pervyy podshipnikovyy zavod (First Bearing Plant) in Moscow has an annual output of more than 1 million bearings) as well as the continually

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Program-Controlled Machines

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changing requirements in the fields of aviation, electronics, radio engineering, etc. account for the growing importance of program-controlled machines, which combine the general quality of mass-producing machines with the individual advantage of a possible swift and thorough change in the production program. The program-controlled machines surpass the copying machines, whose models are rather time-consuming and expensive. The block-system type machine, as exhibited by the author, consists of four assemblies or units and the body of the machine. The program unit is an installation, by means of which the program carrier is put into operation. In recent Soviet models the program is recorded on a magnetic tape in the form of separate magnetized sections (shtrikhi - facsimile records). The "reading" of the program signals and their transformation into electric impulses is performed by magnetic

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Program-Controlled Machines

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heads (golovki), which direct the impulses to the control unit, the functions of which are extremely complicated and consist mainly in the deciphering of the impulses and their adequate transforming to control the power sources and the implementing mechanisms of the machine. The latter constitute the third unit. An "active control", based on a feedback system, is exercised by the fourth unit. The basic element of this unit is a "feeler", with the aid of which the measurements of the work piece are determined during the machining process. If the machined piece itself cannot be measured, then the angles of rotation or displacement of the machine parts, on the precision of whose movement the quality of the machining process depends, will be determined. Such parts are, for instance, the tables of jig, boring and milling machines. The results of the measurements of the active control unit are transformed into electrical

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Program-Controlled Machines

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signals, which are directed to the already mentioned control unit (second unit). This unit, therefore, has to accomplish a double function, which on the one hand consists in the accomplishment of the above-mentioned task and on the other hand in the reception and processing of the signals from the active control unit. These two functions are performed simultaneously, so as to utilize immediately the corrections of the active control unit in the directions given to the implementing mechanisms and to reduce the errors of the machining process to a minimum. The article will be continued in Nr 3 of the journal. There are 2 photos, and 4 sets of diagrams.

Card 4/4

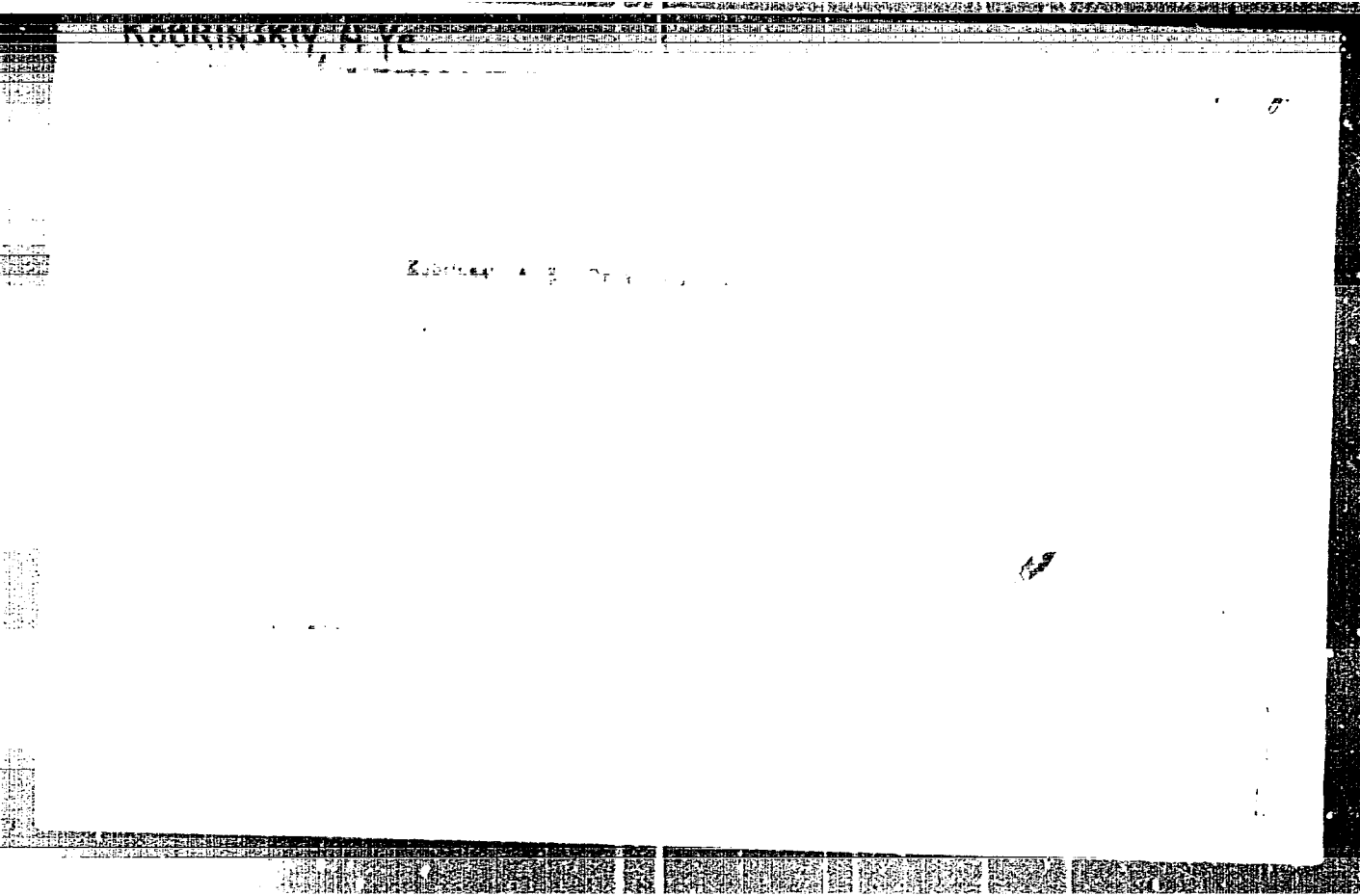
BRUNSHTEYN, R.Ye.; KORINSKIY, A.Ye.

Dynamics of a nonlinear element with backlash. Trudy Inst.  
mash.Sem.po teor.mash. 19 no.75:31-48 (MIRA 13:1)  
(Automatic control) (Mechanical movements)

KOBRINSKIY, A. YE.

Kobrin'skiy, A. Ye. "Dynamic loads in caged mechanisms with flexible push rods", Trudy Seminara po teorii mashin i mekhanizmov (Akad. nauk SSSR, In-t mashinovedeniya), Vol. VI, Issu# 24, 1949, p. 27-46.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statoy, No. 23, 1949).



KOERINSKIĬ, A. Y. E.

Proektirovanie samotormoziaashchikh oksentrikov. (Vestn. Mash., 1950,  
no. 12, p. 12-15)

Design of self-braking cams.

DIC: TM4.VL

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library  
of Congress, 1953.



KOBRINSKIY, A.Ye.

Some problems of the dynamics of mechanisms with resilient connections.  
Trudy Sem.teor.mash. 12 no.48:2)-86 '52. (MLRA 6:6)  
(Machinery, Kinematics of)

KOBRINSKIY, A.Ye.

Conference on the problems of design and calculation of devices for the  
automatisation in lathe and grinding operations. Izv.AN SSSR Otd.tekh.nauk  
no.10:1502-1503 0 '53. (MIRA 6:11)  
(Lathes) (Grinding and polishing)

ARTOBOLNYSKIY, I.I.; GERTS, Ye.V.; KOBRIYSKIY, A.Ye.; RAYEVSKIY, N.P.

~~XXXXXXXXXXXXXXXXXXXX~~  
Dynamics of pneumatic machinery. Trudy Sem.teor.mash, 13 no.51:60-85  
'53. (MLBA 7:1)  
(Pneumatic tools)

USSR/Engineering - Scientific Organization

FD-1136

Card 1/1 Pub. 41-17/17

Author : (1) Kobrinskiy, A. Ye. and (2) Anonymous

Title : In scientific establishments of the Department of Technical Sciences of the Academy of Sciences of the USSR

Periodical : Izv. AN SSSR. Otd. tekhn. nauk 6, 157-160, Jun 1954

Abstract : (1) First conference on basic problems of the theory of machines and mechanisms in the Institute of Machine Studies of the Academy of Sciences of the USSR, 14-16 June 1954. Gives authors, report titles and summaries, and affiliations. (2) Results of conference of the Section on Soil Mechanics of the Commission on Problems of Construction of the Department of Technical Sciences of the Academy of Sciences of the USSR, 6 April 1954, devoted to coordination of scientific research programs on soil mechanics. Gives conference activities and conclusions.

Institution :

Submitted :

USSR/Engineering - Tool design

Card 1/1 : Pub. 128 - 11/38

Authors : Kobriniski, A. E. *Cand. Tech. Sci.*

Title : The working principle and a brief theory of the vibration damper designed by D. I. Ryzhkov

Periodical : Vest. mash. 9, 41-44, Sep 1954

Abstract : A description is presented of a damper design for high-frequency tool chatter. The damping action is due to impact of a secondary mass inside a simple vibration system attached to the tool. A numerical example shows a vibration reduction from 170 microns to 60 microns. Nine references: 8 USSR; 1 English (1944-1953).

Institution : .....

Submitted : .....

LEVINSON, Lev Yefimovich; ~~KORINSKIY, A.Ye.~~, doktor tekhnicheskikh  
nauk, redaktor; SVESHNIKOV, G.N., Kandidat tekhnicheskikh  
nauk, redaktor; ZHAMENSKIY, A.A., redaktor; OSTRIROV, N.S.,  
tekhnicheskii redaktor

[Theoretical mechanics with elements of the theory of mecha-  
nisms] Teoreticheskaya mekhanika s elementami teorii mekha-  
nizmov. Moskva, Vses. uchebno-pedagog. izd-vo Trudreservisdat,  
1955. 447 p.

(Mechanics)

(MIRA 9:3)

KOBRINSKIY, Aron Yefimovich

Academic Degree of Doctor of Technical Sciences, based on his defense, 25 May 1955, in the Council of the Inst of Machine Building, Acad Sci USSR, of his dissertation entitled: "Certain questions of dynamics of plane mechanisms with flexible joints."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 24, 26 Nov 55, Byulleten' MVO SSSR, No. 20, Oct 57, Moscow, pp 22-24, Uncl. JPRS/NY-471

ARTOBOLVSKIY, I.I.; GERTS, Ye.V.; KOBZINSKIY, A.Ye.; RAYVSKIY, N.P.

Theoretical and experimental investigation of pneumatic drive for  
welding machines. Trudy Sem. po teor. mash. 14 no.56:5-19 '55.  
(Pneumatic machinery) (Welding) (MIRA 8:7)



KOBRINSKIY, A.Ye., kandidat tekhnicheskikh nauk; GERTS, Ye.V., kandidat tekhnicheskikh nauk.

Dynamics of pneumatic piston drives. Vest.mash. 35 no.12:7-11 '55. (MLRA 9:5)

(Machine tools--Pneumatic driving)

KOBRINSKIY, A. Ye.

Vibrations in a moving two-body system with intermittent collisions.  
Izv. AN SSSR. Otd. tekhn. nauk no. 5:113-121 Ny '56. (MLRA 9:8)  
(Vibration)

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 18 (USSR) SOV/124-57-5-5228

AUTHOR: Kobriniski, A. Ye.

TITLE: Some Problems of the Dynamics of Mechanisms With Elastic Connections (Nekotoryye voprosy dinamiki mekhanizmov s uprugimi svyazyami. III)

PERIODICAL: Tr. Seminara po teorii mashin i mekhanizmov In-ta mashinoved. AN SSSR, 1956, Vol 16, Nr 61, pp 23-50

ABSTRACT: Continuation of a previous work by the author (Tr. Seminara po teorii mashin i mekhanizmov In-ta mashinoved. AN SSSR, 1952, Nr 48, and RZhMekh, 1954, abstract 3979) on the subject of the study of mechanisms with elastic connections operating under conditions corresponding to those created by vibrating supports or those created by the action of a pulsating force. The paper analyzes a case when the gaps (backlash) in the kinematic pairs are not negligibly small but are of such a size that their effect on the behavior of the system cannot be ignored. In the presence of such gaps the problem of dynamic investigation becomes essentially nonlinear and the linear equations remain valid only for separate intervals of the motion. A study of dynamic

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Some Problems of the Dynamics of Mechanisms With Elastic Connections SOV/124-57-5-5228

models proves to be the most expedient method of solving the problem. For a mechanism with a single gap the simplest general model is a system of two different masses pressed together by springs of different degrees of stiffness clamped to a support. The author has found the conditions required for the following two different modes of operation: When the motion is accomplished without separations and when a separation between the masses does take place. The possibility of the existence of a stable periodic motion in the presence of separations is demonstrated. Tests conducted on a model in the form of two small cantilever beams of different stiffness placed on a vibrating table and loaded with different loads pressed together have confirmed the theoretical formulas obtained.

V. N. Geminov

Card 2/2

*А.С.БЕРИДО*  
BERIDO, M.G.; KHRETSKIY, A.Ye.; RESUTASHNOV, V.K.

Program control systems used in milling machines. Stan.i instr.  
27 no.12:9-12 D '56. (MLRA 10:2)  
(Milling machines--Numerical control)

~~КОЗЛОВ~~ ~~Александр Яковлевич~~, доктор технических наук; ISLANKINA, T.P.,  
редактор; GUBIN, M.I., технический редактор.

[Programmed control of metal cutting machine tools] Programmoe  
upravlenie metalloreshushchimi stankami. Moskva, Izd-vo "Znanie,"  
1957. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniю politi-  
cheskikh i nauchnykh snanii. Ser.4, no.16) (MIRA 10:11)  
(Machine tools) (Automatic control)

**AUTHOR:** Kobrinskiy, A. Ye. (Moscow).

24-5-2/25

**TITLE:** On the theory of impact damping. (K teorii udarnogo vibrogasheniya).

**PERIODICAL:** "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk",  
(Bulletin of the Ac.Sc., Technical Sciences Section),  
1957, No.5, pp.15-29 (U.S.S.R.)

**ABSTRACT:** Free and forced vibrations of an elastic system, provided with an impact damper, are considered. Experiments are described whereby these calculations were tested. The mechanical system is shown in Fig.1. This consists of a hollow cylinder (mass  $M$ ) with closed ends. The cylinder contains a ball (mass  $m$ ) whose diameter is equal to the internal diameter of the hollow cylinder. The cylinder is attached to a spring (spring constant  $K_M$ ). Friction between the cylinder and the ball is neglected. The cylinder moves with one degree of freedom on a smooth horizontal table, the axis of the cylinder being also horizontal. Periodic motion of this system, which is characterised by successive collisions of the ball with the left and right faces of the cylinder, are analysed subject to the condition that during a single period of  $M$  only two collisions between  $M$  and  $m$  take place. All friction

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On the theory of impact damping. (Cont.) 24-5-2/25

is neglected and the coefficient of restitution is taken equal to unity. It is assumed that as a result of an initial excitation a periodic free motion of the above type is taking place and its frequency is calculated. As is known, between collisions the cylinder moves according to

$$x_M = x_{|M} \cos (\omega_M t + \phi_M), \quad \omega_M = \sqrt{\frac{k_M}{M}} \quad (1.1)$$

and the ball according to

$$x_m = \pm [(x_c + r) - ut] \quad (1.2)$$

The boundary conditions for the first interval are:

$$x_M = x_c, \quad x_m = x_c + r, \quad \dot{x}_M = v_2, \quad \dot{x}_m = -u, \quad \text{at } t = 0$$

$$\dot{x}_M = -x_c, \quad x_m = -(x_c + r), \quad \dot{x}_M = v_1, \quad \dot{x}_m = -u, \quad \text{at } t = \frac{\pi}{\omega_M}$$

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where  $\omega^*$  is the frequency of free vibrations of the system. The boundary conditions for the second interval are:



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$$x_M = -x_0, \quad x_m = -(x_0 + r), \quad \dot{x}_M = -v_2, \quad \dot{x}_m = u \quad \text{at } t = \frac{\pi}{\omega^*}$$

$$x_M = x_0, \quad x_m = x_0 + r, \quad \dot{x}_M = -v_1, \quad \dot{x}_m = u \quad \text{at } t = \frac{2\pi}{\omega^*}$$

Substituting these boundary conditions into the first equation above one has

$$\phi_M = \frac{\pi}{2} (1 - \zeta_M^*), \quad \zeta_M^* = \frac{\omega_M}{\omega^*}$$

$$v_2 = v_1 = v$$

From the conservation of momentum

$$v = \frac{u}{\mu}, \quad \mu = \frac{M}{m}$$

Hence, finally,

$$x_M = \frac{u}{\mu \omega_M \cos \pi/2 \zeta_M^*} \sin (\omega_M t - \pi/2 \zeta_M^*) \quad (1.3)$$

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$$\text{and} \quad u = \frac{2(x_0 + r)\omega^*}{\pi} \quad (1.4)$$

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$$-x_c = \frac{u}{\mu \omega_M} \operatorname{tg} \pi/2 \zeta_M^* \quad (1.5)$$

The last two equations contain three unknown ( $\omega_M^*$ ,  $u$ ,  $x_0$ ). The third equation is obtained from the balance of energy. The energy  $E_c$  of the system at the moment of  $M = m$  collision is given by:

$$E_c = \frac{k_M}{2} \left( x_c^2 + \frac{1 + \mu}{\mu} \frac{u^2}{\omega_M^2} \right)$$

and the energy at the moment of initial excitation  $E_0$  is given by

$$E_0 = \frac{k_M}{2} x_0^2$$

Hence  $E_c = E_0$

$$u = \omega_M \mu \sqrt{\frac{x_0^2 - x_c^2}{1 + \mu}} \quad (1.6)$$

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form by means of the substitutions:

$$\lambda^* = \frac{2}{\pi} \left( \frac{\sigma^*}{2} + \chi_c^* \right), \quad \chi_c^* = - \frac{\lambda^*}{\mu \zeta_M^*} \operatorname{tg} \frac{\pi}{2} \zeta_M^*, \quad \lambda^* = \zeta_M^* \mu \sqrt{\frac{1 - \lambda_c^{*2}}{1 + \mu}} \quad (1.7)$$

where  $\lambda^* = \frac{u}{x_0 \omega^*}$ ,  $\chi_c^* = \frac{x_c}{x_0}$ ,  $\sigma^* = \frac{2\pi}{x_0}$

Solving the system (1.7) one finds

$$\sigma^* = \frac{2 \operatorname{tg} \frac{\pi}{2} \zeta_M^* + \pi \mu \zeta_M^*}{\sqrt{\operatorname{tg}^2 \frac{\pi}{2} \zeta_M^* + (1 + \mu)}} \quad (1.8)$$

$$\lambda^* = \frac{\mu \zeta_M^*}{\sqrt{\operatorname{tg}^2 \frac{\pi}{2} \zeta_M^* + (1 + \mu)}} \quad (1.9)$$

$$\chi_c^* = \frac{\operatorname{tg} \frac{\pi}{2} \zeta_M^*}{\sqrt{\operatorname{tg}^2 \frac{\pi}{2} \zeta_M^* + (1 + \mu)}} \quad (1.10)$$

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Fig.2 shows graphs of  $\xi_M^*$  as a function of  $\sigma^*$ . For given  $\mu$  and  $\sigma^*$  there is an infinite number of solutions for  $\xi_M^*$  from (1.8). From these one must choose the solution corresponding to the present problem. Thus, all solutions giving  $\xi_M^* > 2$  can be excluded. The period of the collisions should be

$$T_{cd} = \frac{\pi}{\omega^*} = \frac{\pi}{\omega_M} \xi_M^* < \frac{2\pi}{\omega_M}$$

After the exclusion of the cases  $\xi_M^* > 2$  the motion can be unambiguously determined only after an analysis of stability. The special case  $\mu = 1$  is considered next and is illustrated in Fig.3. The stability problem is considered for  $\mu \rightarrow \infty$  and  $0 < R < 1$  where  $R$  is the coefficient of restitution. Arguments are put forward to support the result that the vibrations corresponding to  $1 < \xi_M^* < 2$  are stable. Next, the forced vibrations of the above system, under the action of a periodic force  $P_0 \cos \omega t$  are taken up. The steady state is assumed to be established. The boundary conditions are similar to those considered above for the "free" case. The effect of the clearance is considered. A model was constructed (Fig.8)

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