

32129

S/020/61/141/006/001/021

The stability of solutions of second ... C111/C333

$q(t)$ is of constant sign also necessary that

$$\int_0^{\infty} dt \int_0^t |q(s)| \exp\left(-\int_s^t p(\tau) d\tau\right) ds < \infty \quad (12)$$

is satisfied.

Assume that the coefficients of (7) satisfy the conditions

$$0 < m \leq q(t) \leq M, \quad p(t) \geq 1 > 0 \quad (10)$$

Let $x(t)$ be an oscillating solution of (7). Let t_n and t_{n+1} be neighboring maximum points of the absolute value. Then

$$\left| \frac{x(t_{n+1})}{x(t_n)} \right| < \varphi(l, m, M) = \begin{cases} \frac{\cos \gamma_2}{\cos \gamma_1} e^{-\left(\frac{n-\gamma_1}{l\sqrt{m}} + \frac{\gamma_2}{l\sqrt{m}}\right)} & \text{for } l < 2\sqrt{m}, \\ \frac{\operatorname{ch} \gamma_2}{\cos \gamma_1} e^{-\left(\frac{n-\gamma_1}{l\sqrt{m}} + \frac{\gamma_2}{l\sqrt{m}}\right)} & \text{for } l > 2\sqrt{m}. \end{cases} \quad (13)$$

Card 4/7

X

32419

S/020/61/14:/006/001/021

The stability of solutions of second ... C111/C333

Here it holds: $1/2\sqrt{m} = \cos \gamma_1$ ($0 < \gamma_1 < \frac{\pi}{2}$); $1/2\sqrt{m} = \cos \gamma_2$ ($0 \leq \gamma_2 < \frac{\pi}{2}$)

for $1 \leq 2\sqrt{m}$; $1/2\sqrt{m} = \operatorname{ch} \gamma_2$ for $1 > 2\sqrt{m}$.

Let $\Psi(1, m, M) = 0$ for $1 \geq 2\sqrt{m}$; $\Psi(1, m, M) = \varphi(1, m, M)$ for $1 < 2\sqrt{m}$.

Theorem 4: Assume that the coefficients of (7) satisfy the conditions (10), where

$$\Psi(1, m, M) \leq 1 \quad (14)$$

Then all solutions of (7) together with their derivatives are bounded on (t_0, ∞) .

Theorem 5: Assume that the coefficients of (7) satisfy the conditions (10) and

$$\int_0^{\infty} dt \int_0^t \exp\left(-\int_0^t p(\tau) d\tau\right) ds = \infty \quad (15)$$

Card 5/7

X

32425

S/020/61/141/006/001/021

The stability of solutions of second ... C111/C333

where

$$\Psi(1, m, M) < 1 \quad (15)$$

Then all solutions of (7) together with their derivatives tend to zero for $t \rightarrow \infty$.

Let h_0 be the root of the equation $\ln h \sqrt{4h-1} - 2 \arcsin \frac{1}{2\sqrt{h}} = \pi$.

Theorem 6: Let the coefficients of (7) satisfy the conditions

$$0 \leq q(t) \leq M, \quad p(t) \geq 1 > 0, \quad (18)$$

where

$$M \leq h_0 l^2. \quad (19)$$

Then all solutions of (7) together with their derivatives are bounded on (t_0, ∞) .

Theorem 7: Let the coefficients of (7) satisfy the conditions (9), (18),

where

$$M < h_0 l^2, \quad (20)$$

Card 6/7

32419

S/020/61/141/006/001/021

The stability of solutions of second ... C111/C333

Then all solutions of (7) together with their derivatives tend to zero for $t \rightarrow \infty$.

V. M. Starzhinskiy is mentioned; the author thanks M. A. Krasnosel'skiy.

There are 4 Soviet-bloc references.

PRESENTED: July 18, 1961, by A. N. Kolmogorov, Academician

SUBMITTED: July 10, 1961

Card 7/7

X

LEVIN, A.Yu.

Stability of solutions to second-order equations. Dokl. AN SSSR
141 no.6:1298-1301 D '61. (MIRA 14:12)

1. Predstavleno akademikom A.N.Kolmogorovym.
(Linear equations)

16 6500

41561
S/208/62/002/005/007/009
B112/B102

AUTHORS: Krasnosel'skiy, M. A., Levin, A. Yu. (Voronezh)

TITLE: Stabilization of solutions to optimum problems

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki,
v. 2, no. 5, 1962, 915-921

TEXT: A sequence of numbers c_1, c_2, \dots is said to be stabilized with respect to a given sequence of problems Z_1, Z_2, \dots if, for each n , the numbers c_1, c_2, \dots, c_n form a vector solution of the problem Z_n . Various types of problems are considered on lines similar to dynamical programming. One of them is the following: A set of continuous functions $x_{ij}(t)$ ($i = 1, 2, \dots, l; j = 1, 2, \dots$) fulfills the conditions $x_{ij}(0) = 0$, $x_{ij}(t) = 0$ or $x_{ij}(t) > 0$ for $t > 0$, $\sum_{i=1}^l x_{ij}(t) > 0$ for $t > 0$. A sequence of functions $x_i(t)$ satisfies the inequalities $x_i(t) < \max\{x_i(t_1), x_i(t_2)\}$ for

Card 1/2

S/208/62/002/005/007/009
B112/B102

Stabilization of solutions to...

$t_1 < t < t_2$. The problem X_n is to find n numbers $t_1 \geq 0, \dots, t_n \geq 0$ which maximize the expression

$$S_n(t_1, t_2, \dots, t_n) = x_1(t_1) + x_2(t_2) + \dots + x_n(t_n)$$

under the conditions

$$x_{11}(t_1) + x_{12}(t_2) + \dots + x_{1n}(t_n) \leq A_1,$$

$$x_{21}(t_1) + x_{22}(t_2) + \dots + x_{2n}(t_n) \leq A_2,$$

.....

$$x_{11}(t_1) + x_{12}(t_2) + \dots + x_{1n}(t_n) \leq A_n.$$

A_1, A_2, \dots, A_n are given positive numbers. It is shown that a stabilized sequence does not contain more than 1 non-vanishing terms. Criteria for stabilized sequences are derived for another type of problems.

SUBMITTED: March 3, 1962

Card 2/2

BESSMERTNYKH, G.A.; LEVIN, A.Yu.

Some evaluations of differentiable functions of a single variable.
Dokl.AN SSSR 144 no.3:471-474 My '62. (MIRA 15:5)

1. Voronezhskiy gosudarstvennyy universitet. Predstavleno
akademikom S.L.Sobolevym.
(Functions)

LEVIN, A.Yu.

Zero zone of stability. Dokl.AN SSSR 145 no.6:1221-1223 Ag
'62. (MIRA 15:8)

1. Voronezhskiy gosudarstvennyy universitet. Predstavleno
akademikom I.G.Petrovskim.
(Functional equations)

S/020/63/148/003/004/037
B112/B186

16.3/100

AUTHOR: Levin, A. Yu.

TITLE: Some problems bearing on the oscillation of solutions to linear differential equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 3, 1963, 512-515

TEXT: The equation

$$Lx = x^{(n)} + p_1(t)x^{(n-1)} + \dots + p_n(t)x = 0 \tag{1}$$

having the continuous coefficient p is considered. $M(c, k; d, l)$ designates the set of functions that are positive for $c < t < d$ and that vanish in the point c with a multiplicity not less than k and in the point d with not less than l . The infimum of the right-hand boundary of the oscillation interval, whose left-hand boundary is a , is coordinated to every point a as conjugated point \bar{a} . It is shown that equation (1) possesses a solution in the class $M(a, k; \bar{a}, n-k)$ for a determined k ($1 \leq k \leq n-1$). Besides this

✓

Card 1/2

Some problems bearing on the ...
and assuming

S/020/63/148/003/004/037
B112/B186

$$\int_a^b q_+(t) dt \ll 4^{n-1} (n-1)! / (b-a)^{n-1}$$

JK

the validity of the theorem by Chaplygin is proved for the operator
 $Lx + q(t)$.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet
(Voronezh State University)

PRESENTED: July 20, 1962, by A. N. Kolmogorov, Academician

SUBMITTED: July 17, 1962

Card 2/2

LEVIN, A.Yu.; STRYGIN, V.V.

Rapidity of convergence of the Newton-Kantorovich method. Usp.
mat.nauk 17 no.3:185-187 My-Je '62. (MIRA 15:12)
(Convergence)

BAKHTIN, I.A. (Voronezh); KRASNOSEL'SKIY, M.A. (Voronezh); LEVIN, A.Yu.
(Voronezh)

Determination of the extreme of a function on a polyhedron.
Zhur.vych.mat.i mat.fis. 3 no.2:400-409 Mr-Apr '63.

(MIRA 16:4)

(Functions) (Inequalities (Mathematics))

LEVIN, A.Yu.

Some problems bearing on the oscillation of solutions to linear differential equations. Dokl. AN SSSR 148 no.3:512-515 Ja '63.
(MIRA 16s2)

1. Voronezhskiy gosudarstvennyy universitet. Predstavleno akademikom A.N. Kolmogorovym.
(Differential equations, Linear)

KRASNOSEL'SKIY, M. A. (Voronezh); LEVIN, A. Yu. (Voronezh)

Stabilisation of solutions to problems of optimum control.

Zhur. vych. mat. i mat. fiz. 2 no.5:915-921 3-0 '62.

(MIRA 16:1)

(Automatic control)

L 9017-65 EWT(d)/T Pg-4 IJP(c)

ACCESSION NR: AR4043051

8/0044/64/000/006/4013/4013

SOURCE: Ref. zh. Matematika, Abs. 6465

AUTHOR: Levin, A. Yu. Shvarts, A. S. B

TITLE: A model for random search

CITED SOURCE: Tr. Seminara po funkts. analizu. Voronezhsk. un-t, vy*p. 7, 1963, 67-69

TOPIC TAGS: probable new approximation method, random search, geometric progression, random search model

TRANSLATION: The paper presents the solution of an interesting problem which the authors examine as a probable analogue of several approximation methods and which could also find a number of other application. Let M_0 be some convex body in a n -measuring space, x a point randomly projected below M_0 . In M_0 a point x_0 is selected at random, through which a plane is passed of random inclination. Then the same procedure is repeated with the part of M_0 lying on the same side of the plane as x , etc. As a result, a succession of convex bodies M_0, M_1, M_2, \dots which

Card 1/3

L 9017-65

ACCESSION NR: ABA043051

cluster around the point x appears. The authors prove that if $n \rightarrow \infty$ the volume of the bodies M_n will decline in a geometric progression, with the denominator equal to e^{-1} . This follows from the fact that under the assumed conditions the random values ms^{x_n} are independent in the aggregate and distributed

--ln-----

according to the exponential law with a mathematical expectation equal to $\frac{1}{2}$. Annotation of the reviewer. 1. The result of the paper is not valid, because of the following more general model for the search. Let

$$n \geq 0 \{R_n^{(n)}\}$$

be the family of sets to be measured, ordered according to the inclusion operation; the following applies to all

$$R_n \supseteq R_{n-1} \cup R_n^{(n)}$$

Then M_n is defined that that one of the sets

$$M_n = \bigcap_{x_n \in R_n^{(n)}} R_n^{(n-1)}, M_n \setminus \bigcup_{x_n \in R_n^{(n-1)}} R_n^{(n-1)}$$

L 9017-64
ACCESSION NR: AN-043051

which contains x . 2. - Several points $M \times M_0$ may be the centers of volume M_n with a velocity larger than the mean indicated velocity. Thus if $M_0 = (0,1)$, $x = 0$, then

$$P \left(\frac{mes M_n}{mes M_{n-1}} \rightarrow \sigma^{-1} \right) = 1.$$

I. Kovalenko

SUB CODE: MA

ENCL: 00

Card 3/3

L 12735-63

BDS/EWT(d)/FCE(w)

AFFTC

IJP(C)

8/208/63/003/002/014/014

56
53

AUTHOR: Bakhtin, I. A., Krasnosel'skiy, M. A., and Levin, A. Yu. (Voronezh)

TITLE: The localization of the extremum of a function¹⁶ on a polyhedron

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 3, no. 2, 1963, 400-409

TEXT: Algorithms for the solution of the problem stated in the title are as yet poorly developed since the application of the general methods of differential calculus demands an independent analysis of the function along all the sides of various scales. The authors divided the problem into three parts, 1) the search for (or estimate of) the largest scale of the side whose inner point can be an extremum point, 2) the discovery of that maximum side by sufficiently simple means, and 3) the location of the extremum point proper. The paper develops such a scheme for the special function

$$\Phi(x) = \sum_{j=1}^2 \prod_{i=1}^n a_{ij}^{x_{ij}} \tag{1}$$

Card 1/2

L 12735-63

S/208/63/003/002/014/014

The localization of

3

where $0 < \alpha_{ij} \leq 1$, on the polyhedron

$$x_{ij} \geq 0, \quad x_{i1} + x_{i2} + \dots + x_{in} = m_i \quad (i = 1, \dots, n) \quad (2)$$

and discusses cases with $n = 1$ and $n = 2$. The authors note that one of them (I. A. Bakhtin) completed the establishment of exact and approximate investigation method for the cases $n \leq 3$. The convergence of the processes presented in this paper were investigated by P. P. Zaborevko and Yu. V. Pokornyy. Ye. G. Gol'shteyn informed the authors that he completed the study of a similar approximation method for a wide class of functions, which contains function (1) as a special case.

SUBMITTED: March 3, 1962

Card 2/2

LEVIN, A.Yu.; PETUNIN, Yu.I.

Some problems connected with the concept of orthogonality in
Banach space. Usp. mat. nauk 18 no.3:167-170 My-Je '63.
(MIRA 16:10)

LEVIN, A.Yu.

Second-order linear differential equations. Dokl. AN SSSR
153 no.6:1257-1260 D '63. (MIRA 17:1)

1. Predstavleno akademikom I.N. Vekua.

LEVIN, A.Yu. (Voronezh)

Approximation for a function with a canonically arranged series of successive derivatives. Mat. zh. 64, no. 5:30-40, 71, 1971. (NBSA 17-12)

LEVIN, A. Yu.

Distribution of zeroes of the solutions to a linear differential equation. Dokl. AN SSSR 156 no.6:1281-1284 Je '64.

(MIRA 17:8)

1. Predstavleno akademikom N.N. Bogolyubovym.

S/0020/64/159/001/0013/0016

L 15632-65 EWT(d) Pg-4 IJP(a)
ACCESSION NR: AP4049121

AUTHORS: Levin, A. Yu.

TITLE: Fredholm equation with smooth kernel and boundary value problems for a linear differential equation

SOURCE: AN SSSR. Doklady*, v. 159, no. 1, 1964, 13-16

TOPIC TAGS: differential equation, Fredholm equation, boundary value problem

ABSTRACT: The author treats $x(t) = \lambda \int_a^b K(t,s)x(s) d\mu(s)$ ($a < t \leq b$) (1)
subject to $\|K(t,s)\| < C_1, \quad \forall K^{(m)}(t,s) < C_2$ (2)

where $m > 0$, differentiation and variation are in the first argument. The second of inequalities (2) is to be understood in the sense that $K^{(m)}(t,s)$, almost everywhere on the interval $a \leq t \leq b$, coincides with a function whose variation on this interval is $\leq C_3$. Continuity of $K^{(m)}(t,s)$ is not required, but it is assumed that $K^{(m-1)}(t,s)$ is absolutely continuous in t for almost all s . The author establishes some facts concerning the numerator and denominator of the Fredholm resolvent of (1) and proves an inequality giving lower bounds for

L 15632-65

ACCESSION NR: AP4049121

eigenvalues of (1). He then studies the Green's function for $Lx \equiv x^{(n)} + p_1(t)x^{(n-1)} + \dots + p_n(t)x = f(t) \quad (a < t < b), \quad (3)$

$$I_i(x) \equiv \sum_{k=0}^{n-1} a_{ik}x^{(k)}(a) + \int_a^b \lambda^{(n-1)}(t) dg_i(t) = \beta_i, \quad i = 1, 2, \dots, n. \quad (4)$$

He applies his results to $Lx = \lambda q(t)x, \quad I_i(x) = 0, \quad i = 1, 2, \dots, n,$ obtaining an improvement of results of A. O. Gel'fond (Prilozheniye k kn. U. V. Lovitt, Lineyny*ye integral'ny*ye uravneniya, 1957). He next treats $x^{(n)} + \lambda q(t)x = 0 \quad (a < t < b), \quad (6)$

$$x^{(n)} + \lambda q(t)x = 0 \quad (a < t < b), \quad (6)$$
$$x^{(n)} + \lambda q(t)x = 0 \quad (a < t < b), \quad (7)$$
$$x^{(k)}(a) = x^{(k-1)}(a) = \dots = x^{(k-1)}(b) = \dots = x^{(k-1)}(b) = 0 \quad (1 \leq k \leq n-1), \quad (7)$$

obtaining a formula for the sum of the reciprocals of the eigenvalues, which enables him to obtain a lower bound for the eigenvalue with smallest modulus. He establishes a result concerning non-existence of nontrivial solutions of $x^{(n)} + q(t)x = 0$ with a given number of zeros. He gives a condition that $x^{(n)} + q(t)x$ be non-oscillating. Finally, he strengthens certain results from a previous paper by M. A. Krasnosel'skiy (Polozhitel'ny*ye resheniya operatorny*kh uravneniy, M., 1962). Orig. art. has: 15 formulas.

Card 2/3

L 15632-65

ACCESSION NR: AP4049121

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: 08May64

ENCL: 00

SUB CODE: MA

NO REF SOV: 006

OTHER: 000

Card 3/3

YELBSIN, F.V.; LEVIN, A.Z.

Glass cutting without diamonds. Med.prom. no.3:41-42 J1-S '55. .
(MLRA 9:12)

1. Mediko-instrumental'nyy ordena Lenina zavod "Krasnogvardeyets."
(APPARATUS AND INSTRUMENTS,
glass cutting for)

CATEGORY : General problems of pathology. Internal. Experimental
Oncology
ABST. JOUR. : RBiol., No. 12 1958, No. 56345
AUTHOR : Levin, A.Z., Vrublevskaya, A.A.
: Krasnoyarsk Medical Institute
TITLE : Primary cancer of the ear

ORIG. PUB. : Sb. Nauchn. Tr. Krasnoyarsk. med. In-ta, 1955,
No.4, 229-232
ABSTRACT : Three cases are described of a rare localization
of cancer in the middle ear in patients aged
37, 38, and 53 years. The diagnosis of this can-
cer is very difficult, because of the location.
Only histologic studies demonstrated the malign-
ant character of the disease. Radical operation
yielded only a temporary palliation, and re-
currences and death followed soon after. In the
presence of chronic inflammation of the middle
ear with purulence and granulation, biopsy should
be performed regardless of the age of the patient.
-- G.A.Reynberg

CARD: 1/1

BLOKH, G.S.; LEVIN, A.Z.

Field inspection of soft roofing on industrial buildings.
Trudy NIIAsbesttsementa no.17:117-138 '63.

(MIRA 17:10)

LEVIN, B.

Payments for machines and equipment of capital construction.
Den.1 kred. 18 no.11:30-32 N'60.
(Building machinery) (Payment) (MIRA 13:11)

L 34848-65 EPA(s)-2/ERT(m)/EPF(c)/ENG(v)/EPR/EPA(w)-2/ETP(S) Pc-4/Pab-10/Pa-5/Pr-4/
ACCESSION NR: AP5008546 Ps-4/Pt-10 WM/RM S/0286/65/000/006/0061/0061

AUTHOR: Alekseyenko, V. I.; Pokrovskiy, N. I.; Mishustin, I. U.; Lebedev, Yu. I.;
Kudryavtsev, V. V.; Levin, B. I.; Abramzon, I. A.; Rektor, V. B.; Bernshevna, L. M.;
Kabanova, L. I.; Trubnikova, I. A.; Ismailyeva, A. A.; Lagarina, V. A.

TITLE: A method for producing insulating plastics, Class 39, No. 169246 15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 61

TOPIC TAGS: plastic insulator, polar polymer, nonpolar polymer

ABSTRACT: This Author's Certificate introduces a method for producing insulating plastics based on polyvinylchloride modified with rubber. The electrical insulation properties and heat resistance of the product are improved by using a mixture of polar and nonpolar rubbers as the modifiers with the addition of mineral fillers.

ASSOCIATION: none

SUBMITTED: 31Mar61

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: WT,OC

LEVIN, B.; KAMEGULOVA, F.; KUCHERENKO, M.

Several problems in applying credit and payment sanctions to enterprises and organisations. Den. i kred. 20 no.11:28-31 N '62.
(MIRA 16:1)

(Banks and banking)

ACC NR: AN7004561

SOURCE CODE: UR/9036/66/000/04I/0003/0003

AUTHOR: Levin, B. (Doctor of Physicomathematical Sciences)

ORG: None

TITLE: Dusty tropics of distant planets

SOURCE: Literaturnaya gazeta, 05Apr66, P. 3, col. 4-7

TOPIC TAGS: lunar surface, solar wind, lunar satellite / Luna-9
lunar satellite

ABSTRACT: The author attempts to clarify the confusion concerning the presence or absence of dust on the lunar surface, which he acknowledged should be present -- theoretically. In actuality, however, he concludes that there is no dust present, in our understanding of the concept, except in the atmosphere. It has been learned from vacuum physics that where there is no atmosphere dust is not "dusty". The reason for this is that dust particles under such conditions adhere to one another, rather than being loose. Dust is not cohesive on earth because each dust particle is surrounded by a layer of adhering air molecules. These prevent cohesion of the particles. This would not be true of the moon, and accordingly the particles become bonded together. As a result, dust particles as they fall and come into contact with other dust or other materials form a solid surface, although it may well be brittle and porous. The toughness of such a structure increases under bombardment by the solar wind. At the site of impact of a solar proton there is local heating of a tiny part of the surface which causes the evaporation of several atoms or molecules of matter; all this leads to cementing of the surrounding matter. The weight of "Luna-9", weighing 100 kg, equivalent to about 15 kg on the moon, revealed that there was no

Card 1/2

ACC NR: AN7004561

sinking into the lunar surface at all, thus indicating that the surface at the landing site was entirely solid enough for a fully equipped cosmonaut to be supported on the surface. The lunar surface is surprisingly black, reflecting only 5-7% of the light; laboratory simulation of the solar wind has shown that it is the influence of this factor which causes the blackening of the surface. [JPRS: 36,553]

SUB CODE: 03,22 / SUBM DATE: none

Card 2/2

LEVIN, B.A.

189T19

USSR/Electricity - Traction, Electric Starting Rheostats May 51

"The Calculation of the Steps of Starters of Electric Rolling Stock for a Changing Starting Current," B. A. Levin, Leningrad

"Elektrichestvo" No 5, pp 20-23

Proposes analytical method of calcg the steps of starting resistors for elec rolling stock for a changing starting current. Shows area of application of the method. Submitted 3 Nov 50.

18 T19

AUTHOR *Levin, B.A.*
 TITLE VOYTOVETSKIY V.K., LEVIN B.A., MARCHENKO E.V. PA - 2670
 Soft 15-800 keV Radiation Accompanying U^{235} Fission Induced by
 Thermal Neutrons. (Myakhkiye γ -izlucheniye v oblasti energii ot
 15 do 800 keV, soprovezhdayushcheye deleniy U^{235} teplovyimi
 neytronami.- Russian)
 PERIODICAL Zhurnal Eksperim. i Teoret, Fiziki 1957, Vol 32, Nr 2,
 pp 263 - 267 (USSR).
 Received: 5/1957
 ABSTRACT Experimental order: In a current of thermal neutrons an ionization
 chamber with U^{235} was fitted which registered fission fragments. Reviewed: 6/1957
 For the purpose of analyzing the amplitudes, the amplitudes of
 a scintillation counter which coincide with the fission fragments
 resulting from fission fragments are selected by means of a
 coincidence scheme and a "gate". The experimental order is
 discussed by on the basis of a graph. Measuring Results are well
 reproducible on the occasion of repeated measurements. $\sim 5, 10^3$
 acts of fissioning per sec were registered. A diagram illustrates
 the amplitude distribution of the momenta of these γ -rays which
 as regards time are correlated with the fragments within the
 energy interval 15 - 400 keV. Statistical accuracy of measurements
 amounts to 0,5 - 1,5 %. The photopeaks correspond to the energies
 27, 60, 101, 119, 142, 207, 295 and 360 keV. Measurements carried

CARD 1/2

89365

S/089/61/010/002/017/018
B102/B209

26.2242

AUTHORS:

Levin, B. A., Marchenko, Ye. V., Timoshuk, D. V.

TITLE:

The effect of inelastic neutron scattering in uranium on the slowing-down length in water

PERIODICAL: Atomnaya energiya, v. 10, no. 2, 1961, 177-179

TEXT: The present "Letter to the Editor" is a report on direct measurements of the effect of inelastic neutron scattering in uranium upon the slowing-down length in pure water. The measurements were carried out in spherically symmetrical geometry in order to exclude elastic scattering to a high degree. A 16-mm-diameter source shammed the fission neutron spectrum and was enveloped by 2-cm thick spherical shells of metallic uranium enriched in U^{235} . The mean square distance at which the neutrons emitted from the (point) source were slowed down to a certain energy, e. g. 1.46 ev, is given

by $\overline{r^2}_{In} = \int_0^{\infty} A(r)r^4 dr / \int_0^{\infty} A(r)r^2 dr$ (1), where $A(r)$ denotes the activity of the X

Card 1/5

89365

The effect of inelastic ...

S/089/61/010/002/017/018
B102/B209

indicator (indium foil in cadmium envelope) in dependence on the distance r from the source. In order to eliminate the effect of the size of the hollow sphere (in which the source was located) the r^2 measurements were made for various (with different radius a) uranium layers of equal thickness after which $r^2(a)$ was extrapolated to $a = 0$. The r^2 value obtained corresponded to a point source. The measurements were made in a tank (100 cm in diameter, 110 cm high) filled with water into which the spheres were immersed suspended by two 0.5-mm thick steel strings. The indium foils (70 mg/cm² thick, diameter of the effective areas 1.7 and 2.5 cm) were closed up in casings. The targets were exposed in two, at a distance of 8 cm. The activity of the foils was measured simultaneously from both sides by means of two lead-shielded scintillation counters (ϕ 3)-29(FEU-29)-type photomultipliers with stilbene crystals, diameter 32 mm, 1 mm thick). The sensitivity of the experimental arrangement was controlled by an Sr⁹⁰ preparation (it amounted to $\pm 0.5\%$). The measurements were repeated 2-6 times for all distances. Measurements at distances from the uranium sphere of up to 15 cm were made with small targets, at 10 - 20 cm with large targets in

Card 2/5

89365

S/089/61/010/002/017/018

B102/B209

The effect of inelastic ...

cadmium casings, and at 15 - 31 cm with large targets in aluminum casings. In the measurements within these overlapping ranges and in measurements with thin-walled hollow spheres, reproducible \bar{r}^2 values were obtained with an accuracy of 1.2%. The \bar{r}^2 values calculated according to (1) are listed in a table. In the case of distances of over $r-a = 15$ cm, integration was performed analytically. In agreement with the results of the measurements it was found that the decrease of $A(r)r^2$ becomes exponential from $r-a = 15$ cm onwards, with a relaxation length of 7.11 ± 0.08 cm for the hollow spheres and 6.52 ± 0.06 cm for uranium. The relaxation lengths were calculated according to the method of the least squares. As is shown also graphically.

$\sqrt{\bar{r}^2}$ is a nearly linear function of the radius a of the sphere (2): $\sqrt{\bar{r}^2} = \sqrt{\bar{r}_0^2} + ka$. $\bar{r}_0^2 = 187.1 \pm 1.1$ cm² (value of extrapolation to $a = 0$) is obtained

With consideration of the correction for the capture of resonance neutrons (0.5%), extrapolation yields the value $\bar{r}_0^2 = 161.5 \pm 4.0$ cm² for the uranium layers. Measurements with lead showed that the results are not affected by elastic neutron scattering. In the measurements in uranium, 9% of fission

Card 3/5

89365

S/089/61/010/002/017/018
B102/B209

The effect of inelastic ...

neutrons arose which reduced the \bar{r}^2 value by about 1%. With consideration of all corrections it may be said that inelastic neutron scattering in 2.0-cm thick metallic uranium reduces \bar{r}^2 by $(12.7 \pm 2.2)\%$. $r_{\text{inel}}^2 = 64 \text{ cm}^2$ is obtained for the second spatial moment. The mean energy of the neutrons inelastically scattered in uranium was calculated as ~ 0.5 Mev. For U^{235} , $\tau = 28 \pm 1.5 \text{ cm}^2$ ($\tau = \bar{r}^2/6$, the neutron age) is obtained which is in fair agreement with the theoretical value $(26 \pm 0.5 \text{ cm}^2)$. The results of the investigation show that in uranium-water systems with sufficiently big uranium lumps the reduction of the slowing-down length of fission neutrons as a consequence of inelastic scattering in uranium is quite considerable and has to be taken into account in reactor calculations and design. The authors thank G. A. Bat' for his discussions of theoretical problems and L. Ye. Morozova, G. S. Stolyarova, and L. A. Serdyukova for their assistance. There are 1 figure, 1 table and 5 references: 5 Soviet-bloc.

SUBMITTED: July 7, 1960

Card 4/5

LEVIN, B.A., inzh.

Simplification of the use of a matching method in the calculation of circuits with one valve element. Trudy OMIIT 12:127-134 '63.

Calculations of periodic processes in rectifier networks. Ibid.:199-210
(MIRA 18:10)

LEVIN, B.A.

Obtaining a low (landing) velocity of the mechanisms of a.c.
electric cranes with hydroelectric drive. Prom.energ. 16 no.7:
15-17 J1 '61. (MIRA 15:1)

(Electric cranes)

BREGADZE, Yu.I.; ISAYEV, B.M.; KVASOV, V.A.; LEVIN, B.A.; CHERNILIN, Yu.F.

Production of "pure" fluxes of fast neutrons for radiobiological
works using an IRT-100C reactor. Atom. energ. 12 no.6:537-538
Je '62. (MIRA 15:6)

(Nuclear reactors) (Neutrons) (Radiobiology)

LEVIN, B.B.

Method for calculating the probability of the achievement of a given level by a discrete accumulator. Radiotekh. i elektron. 9 no.2: 211-218 F '64. (MIRA 17:3)

1ST AND 2ND PERIODS 100 AND 210 PERIODS

FUNCTIONS AND PROPERTIES INDEX

LEVIN, B. I. 10

ca

Theory of amine hydrolysis. Investigation of the hydrolysis of 2,6-diaminopyridine and 2,6-aminohydroxypyridine. A. I. Titov and B. I. Levin. *J. Gen. Chem.* (U. S. S. R.) 11, 9-15(1941).--In continuation of previous work (C. A. 39, 6739^h) on compds. contg. an aminovinyl grouping, the ease of hydrolysis of 2,6-diaminopyridine (I) was studied. On the basis of resonant structures the relative ease of hydrolysis of this compd. to 2,6-amino-hydroxypyridine is explained, as well as the comparative difficulty of further hydrolysis to the 2,6-dihydroxypyridine (II). The rate of hydrolysis by dil. H₂SO₄ was studied and from the data obtained a set of preparative conditions for II was detd. as follows: 10 g. I and 70.5 g. 65% H₂SO₄ are heated at 155° for 4.5 hrs., diltd. with 80 cc. H₂O, let stand at 7-10° and the anhyd. sulfate of II is filtered off in 4.6-g. yield. On diln. of the mother liquor a further 2.6 g. is obtained, giving a total yield of 80%. To obtain the free base, the sulfate (8 g.) in 25 cc. boiling water is treated slowly with NaOAc or NaHSO₃ until neutral to Congo red, boiled for several mins., filtered and cooled. The prod. product is the hydrate of II (89.5% yield), m. 203-204°. By treatment with Ac₂O it is converted into the 2,6-diacetate, m. 69° (from Et₂O). Prolonged hydrolysis of I to 70% H₂SO₄ at 175° yields more NH₃ than the theoretical amt. from hydrolysis of the NH₂ groups, indicating hydrolysis of the pyridine ring. A small quantity of an acid was isolated from this hydrolysis mixt., but could not be identified positively. G. M. K.

ASS-55A METALLURGICAL LITERATURE CLASSIFICATION

FROM SYMBOLS FROM SYMBOLS

10000 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

LEVIN, B.B.

USSR.

New reaction for preparation of organoarsenic compounds.
 I. Synthesis of derivatives of methylarsinic acid. A. I. Titov and B. B. Levin. *Sbornik State Obshchestva Khim. 2*, 1460-72 (1966), *Chem. Abstr.* 62, 5284. —Heating 40 g. As_2O_3 , 10 g. K_2CO_3 , 200 ml. Ac_2O and 60 ml. $AcOH$ 1.5 hrs. at 135-38°, cooling, addn. of 160 ml. $AcOH$ and 40 ml. H_2O , boiling 0.5 hr. and filtering hot, gave a ppt. which was washed with 200 ml. $AcOH$, the filtrates evapd. in vacuo, the residue treated with 200 ml. H_2O and dried gave methylarsinic oxide, 12.3 g., 64% (from $AcOH$), CH_3AsO_2 (I), in 2 forms one of which is sol. in C_6H_6 , the other insol.; both forms, m. 218-20° (decomp.); possibly one is a dimer of the other; both are reduced by aq. NaH_2PO_4 to yellow arseno compd. CH_3As_2 . I (3 g.) in 30 ml. concd. HCl heated 0.5 hr. to 60-70° and cooled gave 4.6 g. CH_3AsCl_2 , m. 73-2.5° (from CCl_4), which is attacked by H_2O . Treatment with dry NH_3 in $CHCl_3$ gave $CH_3As_2S_2$, yellow, decomp. 122-4°. I with 48% HBr heated 0.5 hr. to 100° gave on cooling $CH_3As_2Br_2$, m. 87.5° (from CCl_4). Treatment of 5 g. I with 80 ml. H_2O and 18 ml. 30% H_2O_2 and heating to 70° gave on evapn. 100% $CH_3As(CH_2OH)_2$, m. 164° (decomp.) (from 60% $EtOH$); in presence of phenolphthalein this titrates as a tribasic acid. The acid is reduced by NaH_2PO_4 to the yellow arseno deriv. cited above. The synthesis is believed to proceed through reaction of unsatd. oppositely charged atoms: As of $As(OAc)_3$, and nucleophilic C of the anion or enolate of Ac_2O . Mechanism of the reaction is discussed in detail, the last stage of the process being $CH_3[As(OAc)]_2$. II. Structure of high molecular weight products of reaction. Understandl. g. of Cadet reaction. *Ibid.* 1473-7; cf. Cadet de Gassicourt. *Mem. savants étranger* 3, 363 (1760). —Reaction of uO_2

with As_2O_3 in the presence of Ac_2O gives a polymer of high molecular weight. The reaction is reversible. The reaction of the polymer is assumed to involve the formation of $\text{CH}_2[\text{As}(\text{OAc})_2]$. In the latter reaction, the equilibrium established between AcO ion, As_2O_3 and H_2O and AcOH and As_2O_5 leads to formation of As_2O_5 and KAsO_4 with AcOK ; the acetate then yields $\text{CH}_2\text{COO}^-\text{AsO}_2$, which with As_2O_3 yields AsO ion and $\text{OAsCH}_2\text{COAsO}$, which with AcO ion yields OAsCH_2CO ion and AcOAsO ; loss of CO_2 yields OAsCH_2 carbamion, which reacts with As_2O_3 and gives $\text{CH}_2[\text{AsO}]_2$ and AsO_2 ion. Heating 100 g. As_2O_3 , 10 g. K_2CO_3 and 50 ml. Ac_2O 0.5 hrs. on a steam bath, treatment of the product with 200 ml. H_2O , refluxing 0.5 hr., filtration (hot) and cooling gave a little $\text{CH}_2[\text{AsO}]_2$ from the filtrate. The ppt. was extd. with H_2O leaving behind a solid which treated with 150 ml. 10% H_2O was almost completely brought into soln. Dila. with MeOH gave a ppt. of polymeric ($\text{CH}_2[\text{AsO}]_2$), 2 g., which was purified by reduction with NaH_2PO_2 to the arsenic acid polymer, decomp. 182-4°, partly sol. in hot H_2O . Longer duration of the original reaction gives more polymer. The polymer also formed on heating $\text{CH}_2[\text{AsO}]_2$ with $\text{As}(\text{OAc})_3$ in the presence of bases, or on heating with Ac_2O - AcOK . In the presence of $\text{As}(\text{OAc})_3$, the polymer consists of secondary acids, but without the triacetate the product is a mixture of equal amount of secondary and tertiary derivatives, possibly cycles with CH_2 bridges. Heating As_2O_3 (10 g.), KOAc (30 g.) and 20 ml. AcOH 8 hrs. at 200° also gave polymer of the arsenic acid. Heating $\text{CH}_2[\text{AsO}]_2$ with the unoxidized polymer and KOAc gave homogeneous product, which with HgCl_2 gave $(\text{AsO})_2\text{O} \cdot 2\text{HgCl}_2$, m. 210-12°. Heating the above mixt. with

As₂O₃ also gave this material along with *MeAs* *MeEt*, m. 250-8°. III. Syntheses of tetraphenylmethylenediarsines and alkylarylarisines. *Ibid.* 1478-82.—Heating 63.8 g. *PhAsO*₂*Ph*₂ with 128 g. KOAc and 50 ml. Ac₂O 8 hrs. at 125°, cooling, adding 20 ml. H₂O, followed by 25% KOH until weakly basic, heating 16 min., cooling and extg. with Et₂O gave on evapn. of the ext. 8 g. (*PhAs*)₂O, while the filtrate gave *PhMeAs*, bp 169-72°. The residue was treated with hot EtOH yielding 13.2% *CHAsPh*₂, m. 97-7.5° (from EtOH); concd. HNO₃ oxidizes this to *PhAsO*₂*Ph*, m. 174°. To *PhMgBr* from 27.5 g. *PhBr* was added 5 g. *CHAsCl* in *C₆H₆*; after 0.5 hr. reflux the mixture was hydrolyzed conventionally with dil. HCl and the evapd. org. layer was heated with EtOH to 60-70° to dissolve *Ph*, leaving behind 71.4% *CHAsPh*₂, m. 97°. This with excess MeI refluxed 5 hrs. gave 72% *dimethiodide*, m. 172° (from dil. EtOH). Heating (*PhAs*)₂O (70 g.) with 60 g. K₂CO₃ and 250 g. Ac₂O 11 hrs. at 100° followed by neutralization with 25% NaOH, extn. with Et₂O and evapn. gave 15 g. (*PhAs*)₂O, while the residual oil gave 65% *PhMeAs*, bp 165-70°; *methiodide*, m. 190°. Heating 40 g. (*PhAs*)₂O with 50 g. KO₂Et and 10 ml. (EtCO)₂O 8 hrs. at 170° gave 53.6% *PhEtAs*, bp 162-6°; *methiodide*, m. 170°. Similarly KO₂CPr and (PrCO)₂O gave 50% *PhPrAs*, bp 178-81°. G. M. Kosolapoff

1/3

LEVIN B. B.; and TITOV A. I.

New Reaction for the Production of Organic Arsenic Compounds. III.
Syntheses of Tetraphenyl Methylene Diarsine and Alkyldiaryl Arsines,
Page 1478, Sbornik statey po obshchey khimii (Collection of Papers
on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

AUTHORS: Bruker, A. B. and Levin, B. B. SOV/79-28-10-21/60

TITLE: Some Ideas on the Mechanism of the Synthesis of Aromatic Mercury Compounds by the Oxidation of Aryl Hydrazines With Salts of Bivalent Mercury (Nekotorye sobrazheniya o mekhanizme polucheniya rtutnoaromaticeskikh soyedineniy oksleniyem arilgidrazinov solyami dvukhvalentnoy rtuti)

PERIODICAL: Zhurnal obshchey khimii 1958, Vol 28, Nr 10, pp 2725-2726, (USSR).

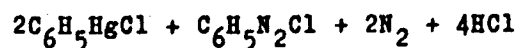
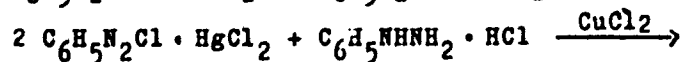
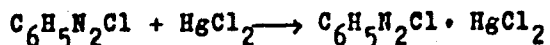
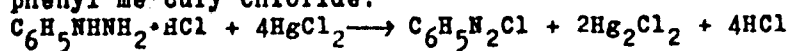
ABSTRACT: Seide (Zeyde) and his collaborators (Ref 6) obtained phenyl mercury acetate in good yield by the oxidation of phenyl hydrazine with acetic mercury in acetic medium in the presence of copper salts. The aim of the present paper was the elaboration of this synthesis. It was found that in the reaction of hydrochloric phenyl hydrazine with mercury chloride in hydrochloric medium in the presence of CuCl_2 , phenyl mercury chloride in a yield of 43%, as related to the sublimation product was formed in the following way: HgCl_2 oxidizes the hydrochloric phenyl hydrazine to the phenyl diazonium chloride, which with the other part of HgCl_2 forms the double compound $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \cdot \text{HgCl}_2$. The latter forms

Card 1/3

Some Ideas on the Mechanism of the Synthesis of
Aromatic Mercury Compounds by the Oxidation of Aryl Hydrazines with Salts
of Bivalent Mercury

SOV/79-28-10-21/60

in its reaction with hydrochloric phenyl hydrazine the
phenyl mercury chloride:



This scheme is proved by the fact that in the reaction of
hydrochloric phenyl hydrazine with $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \cdot \text{HgCl}_2$ under the
same conditions the same final product is obtained. Apparent-
ly the formation of phenyl mercury acetate takes place
similar to the scheme mentioned above. As phenyl mercury
chloride is almost insoluble in hydrochloric acid it does
not form a complex with phenyl diazonium chloride, so that
the reaction is finished with the formation of phenyl mercury
chloride.

Card 2/3

SOV/79-28-10-21/60

Some Ideas on the Mechanism of the Synthesis of Aromatic Mercury
Compounds by the Oxidation of Aryl Hydrazines With Salts of Bivalent
Mercury

There are 10 references, 6 of which are Soviet.

SUBMITTED: July 13, 1957

Card 3/3

L 52107-05 EPF(c)/EWP(j)/EWT(m) Pc-4/Pr-4 RM

ACCESSION NR: AP5015239

UR/1986/65/000/009/002: 10022

AUTHORS: Ivin, S. Z.; Promonenko, V. K.; Shelakova, I. D.; Levin, B. B.; Fetin, I.N.

TITLE: A method for obtaining phosphinic acid esters. Class 12, No. 170497 6 22

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 22

TOPIC TAGS: ester, phosphinic acid, alkylphosphinic acid, alkylene oxide, phenylvinylphosphinic acid

ABSTRACT: This Author Certificate presents a method for obtaining phosphinic acid esters by interacting warmed alkylphosphinic acids with alkylene oxides. To broaden the assortment of the esters, alkylphosphinic acids are replaced by α -phenylvinylphosphinic acid. An alternate process may be conducted at 120-135C.

ASSOCIATION: Organizatsiya gosudarstvennogo komiteta khimicheskoy promyshlennosti pri gosplane SSSR (Enterprise of the State Committee of the Chemical Industry at the Gosplan SSSR)

SUBMITTED: 30Sep63

ENCL: 00

SUB CODE: 0C

NO REF SOV: 000

OTHER: 000

Card 1/1776

L 4011-66 : EWT(m)/EPP(e)/EJP(j)/T/ETC(m) RPL W/RM
 NR/0286/65/000/015/0080/0081

ACCESSION NR: AP5024399
 44.5

AUTHORS: Tevlina, A. S.; Kotlyarova, S. V.; Levin, B. B.; Fetin, I. N.
 44.5 44.5 44.5 39
 B

TITLE: Method for obtaining grafted copolymers. Class 39, No. 173407
 44.5

SOURCE: Byulleten' izobreteniy i tovarnykh snakov, no. 15, 1965, 80-81

TOPIC TAGS: graft copolymer, copolymerization, fire resistant material

ABSTRACT: This Author Certificate presents a method for obtaining grafted copolymers by copolymerization of vinyl monomers with polymers or copolymers of α -olefin in bulk at high temperatures in the presence of peroxide or azo-initiators. To obtain fire resistant copolymers having ion exchange properties, the process of copolymerization is carried out in the presence of α -phenylvinylphosphinic acid.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskij institut im. D. I. Mendeleeva (Moscow Chemical Engineering Institute)
 44.5

SUBMITTED: 26Jun63 ENCL: 00 SUB CODE: MT, CC
 NO REF SOV: 000 OTHER: 000 UDC: 678.71/74
 Card 1/1
 (Lab)

L 7888-66 EWT(m)/EPF(o)/EWP(j) RM

ACC NR: AP5025043

SOURCE CODE: UR/0286/65/000/016/0085/0085

AUTHORS: ⁴⁴⁵ Kolesnikov, G. S.; ⁴⁴⁵ Tsvina, A. S.; ⁴⁴⁵ Novikova, S. P.; ⁴⁴⁵ Alovitdinov, A. B.; ⁴⁴⁵ Levin, B. B.; ⁴⁴⁵ Trunina, G. I.

ORG: none

TITLE: Method for obtaining poly- α -phenylvinylphosphonic acid. Class 39, No. 173955 /announced by Moscow Order of Lenin Chemico-technological Institute im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskij institut)

SOURCE: ⁴⁴⁶ Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 85

TOPIC TAGS: phenylvinylphosphonic acid, polymer, *organic phosphorus* compound, cerium compound, alcohol

ABSTRACT: This Author Certificate presents a method for obtaining poly- α -phenylvinylphosphonic acid. The α -phenylvinylphosphonic acid is polymerized in an aqueous solution in the presence of redox initiators such as salts of tetravalent cerium and polyvinyl alcohol.

SUB CODE: 07/ SUBM DATE: 08May64

Card 1/1

UDC: 678.746.87

(A) L 11138-66 EWT(m)/EWP(1)/T/ETC(m) RPL WM/RM

ACC NR: AP6002550 SOURCE CODE: UR/0286/63/000/023/0047/0047

INVENTOR: ^{44 55} Lavin, B. B.; ^{44 55} Kolesnikov, G. S.; ^{44 55} Rodionova, Ye. F.; ^{44 55} Petin, I. N.

ORG: none

TITLE: Preparation of acrylic or methacrylic acid copolymers. Class 39, No. 176682

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 47

TOPIC TAGS: copolymer, acrylic acid, methacrylic acid, heat resistant material, fire resistant material

ABSTRACT: An Author Certificate has been issued for a preparative method for copolymers of acrylic or methacrylic acid with vinyl monomers. The method involves bulk or solution copolymerisation at 50-100C in the presence of azobisisobutyronitrile. To improve the heat- and fire-resistance of the polymer, (alpha-phenylvinyl)phosphonic acid is used as the vinyl monomer. [BO]

SUB CODE: 07, 11/ SUBM DATE: 17Jul63/ ATD: PRESS: 4173

OC
Card 1/1

UDC: 678.744.322.13

L 32764-66 EWT(m)/EWP(j)/T IJP(c) RM
ACC NR: AP6009877 (A) SOURCE CODE: UR/0413/66/000/004/0069/0069

INVENTOR: Andrianov, K. A.; Levin, B. B.; Rodionova, Ye. F.; Fetin, I. N.

37
2

ORG: none

TITLE: Preparation of phosphorus-containing polymers. Class 39, No. 178985

15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 69

TOPIC TAGS: polymer, phosphorus containing polymer, copolymerization

ABSTRACT: An Author Certificate has been issued describing a method of preparing phosphorus-containing polymers by initiated copolymerization of vinyl monomers and phosphorus compounds. To broaden the variety of phosphorus polymers, the monoester of alpha-phenylvinylphosphinic acid is suggested as the phosphorus compound. [LD]

SUB CODE: 11/ SUBM DATE: 11Nov64

Card 1/1 BLG

UDC: 678.746.87-13.002.2

L 24704-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) WW/RM

ACC NR: AP6009535 (A) SOURCE CODE: UR/0413/66/000/005/0070/0070

INVENTOR: Levin, B. B.; Fetin, I. N. 36
B

ORG: none

TITLE: Method for obtaining a phosphorus-containing homopolymer.
Class 39, No. 179469 15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5,
1966, 70

TOPIC TAGS: phosphorus containing polymer, monomer, polymerization,
homopolymer

ABSTRACT: An Author Certificate has been issued describing a method
for obtaining a phosphorus-containing homopolymer by using initiated
block polymerization of an unsaturated acid at temperatures exceeding
the melting point of a monomer. To expand the variety of phosphorus
containing heat-resistant polymers, α -phenyl-vinyl-phosphic acid is
used as the unsaturated acid. 15 [NT]

SUB CODE: 11, 07/

SUBM DATE: 03Nov64/ 2

Card 1/1FW

UDC: 678.746.87

L 11287-66 EWT(m)/ENP(j)/T IJP(c) WW/RV.

ACC NR: AP6011235 (A) SOURCE CODE: UR/0413/66/000/006/0075/0075

INVENTOR: Kolesnikov, G. S. ; Rodionova, Ye. F. ; Levin, B. B. ; Fetin, I. N. ³⁹_B

ORG: none

TITLE: Method of obtaining phosphorus-containing copolymers.¹ Class 39,
No. 179922 /₁₃

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 75

TOPIC TAGS: copolymer, copolymerization, styrene, organic phosphorus compound

ABSTRACT: An Author Certificate has been issued for a method of obtaining phosphorus-containing copolymers by copolymerization of styrene with unsaturated organophosphorus compounds in block or solution at temperatures of 50 to 120C in the presence of a dinitrile azoizobutyric acid as the initiator. To increase the variety of unsaturated organophosphorus compounds, α -phenyvinylphosphinic acid is used as the initiator. [NT]

SUB CODE: 1107/SUBM DATE: 18Jun63

Cord 1/1 mjs

KDC: 678.85:678.746.22.547.341

L 10339-67 EWP(j)/EWT(m) IJP(c) RM/DS

ACC NR: AP609908

(A)

SOURCE CODE: UR/0413/66/000/015/0086/0086

INVENTORS: Kolesnikov, G. S.; Tevlina, A. S.; Novikova, S. P.; Levin, B. B.; Chernomyrdina, L. F.; Abramova, T. D. 45

ORG: none

TITLE: A method for obtaining heat-resistant and chemically stable cationite membranes. Class 39, No. 184427 /announced by Moscow Institute of Chemical Technology Im. D. I. Mendeleev (Moskovskiy khimiko-tekhnicheskiy institut)/

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 86

TOPIC TAGS: ion exchange membrane, monomer, polymer, graft copolymer, fluorine, acrylic acid

ABSTRACT: This Author Certificate presents a method for obtaining heat-resistant and chemically stable cationite membranes by grafting monomer compounds containing ionogenic groups to fluorine-containing copolymers. To obtain membranes characterized by a selectivity in separating the ions of polyvalent metals, a mixture of α -phenylvinyl phosphinic acid and acrylic acid or acrylonitril is used as the monomer compound.

Card 1/1^{me} SUB CODE: 07/ SUBM DATE: 13May65 UDC: 661.103.123.2:678.743-139

L 44133-66 EWT(m)/SWP(j)/T LJP(c) WW/DM

ACC NR: AP6013276

SOURCE CODE: UR/0413/66/000/008/0078/0078

4
B

INVENTOR: Rogovin, Z. A. ; Tyuganova, M. A. ; Zharova, T. Ya. ; Levin, B. B. ; Fetin, I. N.

ORG: none

TITLE: Preparation of graft copolymers of cellulose and phosphorus-containing monomers, Class 39, No. 80792

SOURCE: Izobreteniya, pro nyslennyye obraztsy, tovarnyye znaki, no. 8, 1966, 78

TOPIC TAGS: copolymer, graft copolymer, monomer, cellulose, *primary aromatic amine, heat resistant material*

ABSTRACT: This Author Certificate introduces a method for obtaining graft copolymers of cellulose and phosphorus-containing monomers by introducing aromatic amines into the cellulose molecule and subsequently converting them to diazo groups.

Card 1/2

UDC: 677.46:678..029.65:66.095.834 66.095.2

Card

2/2 *amm*

ACC NR: AP6035685 (A, V) SOURCE CODE: UR/0413/66/000/019/0031/0031

INVENTOR: Levin, B. B.; Telegina, N. I.

ORG: none

TITLE: Preparation of pyromethylphosphinic acid, Class 12, No. 186470
[announced by Scientific Research Institute of Plastics (Nauchno-
issledovatel'skiy institut plastmass)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19,
1966, 31

TOPIC TAGS: ~~pyromethyl~~phosphinic acid ~~preparation~~, acetic anhydride,
acetone

ABSTRACT: To broaden the raw material base for the preparation of
pyromethylphosphinic acid from methylphosphinic acid di-
chloride, the latter is treated with acetic anhydride and
water in an α -methyl ketone, e.g., acetone.

[PS]
[WA-50; CBE No. 14]

SUB CODE: 07/ SUEM DATE: 22Jul65

Card 1/1

UDC: 547.419.1.07

DOBROVOL'SKIY, D.S., kand.tekhn.nauk; BYVSHEV, A.V., inzh.; LEVIN, B.D., inzh.

Pulp grinding with the help of acoustic media. Bum. prom. 36 no.9:
26-27 S '61. (MIRA 15:1)

(Papermaking machinery)

LEVIN, B. G. Cand Tech Sci -- (diss) "Accelerated complex ^{determination} calculation
of the machineability of steels." Len, 1957. 14 pp 21 cm. (Min of Higher
Education USSR. Len Polytech Inst im M. I. Kalinin). 100 copies.
(KL, 22-57, 105).

LEVIN, B.G.

25(1)

PHASE I BOOK EXPLOITATION

SOV/1339

Shifrin, Abram Shmerovich, Boris Gustavovich Levin, Il'ya Iosifovich Livshits, Moisey Isaakovich Pisarevskiy, and Nikolay Aleksandrovich Fefelov

Vysokoproizvoditel'naya kholodnaya obrabotka metallov (Efficient Cold Working of Metals) Moscow, Mashgiz, 1958. 294 p. 7,000 copies printed.

Reviewer: Vul'f, A.M., Candidate of Technical Sciences; Ed. (Title page): Lomachenkov, S.Ye., Engineer; Ed. (Inside book): Morozov, V.D.; Candidate of Technical Sciences; Ed. of Publishing House: Borodulina, I.A.; Tech. Ed.: Pol'skaya, R.G.; Managing Ed. for Literature on Machine Building Technology (Leningrad Division, Mashgiz): Naumov, Ye.P., Engineer.

PURPOSE: The book may be of use to process engineers, machine tool designers and personnel of plant and institute laboratories for metal cutting.

COVERAGE: The book presents the special features of the processes of cutting hard-to-work austenitic and other steel grades. Rational
Card 1/4

Efficient Cold Working (Cont.)

SOV/1339

designs of single-point tools, drills, taps, face milling cutters and cutting regimes for high-productivity machining of these steels are described. Standard methods of conducting investigations of turning, milling and drilling of metals are given along with quick simplified methods for determining metal machinability. Turning, drilling and milling dynamometer constructions are given. Problems of precision thread rolling on thread rolling machines with die rolls are treated. No personalities are mentioned. There are 55 references of which 53 are Soviet, 1 is English and 1 is German.

TABLE OF CONTENTS:

Foreword	3
Ch. I. Efficient Machining of Hard-to-work Steels	5
1. Special features of the process of cutting hard-to-work steel (Candidate of Technical Sciences A.Sh. Shifrin)	5
2. Turning (Candidate of Technical Sciences A.Sh. Shifrin)	27
3. Face milling of stainless steel (Candidate of Technical Sciences A.Sh. Shifrin)	47

Card 2/4

Efficient Cold Working (Cont.)

SOV/1339

4. Face milling of chromium-nickel steel (Engineer N.A. Fefelov)	51
5. Drilling heat-resistant steel (Candidate of Technical Sciences A.Sh. Shifrin)	80
6. Drilling chromium-nickel steel (Engineer N.A. Fefelov)	93
7. Cutting threads in parts made of heat-resistant steel (Candidate of Technical Sciences A.N. Shifrin)	104
Ch. II. Instruments and Methods of Analyzing the Metal Cutting Process (Candidate of Technical Sciences I.I. Lifshits and A.Sh. Shifrin)	127
8. Turning	128
9. Face milling	142
10. Drilling	154
11. Electroinductive dynamometers	164
Ch. III. Fast Overall Determination of Steel Machinability (Candidate of Technical Sciences B.G. Levin)	183
12. Existing methods for rapid determining of steel machinability	185
13. Premises and preliminary experiments	194

Card 3/4

Efficient Cold Working (Cont.)	SOV/1339	
14. Physical and mechanical properties and machinability of investigated steels		212
15. Methods of rapid determining of steel machinability		225
Ch. IV, Rolling Precision Threads (Candidate of Technical Sciences M.I. Pisarevskiy)		241
16. Effect of plastic deformation on the mechanical properties of parts with rolled threads		242
17. Thread rolling machines		243
18. Construction of cylindrical die rolls		255
19. Moving highly durable thread rolling cylindrical die rolls		265
20. Accuracy of blanks		274
21. Manufacturing errors in elements of rolled threads		281
22. Operating troubles in thread rolling machines with cylindrical die rolls and means of eliminating them		288
Bibliography		291
AVAILABLE: Library of Congress		
Card 4/4	GO/sfm 4-22-59	

SOV/122-58-7-20/31

AUTHOR: Levin, B.G., Candidate of Technical Sciences

TITLE: Apparatus for Establishing the Zone of Deformation When Cutting Metals (Ustroystvo dlya fiksirovaniya zony deformatsii pri rezanii metallov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 7, pp 63-64 (USSR)

ABSTRACT: A punch-type tool, illustrated in Figure 1, was developed to prepare test pieces from which the structure of the zone of deformation on cutting could be examined. Two to four flat, square specimens, 3 mm thickness are clamped in each slot or recess of the 'die'. The simulated cutting tools are formed at locations on the periphery of the circular punch which works within the specimen holder or 'die' and is guided by a central spigot. The holder is 120 mm dia and 60 mm high. The tool can be mounted in any press, drop stamp, or test machine according to the speed of cutting desired. When the punch is pushed downwards, it cuts a strip 4 to 6 mm long from the specimens and the cut length is limited to the moment when the top of the punch coincides with the level of the top of the holder. Cutting speed in a drop stamp method of loading can be kept fairly constant if the decelerating force through cutting is approximately the same as the accelerating force

Card1/2

SOV/122-58-7-20/31

Apparatus for Establishing the Zone of Deformation When Cutting
Metals

due to gravity. A formula is given to assess the cutting speed knowing height of drop, length of cut, weight of drop stamp and approximate value of cutting force. Using weights from 500 to 3 000 kg, height of drop from 600 to 1 500 mm, it is found that cutting speed, when dealing simultaneously with 8 specimens, varies from 200 - 325 m/min at which time of cutting is about 0.001 sec. Variation in speed during the cut is only about + 1% of speed at commencement of cut. The tool can be used in the laboratory with falling weights of 20 to 50 kg, falling through 2 to 3 m with the same effect. Figure 2 illustrates the results obtained at 260 m/min speed of cut on 0.4 carbon steel. By making impressions on the edge of the specimens before stamp cutting is carried out, it is possible to establish the various stages of deformation from these impressions. There are 2 figures.

Card 2/2

S/135/62/000/010/002/006
A006/A101

AUTHORS: Levin, B. G., Pigaleva, L. M., Engineers

TITLE: Magnetographical quality control of welded pipes

PERIODICAL: Svarochnoye proizvodstvo, no. 10, 1962, 15 - 17

TEXT: The laboratory of metals and welding at Permenergoremont started magnetographical quality control of welded pipes in 1959 with the aid of a МГД -2 (MGD-2) type device designed in 1958. To make more precise the control method, tests were carried out with specimens having artificially produced defects. The effect of magnetization of the work piece upon the determination of defects was studied. The formulas used show that magnetization varies sharply with different distances S between the solenoid ends; magnetization of metal layers decreases from the surface to the center. The magnitude of changes in the magnetic flow caused by the defect depends on the magnitude of magnetization of the part. Below the critical values of this factor, of the depth of the defect location, and of the distance S , defects can not be detected. The most suitable variant of a solenoid is a flat type, coiled in 3 layers, each layer having 10

Card 1/1 2

Magnetographical quality control of welded pipes

S/135/62/000/010/002/006
A006/A101

windings. The extent of the defect as a function of the signal on the oscillograph screen was investigated. It was found that the extent of the defect depends on the height and width of the signal if the location of the defect is known (in the case of separate defects). Its location is determined by the increment of operational conditions; in surface defects the signal height increases slightly, and much more in the case of internal defects (Figure 8). The investigation shows that the extent and location of defects can be determined if the device parameters are known. Ways of improving magnetographical control are indicated. There are 4 tables and 8 figures. ✓

ASSOCIATION: Permenergoremont

Card 2/8 Z

LEVIN, B. G., inzh.; FIGALEVA, L. M., inzh.

Magnetographic method of quality control in pipe welding.
Svar. proizv. no.10:15-17 0 '62. (MIRA 15:10)

1. Permenagremont.

(Welding—Quality control)
(Magnetic testing)

LEVIN, B.G., insh. (Perm'); FIGALEVA, L.M., insh. (Perm')

"Let's regulate quality control of welded joints." Stroi.
truboprov. 7 no.5:25-26 My '62. (MIRA 16:6)

(Pipe—Welding)

ACC NR: AP7000311

SOURCE CODE: UR/0413/66/000/022/0025/0025

INVENTOR: Levin, B. G.; Yermín, N. I.; Plyuta, V. Ye.; Shestakov, M. I.;
Vasil'yev, K. V.

ORG: none

TITLE: Method for manufacturing articles with variable cross section. Class 7,
No. 188454

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1966, 25

TOPIC TAGS: cold rolling, variable cross section article, ~~article manufacturing~~
fabricated structural metal

ABSTRACT: This Author Certificate introduces a method for manufacturing articles with variable cross section by cold rolling of a stationary blank with two undriven rolls. To improve the dimensional accuracy and the surface quality of the article the blank is rotated after each working cycle around the longitudinal axis for a programmed angle and the amount of feed is automatically changed.

SUB CODE: 13/ SUBM DATE: 05Aug61/

Card 1/1

UDC: 621.771.65.04

LEVIN, B.I.

Industrialization of railroad electrification operations. Zhel. dor.
transp. 40 no.5:21-27 '58. (MIRA 11:6)

1. Zamestitel' ministra transportnogo stroitel'stva.
(Railroads--Electrification)

LEVIN, B.I., insh.

Heat emission in the condensation of saturated steam on the
surface of a bundle of vertical pipes. Teploenergetika 7
no.5:73-75 My '60. (MIRA 11:8)

1. Institut "Giprokommunenergo".
(Heat--Transmission)

LEVIN, B.I., inzhener; DUMER, A.B.

Estimation of shell-side temperature in the construction of heat-exchanging apparatus. *Energomashinostroenie* no.3:26-27 Mr '56.
(Heat exchangers) (MIRA 9:7)

LEVIN, B.I.

For wide scale introduction of new machinery and progressive
technology in construction for the transport industries.
Transp.stroi. 6 no.2:4-9 Y '56. (MLRA 9:6)

1.Zamestitel' Ministra transportnogo stroitel'stva.
(Building machinery)

LEVIN, Boris inzhener.

Work being done at the "Komega" plant report. Energomashinostroenie
3 no.1-17 Ja '57. (MIRA 10:3)

(Boilers)

AUTHOR: Levin, B.I., Engineer. 337
TITLE: Modernisation of heat exchangers. (Modernizatsiya teploobmennykh apparatov.)
PERIODICAL: "Energomashinostroenie", (Power Machinery Construction), 1957, No. 4, pp. 24 - 26, (U.S.S.R.)

ABSTRACT: Modifications in heat exchangers at the Komega Works are described, giving information on the results achieved from the point of view of reducing the labour content during the manufacturing process and reducing the metal content of the apparatus. Fig. 1 shows an apparatus with a heat exchange surface of 43 m^2 before modification (left) and after modification (right). Equally, Fig. 3 shows a cross-section of apparatus with a heat exchange surface of 350 m^2 before and after modification. A detail of the welded design of the bottom is shown in Fig. 2, p.25. Reductions in weight and dimensions are claimed and it is stated that existing Soviet specifications on elliptical bottoms hinder further reductions in weight. 3 figures. 3 Russian references.

REV. M. B. I.

in connection with G.V. Ivashentsev's note "Redesigning of oil
coolers." Energetik 5 no.6:37-39 Je '57. (MIRA 10:7)
(Turbinas)

LEVIN, B.I.

Strive tirelessly for technical progress in construction for the transportation industry. Transp. stroi. 7 no.3:1-5 Mr '57.

(MIRA 10:6)

1. Zamestitel' ministra transportnogo stroitel'stva.
(Building machinery) (Precast concrete)

Levin, B.I.
LEVIN, B.I.

Builders' Day. Transp.stroi. 7 no.7:1-5 J1 '57. (MIRA 10:11)

**1. Zamestitel' ministra transportnogo stroitel'stva.
(Construction industry)**

LEVIN, B.I., inzh.

Modernizing and adjusting oil coolers made by the "Komega" Plant.
Elek.sta. 29 no.6:38-41 Je '58. (MIRA 11:9)
(Oil coolers)

LEVIN, B.I., kand.tekhn.nauk, red.; VELICHKIN, Ye.A., inzh., red.;
KARAMYSHEV, I.A., inzh., red.; VDOVENKO, Z.I., inzh., red.
isd-va; GILMNSON, P.G., tekhn.red.

[Collection of papers of the All-Union Conference on the
Construction for the Transportation Industry] Sbornik trudov.
Vsesoiuznogo soveshchaniia po transportnomu stroitel'stvu.
Moskva, Gos.isd-vo lit-ry po stroit., arkh. i stroit.materia-
lam, 1960. 517 p. (MIRA 13:9)

1. Vsesoiuznoye soveshchaniye po transportnomu stroitel'stvu.
(Transportation--Buildings and structures)

LEVIN, B.I.

Raise the role of chief engineers and technical advisers in the struggle
for technical progress. Transp. stroi. 10 no.10:1-3 0 '60.

(MIRA 13:10)

1. Predsedatel' Tekhnicheskogo Soveta, chlen kollegii Mintransstroya.
(Transportation--Buildings and structures)

LEVIN, B.I., kand.tekhn.nauk

Improve the standards of economic operations in constructions for
the transportation industry. Transp.stroi. 11 no.3:39-42 Mr '61.
(MIRA 14:3)

(Construction industry)

LEVIN, B.L.; SOKOLOV, K.A., retsenzent; PESKOVA, L.N., red.;
USENKO, L.A., tekhn. red.

[Technical progress in transportation engineering] tekhnicheskii progress v transportnom stroitel'stve. Moskva, Transzheldorizdat, 1963. 84 p. (MIRA 16:12)
(Civil engineering)

LEVIN, B.I.; ROZENBERG, V.M.; YAKOVLEV, P.A.; KORF, Z.G.; KULYGIN, B.A.;
PETROV, G.I.

Unification of structures of sea and river mooring installations. Transp. stroi. 15 no.9:39-42 S '65. (MIRA 18:11)

1. Gosudarstvennyy proizvodstvennyy komitet po transportnomu stroitel'stvu SSSR (for Levin). 2. Gosudarstvennyy institut proyektirovaniya i izyskaniya na rechnom transporte (for Yakovlev, Korf). 3. Gosudarstvennyy projektno-konstruktorskiy i nauchno-issledovatel'skiy institut morskogo transporta (for Kulygin, Petrov).

LEVIN, Boris Isaakovich; SHUBIN, Yevsey Petrovich; KHIYBOV, B.M.,
Kānd. tekhn. nauk, red.

[Heat exchangers of heat supply systems] Teploobmennye ap-
paraty sistem teplosnabzheniia. Moskva, Energiia, 1965.
256 p. (MIRA 18:5)

LEVIN, B.I., kandidat tekhnicheskikh nauk, redaktor; ZHREBINOV, A.M., redaktor;
~~POVNI~~, I.Ye., inzhener, redaktor; RUDOG, M.L., inzhener, redaktor.

[Handbook of the basic materials and spare parts required by the railroad transportation. Vol.2] Spravochnik po osnovnym materialam i zapasnym chastiam, potrebliaemym zheleznodorozhnym transportom. Pod red. B.I. Levina [i dr.] Moskva, Gos. transp. shel-dor. izd-vo, 1946- (MLRA 7:6)
(Railroads--Equipment and supplies)

LEVIN, B. I

Osnovnye napravleniia piatiletnego palan vosstanovleniia i razvitiia
transporta. [The main trend of the five-year plan in restoration and development of
transportation]. (Zhel-dor. transport, 1946, no. 2-3, p. 8-19).
DLC; HE7/25

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress
Reference Department, Washington, 1952, Unclassified.

LEVIN, B. I.,

LEVIN, B. I., ed. Osnovnye voprosy piatiletnego plana vosstanovleniia i razvitiia zheleznodorozhnogo transporta na 1946-1950 gg. Moskva, Transzheldorizdat, 1947. 397 p.
RNC

DIC: HE3137.LA

SO: IC, Soviet Geography, Part I, 1951; Uncl.

LEVIN, B.I

The technical reequipping of the railroads. Zhel.dor.transp. no.11:
11-22 N'47. (MLRA 8:12)

1. General-direktor puti i stroitel'stva 2-go ranga
(Railroads--Equipment and supplies)

LEVIN, B. I.

The methods for the reconstruction of railroad transportation in the post-war
Stalin Five-year plan. Moskva (Pravda) 1949. 30 p. (51-19309)

VELICHKIN, Ye.A., red.; KARAMYSHEV, I.A., red.; ~~LEVIN, B.L., red.;~~
STAVRAKOV, Ye.Kh., red.; TYULENEVA, L.M., red.; TEMKINA, Ye.L.,
tekhn.red.; KORHSTEVA, V.I.

[Proceedings of the section on construction for transportation]
Sektzia transportnogo stroitel'stva. Moskva, Gos. izd-vo lit-ry
po stroit., arkhit. i stroit. materialam, 1958. 372 p. (MIRA 12:1)

1. Vsesoyuznoye soveshchaniye po stroitel'stvu. Moscow, 1958.
2. Zamestitel' ministra transportnogo stroitel'stva (for Levin).
(Transportation)

LEVIN, B.I.; ANPILGOV, R.G.; BOGATYREV, A.F.; BHYKIN, S.V.; GOL'DMAN,
M.S.; DAVYDOV, G.V.; ZADORIN, B.M.; ZERENINOV, A.M.; LAPUSHKIN,
A.D.; LEDEEV, V.I.; MURAV'YEV, V.I.; OGANESOV, I.S.; PETROV,
N.I.; SIDORIN, V.K.; SOLDATOV, Ye.G., abkhchiy red.; KARAMYSHEV,
I.A., red.; PESKOVA, L.N., red.; KHITROV, P.A., tekhn.red.

[Manual for studying the economics of construction in the
transportation industry] V pomoshch' izuchaiushchis ekonomiku
transportnogo stroitel'stva. Moskva, Gos.transp.shel-dor.
isd-vo, 1959. 271 p. (MIRA 12:7)
(Construction industry) (Transportation)

LEVIN, B.I.

Further improvement in construction and alteration operations
on railroads. Zhel.dor.transp. 42 no.3:16-22 № '60.
(MIRA 13:6)

1. Predsedatel' Tekhnicheskogo soveta Ministerstva transportnogo
stroitel'stva.
(Railroad engineering)

LEVIN, B.I., kand. tekhn. nauk, red.; VELICHKIN, Ye.A., inzh., red.;
KARAMYSHEV, I.A., inzh., red.; VDOVENKO, Z.I., inzh., red.
izd-va; GILSON, P.G., tekhn. red.

[Papers of the All-Union Conference on Construction for the
Transportation Industry] Sbornik trudov Vsesoiuznogo soveshcha-
niia po transportnomu stroitel'stvu. Moskva, Gos. izd-vo lit-
ry po stroit., arkh. i stroit. materialam, 1960. 517 p.

(MIRA 15:2)

1. Vsesoyuznoye soveshchaniye po transportnomu stroitel'stvu,
Moscow, 1959.

(Transportation—Congresses)