

10

Physical-chemical properties of styrene. A. P. Aleksandrov. *J. Tech. Phys.* (U. S. S. R.) 3, 823-30(1933).  
The cond. of styrene as a function of temp. was found to be  $\gamma = \gamma_0 e^{-b/T}$ , for which  $b = 27,000$  in the temp. interval 64-74°, and the viscosity  $\eta = \eta_0 e^{-b_1/T}$ . Coeff.  $b$  is greater than  $b_1$ . Impurities do not alter the shape of the curve but merely move its position. At temps. where polymerization begins to bear an influence, the former equations do not hold and the viscosity increases while the cond. decreases. The cond. at 35° was  $2.5 \times 10^{-10}$  ohm/cni. In polystyrene a marked polarization is observed.

Kino Hanninen

Collision ionization in solid dielectrics. A. P. Aleksandrov and A. M. Zolotareva. *Tekhn. Phys. U.S.S.R.* 1, 142-50 (1964) (in German); cf. preceding abstract. The practical independence of the magnitude of the current from the dielectric layer thickness at voltages near the discharge voltage and the indications of local increase of cond. point to the importance of the "locher Stellen" (weak spots). F. H. Rathmann

3

ASH-31A METALLURGICAL LITERATURE CLASSIFICATION

ALEKSANDROV, A. P.

"Quantum Conditions and Schroedinger's Equation," Dokl. AN SSSR, No.4,  
pp. 198-202, 1934

3

Ionization by impact in solid dielectrics. A. P. Alek-  
sandrov and A. M. Zolotareva. *J. Exptl. Theoret. Phys.*  
(U. S. S. R.) 4, 428-34 (1934).— Hg and Au electrodes and  
thin glass and mica dielectrics were used. F. H. R.

ASAC 35.4 METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODES										PROCESSING AND PROPERTY INDEX										3RD AND 4TH CODES									
<p><i>BC</i></p> <p>Electrical conductivity of homopolar substances. II. A. P. ALEXANDROV and A. M. ZOLOTRAKOVA (J. Exp. Theor. Phys. U.S.S.R., 1984, 4, 899-901).—The electrical conductivity of polymerized glassy styrene sheets at 35° was <math>2.5 \times 10^{-10}</math> mho for fields up to 20,000 volts per cm. The temp. dependence is given by <math>\gamma = Ae^{-B/T}</math>. The loss in wt. after passing the current was <math>10^3</math> times that calc. on Faraday's law. The conduction is ascribed to electrophoresis and electrocapillary processes.</p>																													
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
SECTION 1										SECTION 2										SECTION 3									
<p>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</p>																													

1ST AND 2ND ORDERS										PROCESSOR AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
<p>Ca</p>										<p>Thermal dissociation in liquid dielectrics. A. P. Aleksandrov and A. M. Zolotareva. <i>J. Exptl. Theoret. Phys.</i> (U. S. S. R.) 4, 602-5(1934).—The viscosity and elec. cond. of styrene polymers are given as functions of the temp. by <math>\eta = \eta_0 e^{A'/T}</math> and <math>\sigma = \sigma_0 e^{-A/T}</math>, where <math>A</math> and <math>A'</math> are different for various polymers. For any given polymer <math>A</math> is greater than <math>A'</math>, whence factors other than viscosity change det. the cond. change. F. H. Rathmann</p>										<p>2</p>									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
<p>SAFORD #2</p>										<p>SAFORD #10</p>										<p>SAFORD #12</p>									

ALEXANDROW, A. P.  
ALEKSANDROV, A. P.

"Hydroxydes organostanniques aromatiques et derives halogenes du type  $Ar_3SnX$ ".  
Kotchechkow, K. A., Nad', M. M. et Alexandrow, A. P. (p. 1672)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 11

10

ca

PROCESSIES AND PROPERTIES INDEX

Organic lead compounds containing a carbethoxy group.  
K. A. Kocheshkov and A. P. Alexandrov. *J. Gen. Chem. (U. S. S. R.)* 7, 63-6(1937).— $\text{Ph}_3\text{PbCH}_2\text{CO}_2\text{Et}$  (I) and  $\text{Ph}_3\text{PbCH}(\text{CH}_3\text{Ph})\text{CO}_2\text{Et}$  (II) were prepd. by thermal decompn. of  $\text{Ph}_3\text{PbO}_2\text{CCH}_2\text{CO}_2\text{Et}$  (III) and  $\text{Ph}_3\text{PbCH}(\text{CH}_3\text{Ph})\text{CO}_2\text{Et}$  (IV), resp. III, m. 159-60° (alc.) resublimed in 63.5% yield from 2.2 g.  $\text{KO}_2\text{CCH}_2\text{CO}_2\text{Et}$  (Prestud. Ber. 17, 780(1984)) in 50 cc. of abs. alc. and 0.1 g.  $\text{Ph}_3\text{PbCl}$  (Gillman and Robinson, C. A. 21, 3355; 23, 5470) in 70 cc. of dry  $\text{Me}_2\text{CO}$  by digesting the hot mixt. on a water bath for 15 min. and then distg. off a part of the solvent from the filtrate. III heated at 100-5° and 15 mm. pressure to cessation of the  $\text{CO}_2$  evolution afforded 40.1% I, m. 50-60° (alc.).  $\text{Ph}_3\text{PbCl}$  with  $\text{KO}_2\text{CCH}(\text{CH}_3\text{Ph})\text{CO}_2\text{Et}$  (Marguery, *Bull. soc. chim.* 131, 33, 541 (1903)) gave 34.6% IV, m. 131-2° (C<sub>10</sub>H<sub>8</sub>). IV decompd. at 128-32° and 25 mm. gave 61% II, m. 82-4° (alc.). Chas. Blanc

COMMON ELEMENTS

COMMON VARIANTS

OPEN

MATERIALS INDEX

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

REGIONAL DIVISION

SECONDARY DIVISION

ILLUSTRATIONS

REMARKS



1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>10</p> <p>A new product of the reaction between anthraquinone and alkali. N. N. Vorozhtsov, A. P. Aleksandrov and T. I. Berkova. <i>Compt. rend. acad. Sci. U. R. S. S. 17</i>; 301-3 (1937) (in French).-- The reaction between 26 g. of anthraquinone (I), 10.5 g. of NaOH, 40.7 g. of 38% Na<sub>2</sub>SO<sub>3</sub> and 390 ml. of H<sub>2</sub>O 5-6 hrs. at 210°, followed by diln., aeration, removal of unchanged I and about 0.5 g. of Na alizarate, and acidification pptd. 8.03 g. of green C<sub>14</sub>H<sub>8</sub>O<sub>3</sub> (II). II decomps. at 274°, forming 2-hydroxyanthraquinone. Heating II in C<sub>14</sub>H<sub>10</sub> produced bianthrone (III). Acetylation of II with Ac<sub>2</sub>O and 10% NaOH gave 2-acetoxyanthraquinone and III. II is 2,9-dihydro-2,10-dihydroxy-9-oxoanthracene. G. R. Yohe</p>																																																			
ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION																																																			
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1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSING AND PROPERTIES INDEX																			
<p>2,9-Dihydro-2,10-dihydroxy-9-oxoanthracene. N. Vorozhtsov, Sr., A. P. Aleksandrov and T. I. Berkova. Russ. 51,915, April 30, 1938. Anthraquinone is heated with aq. alkali to 200-220° for 5-6 hrs., and alizarin, anthraquinone, etc., sepd. from the anthracene in the usual manner.</p>																			
A S B - S L A METALLURGICAL LITERATURE CLASSIFICATION																			
1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									

BC

O-II-9

Amorphous state. XVII. Dielectric losses in swollen rubbers. A. ALEXANDROV and J. DUBAN (Tech. Phys. U.S.S.R., 1959, 5, 830-841).—The effect of swelling of products made from natural rubber containing 27, 5 in PhMe, PhBr, paraffin oil, and turpentine on the dielectric loss has been determined. The slight dilution of certain constituents in the above solvents does not affect the dielectric losses. Swelling causes a displacement of the max. of the dielectric losses towards lower temp. The system rubber-non-polar plasticizer is characterized by a definite time const. so that the plasticizer affects the losses of the whole system and not part of it. The orientation of the dipoles in a system rubber-polar plasticizer requires the same activation energy independently of the type of bond by which the dipoles are linked. A. J. M.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYMBLISH

RELIST ONE TWO

RELIST ONE TWO

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

1ST AND 6TH ORDERS

*ca* **Polymers. 1. Highly elastic deformation of polymers.** A. P. Aleksandrov and Yu. S. Lazurkin. *J. Tech. Phys.* (U. S. S. R.) 9, 1249-60 (1939).—The deformation of a rubber-like substance consists of an ordinary deformation which is independent of time and a "highly elastic deformation"  $D$  having a relaxation time  $t$ . If the specimen is subject to a periodic force, then  $D = D_0/(1-i\omega t)$  where  $i$  is  $\sqrt{-1}$ , and  $\omega$  the frequency. In agreement with this equation, the  $D$ -temp. curves are shifted to higher temps. when  $\omega$  increases; the max. value of  $D_0$  is almost reached at a temp. which is the higher the greater is  $\omega$ . The time  $t$  rapidly diminishes with rising temp., e. g., for polymerized chloroprene, from 10 sec. at  $-40^\circ$  to 0.1 sec. at  $-25^\circ$ ;  $\omega$  varied from 1 to 1000 min.<sup>-1</sup>.  $D$ -temp. curves are also given for vulcanized rubber, half-vulcanized ebonite, and methyl-*m*-acrylate resin; the curves for the latter are shifted by plasticizers to lower temps. For each of these substances there is an interval of temps. (about 20 or 40° wide) in which they are hard at high, and rubber-like at low, values of  $\omega$ . **II. Dynamic method of studying elastic materials.** Yu. S. Lazurkin. *Ibid.* 1261 6.—Cylinders about 1 cm. wide and 0.4 cm. high were periodically compressed 1-2000 times per min. The max. deformation was 0.015 cm. The temp. was varied between  $-180$  and  $200^\circ$ . Results for rubber + 3% S are given. The sharp increase of the deformation with rising temp. took place at a temp. which increased with frequency  $\omega$ . The temp. at which the deformation was 0.5 of the max. deformation was  $-55^\circ$  for static forces and  $-25^\circ$  for  $\omega = 1000$  min.<sup>-1</sup>; it increased by  $5-9^\circ$  for a 10-fold increase of  $\omega$ . **III. Technique of mechanical tests of vulcanizates of rubber and plastics.** G. Gurevich and P. Kobeko. *Ibid.* 1267-79; cf. C. A. 32, 1939.—The correct way of detg. the mech. properties of rubber, etc., is to measure the rate of increase of deformation at a const. force and various temps. Detn. of the deformation produced in, say, 5 sec. at various temps. may also be sufficient. The torsion of butadiene rubber plotted against temp. gives S-shaped curves. In the course of vulcanization these curves become lower and are shifted to higher temps.; when continued heating with S ceases to affect the curves, the vulcanization is complete. Torsion at room temp. alone is not a sufficient test for the degree of vulcanization. Ebonite is not plastic; the residual deformation observed by Church and Daynes (C. A. 30, 6600) is a part of the highly elastic deformation, depends on the condition of the exp., and is explained by the effect of temp. on the rate of deformation. Polystyrene has also almost no plasticity; polystyrene samples deformed at a high temp. conserve their form, since the rate of deformation at room temp. is negligible, but they regain their initial shape on a 2nd heating. Ordinary heat resistance and brittleness tests of polymers are unreliable. J. J. Bikerman

E-2

ASACSLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNDICATE										FROM SCHWAB									
SYNDICATE NO.										SCHWAB NO.									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

<p>ca</p>		<p>10</p>	
<p>Alkaline fusion (in organic synthesis). II. Reaction between anthraquinone and alkali. N. N. Vorozhtsov and A. P. Aleksandrov. <i>J. Gen. Chem.</i> (U. S. S. R.) 10, 809-82 (1940); cf. <i>C. A.</i> 34, 2343; 35, 2484. The reaction of anthraquinone (I) with NaOH under various conditions has been investigated. I does not react with NaOH solns. (10-40%) in an atm. of illuminating gas at room temp. By melting I with NaOH at about 270°, followed by acidification, only a small amt. of I reacts with the formation of BrOH, anthrahydroquinone and oxanthrone. When the melting is carried out in the presence of water, alizarin (II) is formed, the amt. of II being highest (17.71%) when I is heated with 20% NaOH at 236-65° in an autoclave. The yield decreases with increasing concn. of the NaOH soln. In the presence of Na<sub>2</sub>SO<sub>4</sub> and water, melting of I with NaOH in an autoclave yields 2,10-dihydroxy-9-keto-2,9-dihydroanthracene (III) (green needles which on heating darken at 274° and m. 303-6° with the formation of 2-hydroxyanthraquinone (IV)), II and a compd. C<sub>14</sub>H<sub>8</sub>O<sub>3</sub>, m. 139-8.5°, possibly an isomer of benzoylanthrone. Heating of III alone, with benzene and with Ac<sub>2</sub>O, BrCl and Me<sub>2</sub>SO<sub>4</sub> (V) in alk. soln. yields IV (in the case of V, 2-methoxyanthraquinone) and bianthrone, which are also obtained from III on treatment with PbO<sub>2</sub> and KMnO<sub>4</sub>. On heating III with NaOH soln. to 215°, there are formed mostly II and little IV. II is formed exclusively on heating III with NaOH, NaNO<sub>2</sub> and water at 210°. All these reactions indicate that III is an intermediate in the formation of II from I on alk. fusion. Heating of III with Na<sub>2</sub>SO<sub>4</sub> in aq. soln. in the absence of alkali in an autoclave yields a green compd., the nature of which has not yet been established.</p>			
<p>Gertrude Berend</p>			

COMMON ELEMENTS										PROCESSING AND PROPERTIES INDEX										COMMON VARIANTS INDEX									
<p>BC</p> <p>ASB-SLA METALLURGICAL</p>										<p>1. Highly elastic deformation in polymers. A. P. Alexandrov and J. S. Lazurkin. II. Dynamic method for the study of elastic materials. J. S. Lazurkin. III. Features of mechanical testing of soft and hard rubber and plastic. G. Gurevitch and F. Kobeko (<i>Acta Physicochim. U.S.S.R.</i> 1940, 12, 647-666, 699-690, 681-702).</p> <p>I. Highly elastic deformation involves re-orientation of the molecules under the imposed stress, and may be considered kinetically as a relaxation process associated with a relaxation time <math>\tau = A \exp(U/kT)</math> where <math>U</math> is the potential barrier between the two configurations. The total deformation after time <math>t</math> is <math>D = D_0 + D_1 \exp(-t/\tau)</math> where <math>D_0</math> is the ordinary elastic deformation and <math>D_1</math> is the final equilibrium value of the highly elastic deformation. For a periodic stress of frequency <math>\omega</math> this gives <math>D = D_0 + D_1 \exp(i\omega t) / (1 + i\omega\tau)</math>. <math>D'</math> and <math>D''</math> being real and imaginary components. Experimental results for rubber and various high polymers show a qualitative agreement with this expression at <math>\omega = 1</math> from 100 to 200.</p> <p>II. In view of the importance of time and temp. with regard to highly elastic deformation (see above) it is desirable to study the response of plastic material to periodic stress over a wide range of frequency and temp. An apparatus for this purpose is described. At room temp. the deformation of rubber is almost independent of <math>\omega</math> (up to 5000 min<sup>-1</sup>). The temp. at which the deformation becomes half that at room temp. depends on <math>\omega</math>, according to eq. <math>\ln(t/t_0) = D/(T - T_0)</math> where <math>T_0 = 1/\omega</math>.</p> <p>III. The total elastic deformation of rubber subjected to a static stress for a limited time decreases with increasing degree of vulcanization, but the initial deformation is almost unchanged. The usual methods for testing the mechanical properties of plastic materials fail to show the influence of time and temp. on the highly elastic deformation.</p>										<p>A-1</p>									
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1ST AND 2ND SERIES										3RD AND 4TH SERIES									
PROCESS AND PROPERTIES INDEX																			
<p>CA</p> <p>The crystallization and crystallizing force of polymers.  A. E. Aleksandrov. <i>Izvestiya Akademii Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk</i> 1, 7-9 (1943) (Pub. 1948).  Many anomalous properties of polymers at temps. below their m.p. are attributed to formation of "fringes" around the crystals, composed of unoriented portions of polymer chains. These do not form part of the ordered crystal, and may be bound into another crystal in an un-oriented manner.  H. M. Leicester</p>																			
<p>ASB-31A METALLURGICAL LITERATURE CLASSIFICATION</p>																			
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[illegible]



S.C.L.

35. Synth. Rub. & other  
Products

Resistance to cold of high molecular compounds.  
A. P. ALEKSANDROV (Trudy Konferentsii Vysokomolekulyarnykh Soedineniyam, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk, 1944, publ. 1945, 2, 19-59; Chem. Abstr., 1946, 40, 200). - The theory of reversible and irreversible deformation of macromolecules is discussed in terms of the internal forces involved. The effect of temperature on the physical properties of the polymers that do and do not form glasses is explained in terms of the theory. 35343

1946

**Softening temperature of polymers.** A. P. Aleksandrov and Yu. S. Lazurkin, *Doklady Akad. Nauk. S. S. S. R.* **43**, 390, 9 (1944); *Compt. rend. acad. Sci. U. R. S. S.* **43**, 376, 9 (1944) (in English).—A study was made of 10 polystyrene (PS) and 11 polymethylmethacrylate (PMMA) samples with respect to (1) softening temp., (2) av. mol. wt. of the fraction of high mol. wt. and (3) proportion of fraction of low mol. wt. (monomer) in each sample. No correlation was found between (1) and (2) for PS and PMMA samples whose fractions of high mol. wt. had av. mol. wt. varying, resp., from 26,500 to 120,000 and from 20,000 to 135,000. The softening temp. of both PS and PMMA decreased from 100° to ~50° as the proportion of material of low mol. wt. (monomer) increased from 0% up to 40% and 60%, resp. These data support the view that the softening of polymers is not dependent on the mobility of mols. of high mol. wt. as a whole but is detd. by the mobility of individual units or portions of such mols. Although linear polymers in general possess a lower softening temp. than branched and space polymers a small no. of cross links, e. g., 2 to 3 per 100 macromol. linear links, cannot essentially change the softening temp. However, if the no. of cross links approaches the no. of links in the linear chain, then the d. of the polymer is increased and the softening temp. is raised.

I. W. Perry

J. W. Barry

Strength of amorphous and of crystallizing rubberlike polymers. A. P. Aleksandrov and Ya. S. Lazurkin. *Doklady Akad. Nauk. S.S.S.R.* 45, 308-11; *Compt. rend. acad. sci. U.R.S.S.* 45, 291-4 (1944) (in English).—Rubberlike elastomers can be grouped in 2 classes, depending on the effect of fillers on tensile strength. Those of the 1st group, viz., Na-polymerized isoprene, polymerized butadiene, Buna-N, Buna-S, and methyl rubber, have inherently low tensile strengths (15-40 kg./sq. cm.), which can be increased up to about 200 kg. per sq. cm. by incorporation of fillers. Those of the 2nd group (natural rubber, chloroprene, Butyl rubber) have inherently high tensile strengths (150-350 kg./sq. cm.), which are not greatly increased by fillers. It is pointed out that the different response to fillers may be due to the fact that stretching of the various unfilled elastomers induces crystn. (cf. C.A. 35, 2020, 8358) only in members of the 2nd group, which thereby undergo a form of "self-loading." This viewpoint is supported by the fact that heating stretched rubbers of the 2nd group above the m.p. of the crystallites (cf. C.A. 25, 1410) causes a sharp drop in tensile strength. The mechanism whereby active fillers act to equalize strains in stressed elastomers is discussed. J. W. Perry

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Strength of amorphous and of crystallizing rubberlike polymers. A. P. Aleksandrov and Yu. S. Lazurkin (Acad. Sciences U.S.S.R., Moscow). Rubber Chem. Tech. 19, 42-45(1940).—See C.A. 39, 5114.

C. C. Davis

Aleksandrov, A.P.

21(8), 21(10)

AUTHORS:

Kurchatov, I. V., Semenov, N. N., SOV/30-58-12-2/46  
Topchiyev, A. V., Aleksandrov, A. P., Ioffe, A. F.,  
Fok, V. A., all of them Academicians, Vul, B. M., Corresponding  
Member, Academy of Sciences, USSR

TITLE:

Outstanding Scientific Discovery (Vydayushcheyesya nauchnoye  
otkrytiye) The Award of the Nobel Prize for Physics to the  
Soviet Scientists P. A. Cherenkov, I. Ye. Tamm, I. M. Frank  
(K prisuzhdeniyu Nobelevskoy premii po fizike sovetским  
uchenym P. A. Cherenkovu, I. Ye. Tammu, I. M. Franku)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 12, pp 7-9 (USSR)

ABSTRACT:

The Cherenkov radiation named after its discoverer (1934)  
was discovered on investigating the luminescence of pure  
liquids under the influence of radium gamma-rays. The late  
Academician S. I. Vavilov suggested and supervised the  
research work. In 1937 I. Ye. Tamm and I. M. Frank elaborated  
the theory of this phenomenon, which showed that electrons have  
to be regarded as source of luminosity, these electrons moving  
steadily at a higher velocity than that of light. Observing  
the Cherenkov radiation has become a convenient method of  
measuring the velocity and direction of the flight of fast

Card 1/3

Outstanding Scientific Discovery. The Award of the Nobel Prize for Physics to the Soviet Scientists P. A. Cherenkov, I. Ye. Tamm, I. M. Frank SOV/30-58-12-2/46

particles. The Cherenkov counter serves for the registration of the charged particles; in 1955 it played an essential part in the discovery and investigation of the new elementary particles, the antiprotons. The discovery of this phenomenon in the Fizicheskii institut Akademii nauk SSSR (Institute of Physics of the Academy of Sciences, USSR) and its theoretical interpretation have to be regarded as a result of the close co-operation between two scientific institutes, the directors of which were S. I. Vavilov and L. I. Mandel'shtam. In 1946 the works of S. I. Vavilov, P. A. Cherenkov, I. Ye Tamm, and I. M. Frank were awarded the first class Stalin Prize. The Nobel Prize award for physics in 1958 is considered to be an acknowledgement of the great importance of the discovery made by Soviet scientists, whereas the award of the Nobel Prize for literature to Pasternak is considered to be due to

Card 2/3

SOV/89-5-3-5/15

AUTHORS: Aleksandrov, A. P., Afrikantov, I. I., Brandaus, A. I., Gladkov, G. A., Gnesin, B. Ya., Neganov, V. I., Khlopkin, N. S.

TITLE: The Nuclear Ice-Breaker "Lenin" (Atomnyy ledokol "Lenin")

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 3, pp. 257-276 (USSR)

ABSTRACT: The ice-braker "Lenin" was put on the stocks in a Leningrad shipbuilding yard on August 25, 1956. The vessel was launched on December 5, 1957. At present she is being completed in a floating dock. The following data were published:

Operation period without refuelling	1 year
Maximum length	154 m
Maximum width	27,6 m
Shaft output	44 000 HP
Displacement	16 000 t
Top speed in deep and calm water and loaded to full capacity	18 knots
Speed in 2.4 m thick ice	2 knots
Number of screws	3
Number of revolutions of screws at maximum speed:	

Card 1/3

The Nuclear Ice-Breaker "Lenin"

SOV/89-5-3-5/15

Central screw	185 revs.p.m.
Lateral screws	205 revs.p.m.
Average height of side of ship	16,1 m
Draught	9,2 m
Total weight of reactor including shields	3 017 t
Specific power	68,5 t/Ht
Weight of shields	1 963 t
Total weight of all other mechanical parts of equipment	2 750 t
Total quantity of steam generated	360 t/h
Temperature of steam	310° C
Steam pressure	28 atm
Steam consumption by main turbogenerator	204 t/h
Steam output of auxiliary boiler	10 t/h
Capacity of auxiliary electrical plant	6 200 kW
Number of reactors	3
Diameter of active zone	1 m
Height of active zone	1,6 m
Degree of enrichment	5% U <sup>235</sup>
Enriching with U <sup>235</sup>	85 kg
Static forward thrust of screws	330 tons

Card 2.3



The Nuclear Ice-Breaker "Lenin"

SOV/89-5-3-5/15

Canning material

zirconium or  
stainless steel

Thermal power of the reactor

90 MW

Maximum thermal load

$10^6$  kcal/m<sup>2</sup>/h

Inlet temperature of water

248° C

Outlet temperature of water

325° C

Reactor boiler

diameter 2 m,  
height 5m.

A number of circuit diagrams and photographs of the entire plant is given. Safety measures are such that the vessel cannot sink even in the case of major damage. The nuclear plant is protected in such a manner that in continuously manned compartments the radiation level does not exceed 0.1 - 0.3 of the maximum tolerable dose for an 8 - hour working day. All quantities of waste water drained off into the sea are below the permitted concentration. Cisterns with a holding capacity of 3,10, and 25 m<sup>3</sup> are provided for the active water. There are 15 figures.

Card 3/3

ALEKSANDROV, A.P.

"Chemical Prospects for the Use of Atomic Energy."

report presented at the 8th Mendeleyev Congress on General and Applied Chemistry, Moscow,  
16-23 March 1959.

**P1(4)**

**PHASE I BOOK EXPLOITATION**

30V/2503

International Conference on the Peaceful Uses of Atomic Energy  
2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energiya. (Reports of Soviet Scientists; Nuclear Reactors and Atomic Power) Moscow, Atomizdat, 1959. 707 p. (Series: Itogi nauki, vol. 2) Khrushchev inserted. 8,000 copies printed.

General Eds.: N.A. Dolbelle, Corresponding Member, USSR Academy of Sciences, A.L. Kravchik, Doctor of Physical and Mathematical Sciences, A.I. Lysakovich, Member, Ukrainian SSR Academy of Sciences, I.I. Korolovskiy, Corresponding Member, USSR Academy of Sciences, and V.G. Puzosov, Doctor of Physical and Mathematical Sciences, Md.: A.P. Alyab'yev, Tech. Md.: Ye. I. Mazal'.

**PURPOSE:** This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

**COMMENTARY:** The second volume of a six-volume collection on the present use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1956 in Geneva. Volume 2, consisting of thirty-one articles, is devoted to the second to experimental and research reactors. The six participants carried out on these, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. M. I. Morozkin is the scientific editor of this volume. See SOV/281 for titles of all volumes of the set. References appear at the end of the articles.

Boilerless, M. A., A. L. Green, M. A. Nikolayev, A. N. G. Leon'yants, and G. M. Usatkov. Experiments of Operating the Pione Acoustic Power Plant in the USSR and the Plant's Work Under Boiling Conditions. (Import No. 2183)

Palshchinskii, A. K. Izrael, P. I. Alekshchenko, I. M. Gerasimov, I. M. Kuznetsov, N. V. Kharin, G. V. Kuznetsov, I. M. Ruzhnikov, I. M. Shkrebnev, N. A. Medvedev and I. I. Golitsin. A Group of Scientists Working on the Problem of the Development of a Gas Turbine Engine Reactor with High Pressure Steam Superheaters. (Report No. 1139)

~~Alexandrov, A.P., I.I. Arkharov, A.I. Brandus, A.I. Brandus,  
G.A. Orlov, B.Ya. Gushin, V.I. Kozlov, and N.S. Mikhlin.  
The Atomic Industry in Leningrad (Report No. 2140)~~

Glynnear, Th. V. and R.O. Pollock. Radiation Safety System of the Atomic Icebreaker (Report No. 2518) 87

UDC 621.372.6.01 Water-water Power Reactors (WWR) in the USSR (1955)  
(Report No. 2184)

Asparukhyan, B.S.; A.N. Glukhov, V.V. Gornakarov, A.I. Kovaliev,  
and S.A. Skvortsov. Heat-producing Elements for Water-water  
Reactors of Atomic Power Plants (Report No. 2196) 11

~~Ruzhnikov, A.M.~~ and V.I. Subbotin. COOLING WATER-WATER REACTORS  
(Report No. 2144)

Yermakov, V.S. and I.V. Lyubov. A Study of Unsteady Heat Transfer in Heat-producing Elements of Nuclear Reactors (Report No. 2470)

Ivanovskiy, M.M., V.I. Subbotin, and P.A. Nakhayev. High-speed method of measuring the heat transfer coefficient in the pipe  
(Report No. 2475)

Intacteladre, S.S., V.I. Subbotin, V.M. Borishanskly, and P. L. Kiriiov. Best Results During the Flow of Liquid Metal in and Pipes (Report No. 2210)

Krasobinskiy, O.R. Economics of Nuclear Fuel in Past Power Reactors (Report No. 2028)  
Belkin, V.B., P.I. Krasobinskiy, Yu.S. Sigornov, and O.V. Shvedov.

Thermal Neutron Density Distribution Along the Radius of  
Assemblies of Rod-shaped Heat Producing Elements (Report  
No. 2034)

ALEXANDROV, A.P.

S/030/61/000/012/001/004  
B105/B101


AUTHOR: Aleksandrov, A. P., Academician

TITLE: Discussion of reports (from "ochen' interesnyye ..." on p. 52 to the end only)

PERIODICAL: Akademiya nauk SSSR. Vestnik, <sup>51</sup>no. 12, 1961, 51-52

TEXT: The difficulty in recent successful investigations consisted in that the configuration of the magnetic field, which isolates the hot mass from the reactor walls, does not conserve the plasma sufficiently long. To overcome the instability of the plasma, installations in which the magnetic field decreases with the radius of the system, have been put up in the Soviet Union. At the Institut atomnoy energii imeni I. V. Kurchatova (Institute of Atomic Energy imeni I. V. Kurchatov), new systems with combined magnetic fields were tested, where the strength of the magnetic field increases with increasing radius. In these systems, the plasma can be conserved much longer.

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S/030/62/000/005/001/006  
B104/B108

AUTHOR: Aleksandrov, A. P., Academician

TITLE: Problems in atomic power engineering

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 5, 1962, 20-32

TEXT: The three different methods of energy production by "burning" of nuclear fuel are discussed. Details of the new Novovoronezh Atomic Power Station developed under I. V. Kurchatov are given. A new reactor type is being constructed in the Belorusskaya atomnaya stantsiya (Belorussian Atomic Power Station) by Corresponding Member AS USSR N. A. Dollezhal'. Steam is produced by nuclear heat. Thin-walled steel tubes are mounted in an 8 m high graphite cylinder of 12 m diameter. The steel tubes are coated with a uranium composition on the outside. Thin steel cases protect these tubes. Part of the channels heat and vaporize the water, the others superheat the steam up to 450-530°C. Research reactors, low energy accelerators, electromagnetic isotope separators, and apparatus for neutron spectroscopy were constructed for reactor development and research. Radiation strength of reactor materials, radiation damage and heat damage

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Problems in atomic power engineering

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on fuel elements and changes in the uranium microstructure in high neutron current densities are discussed. Besides in laboratory tests fuel elements are to be tested in research reactors under normal working conditions. There are 12 figures.

Card 2/2

ALEKSANDROV, A.P.

Problems in nuclear power engineering. Atom. energ. 13 no.2:  
109-124 Ag '62. (MIRA 15:8)

(Nuclear engineering)

ALEKSANDROV, A. P.; KHLOPKIN, N. S.; POLOGIKH, B. G.; TSAREV, N. M.; SLEDZYUK, A. K.

"Operation of atomic plant on the icebreaker Lenin."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy,  
Geneva, 31 Aug-9 Sep 64.



ARTSIMOVICH, L.A., akademik; KELDYSH, M.V., akademik; KAPITSA, P.L., akademik;  
VUL, B.M.; VERESHCHAGIN, L.F.; PISTOL'KORS, A.A.; SHCHUKIN, A.N.,  
akademik; SKOBEL'TSYN, D.V., akademik; ALEKSANDROV, A.P., akademik;  
AMBARTSUMYAN, V.A., akademik; ZEL'DOVICH, Ya.B.; SEMENOV, N.N.,  
akademik; KOTEL'NIKOV, V.A., akademik; LIFSHITS, I.M.; VEKSLEP, V.I.,  
akademik; GINZBURG, V.L.; MILLIONSHCHIKOV, M.D., akademik

Some problems in the development of modern physics; discussion of  
the work of the Department of General and Applied Physics. Vest.  
AN SSSR 35 no.2:3-46 F '65. (MIRA 18:3)

1. Chleny-korrespondenty AN SSSR (for Vul, Vereshchagin, Pistol'kors,  
Lifshits, Ginzburg).

i 15937-66 EWT(a)/TBD/EWT(1)/EWT(m)/REC(k)-2/EMP(f)/UFF(n)-2/T/EMP(z)/EWA(h)/ETC(a)-6  
 ACC NR: AP6004414 ECTB/1JP(c) WO/WN SOURCE CODE: UR/0051/66/020/001/0133/0137

AUTHOR: Aleksandrov, A. P.; Genkin, V. N.; Kheyfets, M. I.

ORG: none

TITLE: Measurement of the population of the metastable level of the working medium of a laser

SOURCE: Optika i spektroskopiya, v. 20, no. 1, 1966, 133-137

TOPIC TAGS: laser optic material, laser theory, luminescence, laser pump

ABSTRACT: The authors discuss an experimental method for determining the relative number of excited molecules in a medium, based on the use of luminescence saturation. This research was motivated by the fact that knowledge of the maximum attainable population of the metastable level is one of the main criteria in the choice of a laser medium. The luminescence saturation curves of ruby were investigated. The luminescence was produced by a xenon flash-lamp pump. The luminescence intensity was plotted against the energy dissipated in the lamp supply circuit. The pump energy was assumed to be a linear function of luminescence, so that the relationship between the pump energy and the energy supplied to the laser could be readily determined. Luminescence was excited in a laser consisting of an elliptical reflector, with the ruby and the xenon pump lamp located in its foci. The measurement was made in two stages. In the first the luminescence was plotted as a function of the voltage in the linear mode (with the diaphragm), and in the second the same plot was obtained in the saturation mode (without the diaphragm). The results show that the

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pump energy was not proportional to the electric energy at high and at low voltages. The tests were made with two ruby samples. One of the samples gave results which agreed with theory. The results from the other sample were not in agreement with theory. The disagreement in the second case is attributed to the fact that only part of the ruby volume participated in the laser action. It is emphasized in conclusion that such experiments yield only the metastable-level population averaged over the volume, which is sufficient information for the investigation of new laser media. Orig. art. has: 4 figures and 6 formulas. [02]

SUB CODE: 20/ SUBM DATE: 13Apr64/ ORIG REF: 002/ OTH REF: 004/ ATD PRESS:

4202

Card 2/2

REKOVA. I.P.; FOGEL', Ya.M.; ALEKSANDROV, A.P.

Mechanism underlying the effect of gases on the thermionic emission  
from platinum and tungsten. Zhur. tekhn. fiz. 35 no.9:1642-1645 S  
'65. (MIRA 18:10)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.

ALEKSANDROV, A.P.; GENKIN, G.M.; GUREVICH, G.L.; DUBININ, V.I.

Establishment of ferrite magnetization precession at high power levels. Fiz. tver. tela 5 no.10:2766-2770 0 63. (MIRA 16:11)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

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S/056/60/038/004/039/048  
B006/B056

9.4300(1035,1138,1143)  
24.7900

AUTHORS:

Aleksandrov, A. P., Khanin, Ya. I., Yashchin, E. G.

TITLE:

Observation of the Spontaneous Coherent Radiation<sup>1</sup> of a  
Ferrite in a Resonator

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 4, pp. 1334 - 1337

TEXT: As the previously used method of exciting ferrites does not lead to satisfactory results, the authors employed a somewhat different principle based upon the fact that the ferrite is excited at a frequency  $\nu_1$  which deviates from the frequency  $\nu_2$  of spontaneous radiation. Between excitation and emission is the time  $t_2 - t_1$ , during which the external magnetic field changes from  $H_1 = 2\pi\nu_1/\gamma$  to  $H_2 = 2\pi\nu_2/\gamma$ , where  $\gamma$  is the gyromagnetic ratio of the electrons. The block diagram of the apparatus used is shown in Fig. 1, and is briefly described. The change of the entire field in time is shown in Fig. 2. With  $|H - H_1| \leq \Delta H$ , where  $\Delta H$  is

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Observation of the Spontaneous Coherent  
Radiation of a Ferrite in a Resonator

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the half-width of the resonance line of the ferrite, the ferrite enters into interaction with the high-frequency field, and a precession of the magnetic moment with the angle  $\theta$  is caused. In the following time intervals, the precession frequency does not decrease with the eigenfrequencies of the resonators ( $\nu_1 < \nu < \nu_2$ ) and the angle  $\theta$  decreases only in consequence of relaxation processes:  $\theta = \theta_0 \exp(-(t-t_1)/\tau)$ . With

$|H - H_2| \leq \lambda \pi \Delta \nu_2 / 2\gamma$ , the ferrite emits a short pulse which is recorded and amplified. The experiments were carried out at  $\nu_1 = 8900$  Mc/sec; the field of the electromagnet  $H$  equaled 3050 oe at a pulsed field strength of 700 oe;  $t_2 - t_1 = 3 \div 15 \cdot 10^{-9}$  sec. The process of coherent emission of the spin system in a resonator has already been investigated by V. M. Fayn; his results are used to estimate the energy and power of the emission. For the power of a pulse, the relation

$P = \text{const} \cdot \Delta t_2 \theta_0^2 \cdot \exp[-2(t_2 - t_1)/\tau]$  is obtained, i.e., direct determination of the relaxation time  $\tau$  is possible by means of the experiment

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Observation of the Spontaneous Coherent  
Radiation of a Ferrite in a Resonator

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described. Fig. 3 shows an oscillogram of emitted signals and of the ferromagnetic resonance. The strong signal is emitted with  $H = H_2$ , the two weaker ones are the resonances with  $H = H_1$ . A spherically ground yttrium ferrigarnet was used as ferrite. The authors thank A. G. Gurevich, G. A. Smolenskiy, and K. P. Belov for making the samples available, and they further thank A. M. Leonov for his assistance and V. M. Fayn for his advice. There are 3 figures and 6 references: 1 Soviet, 1 French, and 4 US.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta (Institute of Radiophysics of Gor'kiy State University)

SUBMITTED: December 31, 1959

Card 3/3



ALEKSANDROV, A. S.

"Mechanization of Stope-Filling Work at the I. V. Stalin Mine," Mekh. trud.  
rab., 6, No.6, 1952

ALEKSANDROV, A. S.

ALEKSANDROV, A. S.: "A system of working transverse-inclined seams with rubbish in the Kuzbass, and its basic parameters." Min Higher Education USSR. Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov. Tomsk, 1956.  
(Dissertation for the Degree of Candidate in Technical Sciences).

SO: Knizhaya letopis', No 23, 1956

KOKORIN, P.I., prof.; ALEKSANDROV, A.S., kand.tekhn.nauk

Trends in the reorganization of Kuznetsk Basin mines during  
the 1959-1965 seven-year period. Izv. vys. ucheb. zav.; gor.  
zhur. no.9:3-6 '60. (MIRA 13:9)

1. Kemerovskiy gornyy institut (for Kokorin). 2. Kombinat  
Kuzbassugol' (for Aleksandrov).  
(Kuznetsk Basin--Coal mines and mining)

ALEKSANDROV, A.S., kandidat sel'skokhozyaystvennykh nauk; VARUMTSYAN, I.S.,  
akademi; GUSHCHIN, B.F., agronom; MEDNIS, M.P., kandidat sel'sko-  
khozyaystvennykh nauk; SOKOLOV, F.A., kandidat sel'skokhozyaystvennykh  
nauk; LEGOSTAYEV, V.M., kandidat sel'skokhozyaystvennykh nauk;  
CHUVAKHIN, V.S., entomolog; CHUMANOV, Yakov Ignat'yevich, doktor  
sel'skokhozyaystvennykh nauk [deceased]; CHELYSHKIN, Yu.G., redaktor;  
VESKOVA, Ye.I., tekhnicheskiiy redaktor

[Cotton growing] Khlopkovodstvo. Pod red. IA.I.Chumanova i V.S.  
Chuvakhina. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1956. 407 p.  
(Cotton growing) (MLRA 10:9)

*ALEKSANDROV, A.S.*

ALEKSANDROV, A.S., kand. sel'skokhozyaystvennykh nauk (Moskva).

Cottonseed production in the U.S.S.R. Agrobiologiya no.6:76-80 N-D '57.  
(Cottonseed) (MIRA 10:12)

CHERMENSKIY, A.D.; ALEKSANDROV, A.S., kand.sel'skokhoz.nauk, otv. za  
vypusk; GORNIK, M.V., red.; USHKOVA, M.P., tekhn.red.

[Advanced practices in cotton growing; based on data of the  
All-Union Agricultural Exhibition of 1958] Peredovoi opyt v  
khlopkovodstve; po materialam Vsesoiuznoi sel'skokhoziaistvennoi  
vystavki 1958 goda. Moskva, 1958. 36 p. (MIRA 13:1)  
(Cotton growing)

DADABAYEV, A.D., akademik, glavnyy red.; KANASH, S.S., akademik, zamestitel' glavnogo red.; UCHEVATKIN, F.I., otv.red.; AVTONOMOV, A.I., red.; ~~ALEKSANDROV, A.S., kand.sel'skokhoz.nauk, red.~~; ARUTYUNOVA, L.G., kand.biol.nauk, red.; VELIYEV, I.M., kand.sel'skokhoz.nauk, red.; KASSIRSKIY, A.A., red.; KRASICHKOV, I.P., akademik, red.; MAKSIMENKO, I.K., akademik, red.; MAL'TSEV, A.M., red.; MANNANOV, N.M., akademik, red.; MUKHAMEDZHANOV, M.V., akademik, red.; SADYKOV, S.S., red.; STRAUMAL, B.P., kand.sel'skokhoz.nauk, red.; SHAFRIN, A.N., zasluzhennyy agronom Uzbekskoy SSR, red.; KURANOVA, L.I., red.; MEDOVAR, TS.I., red.; SOROKINA, Z.I., tekhn.red.

[Materials of the All-Union Conference on Cotton Breeding and the Production of Cottonseed] Materialy Vsesoiuznogo soveshchaniya po selektsii i semenovodstvu khlopchatnika. Tashkent, Uzbekskaya Akad.sel'khoz.nauk, 1960. 383 p. (MIRA 13:11)

1. Vsesoyuznoye soveshchaniye po selektsii i semenovodstvu khlopchatnika.
  2. Uzbekskaya Akademiya sel'skokhozyaystvennykh nauk (for Dadabayev, Mannanov, Mukhamedzhanov).
  3. Vsesoyuznaya akademiya sel'skokhoz.nauk im. V.I.Lenina (for Kanash).
  4. AN UzSSR (for Kanash, Mukhamedzhanov).
  5. Chlen-korrespondent Uzbekskoy Akademii sel'skokhoz.nauk (for Uchevatkin).
  6. Chleny-korrespondenty AN UzSSR (for Avtonomov, Mal'tsev, Sadykov).
  7. AN Tadzh.SSR (for Krasichkov, Maksimenko).
- (Cotton breeding--Congresses) (Cottonseed)

ALEKSANDROV, A. S., kand.sel'skokhozyaystvennykh nauk

Agriculture of Sudan. Zemledelie 8 no.10:81-84 o '60.  
(MIRA 13:10)

(Sudan—Agriculture)



KONSTANTINOV, N.N., doktor biolog.nauk; ALEKSANDROV, A.S., kand.sel'skokhoz.  
nauk

Cotton. Priroda 52 no.4:19-28 '63.

(MIRA 16:4)

1. Glavnyy botanicheskiy sad AN SSSR, Moskva (for Konstantinov).
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(Cotton)

ALEKSANDROV, A.S., kand. sel'skokhoz. nauk

Further improvement in cottonseed breeding and production.  
Agrobiologiya no.1:129-136 Ja-F '64 (MIRA 17:8)

ALEKSANDROV, A.S., kand. sel'skokhoz. nauk (Moskva)

High effectiveness of intravarietal crossing by open  
pollination in the breeding and seed production of cotton.  
Agrobiologiya no.3:363-367 My-Je '65.

(MIRA 18:11)

ALEKSANDROV, A. S.

"Basis of Thermotechnique in Ships' Installations", published by State  
Publishers of River Transport Literature, Moscow, 1948

ALEKSANDROV A. S.

OCT. 48

USSR/Electricity  
Electrical Equipment  
Motors, Electric

"Reports of the Meeting of Consumers and Manufacturers of Electrical Equipment," A. A. Tayts, A. S. Aleksandrov, Engineers, 1 $\frac{1}{2}$  pp

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Summarizes following papers: "Prospects of Producing General Purpose Asynchronous Motors up to 100 Kilowatts," "Main Types of Modern Winding Conductors," and "New Automatic Drives for Machine Building." Lists points made by various engineers. Gives resolution calling for increased production of electric, motors, starters, new-type insulated cables, etc.

PA 21'49T23

ALEKSANDROV, A. S.

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Thermotechnical testing of steam plants on river ships.

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Improving boiler plants of river steamships.

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ALEKSANDROV, A. S.

Teplovoi raschet osnovnykh elementov sudovykh parosilovykh ustanovok; posobie dlia teplotekhnikov i konstruktorov rechnogo flota. Moskva, Izd-vo Min. rechnogo flota SSR, 1950. 133 p. diags.

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(Heat calculation of the basic elements of marine steam-power plants; textbook for combustion engineers and designers of the river fleet.)

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ALEKSANDROV, A. S.

Praktischer Leitfaden für Schiffsheizer Leipzig,  
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1. ALEKSANDROV, A. S.
2. USSR (600)
4. Technology
7. Effort to overcome scale in marine boilers. Moskva, Rechizdat, 1951.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

ALEKSANDROV, ANDREY SYVATOSLAVOVICH

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Sudovyye Kotel 'Nyye Ustanovki  
(Ships' Boiler Installations) POD  
Red. L.V. Arnol'Da. Moskva, Vod-Transizdat, 1954-  
V. Illus., Diags., Tables.  
Includes Bibliographies.  
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ALEKSANDROV, A.

~~Experience~~ with operating a D-50 engine. Mor.flot 15 no.2:16-17  
F '55. (MIRA 8:5)

1. Ispolnyayushchiy obyasannosti starshego mekhanika tankera "General  
Asi Aslanov."  
(Marine engines)

ALEKSANDROV, A.

Device for automatic stopping of a D-6 engine because of reduced oil pressure. Mor. flot. 15 no.11:25 N '55. (MIRA 9:2)

1.2-i mekhanik d/o "General Azi Aslanov".  
(Marine engines)

ALEKSANDROV, Andrey Svyatoslavovich; KOMOGORTSEV, P.Ya., redaktor; ARNOL'D, L.V., retsenzents; PRISYAGIN, V.V., retsenzents; SHLENNIKOVA, Z.V., redaktor; KRASHAYA, A.K., tekhnicheskii redaktor.

[Thermal calculations for water-tube boilers of ships] Teplovoi raschet sudovykh vodotrubnykh kotlov. Moskva, Izd-vo "Rechnei transport", 1956. 111p.  
(Boilers, Marine) (MLRA 9:6)

ALEKSANDROV, Andrey Svyatoslavovich; ARNOL'D, L.V., professor, redaktor;  
SHLENNIKOVA, Z.V., redaktor izdatel'stva; KRASHAYA, A.K., tekhnicheskii redaktor

[Marine steam-boilers] Sudovye kotel'nye ustanovki. Izd. 2-oe, perer.  
Pod red. L.V.Aronl'da. Moskva, Izd-vo "Rechnoi transport," 1956.  
455 p. (MIRA 10:2)  
(Boilers, Marine)

ALEKSANDROV, A.

Automatic stoppage of the 7D-6 engine in case of an inadmissible rise of temperature of the cooling water. Mor.flot 16 no.11:23 N'56.

(MIRA 10:1)

1. Starshiy mekhanik dizel'-elektrokhoda "General Azi Aslanov."  
(Marine diesel engines--Safety appliances)



ALEKSANDROV, A.; RYABINKIN, Ye.

Experience in operating the propelling motor installation on  
the diesel electric ship "General Azi Aslanov." Mor. flot 16  
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1. Starshiy mekhanik dizel'-elektrokhoda "General Azi Aslanov"  
(for Aleksandrov) 2. Vtoroy elektromekhanik dizel'-elektrokhoda  
"General Azi Aslanov" (for Ryabinkin).  
(Ship propulsion, Electric)  
("General Azi Aslanov" (Ship))

Aleksandrov, A.S.

SHAPKIN, Il'ya Fedorovich; VESELOV, Mikhail Petrovich; TUV, I.A., retsenzent;  
ALEKSANDROV, A.S., redaktor; SHELNIKOVA, Z.V., redaktor izdatel'stva;  
TSVETKOVA, S.V., tekhnicheskii redaktor

[Soda regenerative water softeners for steam equipment in river  
transportation] Sodoregenerativnye vodoumiaschiteli dlia rechnykh  
parosilovykh ustanovok. Moskva, Izd-vo "Rechnoi transport," 1957.  
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BELYANIN, S.A., inzh., ALEKSANDROV, A.S., inzh., red.; MIRONOVICH, V.P. red.;  
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[Rules for the service and maintenance of steam boilers] Pravila  
obslyuzhivaniia parovykh kotlov i ukhoda za nimi. Vvedeny v deistvie  
prikazom MRF No.216 ot 1 oktiabria 1957 g. Moskva, Izd-vo "Rechnoi  
transport," 1958. 57 p. (MIRA 11:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye sudovogo khozyaystva.  
(Boilers)

ALEKSANDROV, A.S., inzh.

Operational engineering characteristics of standard marine engines.  
Rech.transp. 18 no.6:25-27 Je '59. (MIRA 12:9)  
(Marine engines)

ALEKSANDROV, Andrey Svyatoslavovich; KHANDOV, Z.A., prof., doktor tekhn. nauk, retsenzent; MIRONOVICH, V.P., inzh., red.; SHLENNIKOVA, Z.V., red.izd-va; YERMAKOVA, T.T., tekhn.red.

[Control of heat processes in mass-produced motorships] Teplo-tekhnicheskii kontrol' seriinykh teplokhodov. Moskva, Izd-vo "Rechnoi transport," 1960. 127 p. (MIRA 13:11)

1. Zaveduyushchiy kafedroy sudovykh silovykh ustanovok Leningradskogo instituta vodnogo transporta (for Khandov).  
(Motorships) (Thermodynamics)

ALEKSANDROV, Anatoliy Stepanovich; PCHELKIN, Yu.V., red.; ONOSKO,  
N.G., tekhn. red.

[Innovators at the Leningrad Metal Plant] Novatory s metal-  
licheskogo. Leningrad, Lenizdat, 1961. 101 p.

(MIRA 15:2)

(Leningrad--Turbines--Technological innovations)

ALEKSANDROV, Aleksandr Sergeyevich, kand. sel'khoz. nauk; GOMELYUK,  
L.I., red.; DEYEVA, V.M., tekhn. red.; BELOVA, N.N., tekhn.  
red.

[Growing cottonseed]Semenovodstvo khlopchatnika. Moskva, Sel'-  
khozizdat, 1962. 255 p. (MIRA 16:2)  
(Cottonseed)

ALEKSANDROV, A.T.

✓ 3403. Polarographic control of the content of stabiliser and methyl methacrylate in the monomer. M. I. Bobrova, A. N. Matveeva, A. T. Aleksandrov, T. V. Kobylanskaya and L. A. Sokolova (Leningrad Engng. Economics Inst.). *Zashch. Lab.*, 1958, 12 (8), 858-859. — The sample of methyl methacrylate monomer containing quindol is dissolved in an aq. ethanol soln. of tetraethylammonium chloride or tetramethylammonium iodide and the wave at  $-1.8$  to  $-2$  V is measured to give the methyl methacrylate content (0.01 to 0.045 M); a phosphate buffer of pH 7 is added and the wave due to quindol (0.005 to 0.045 M) at  $E_f = -0.048$  to  $-0.053$  V is measured.

G. S. SMITH

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ALEXANDROV, A. P.

USSR/ Chemistry - Laboratory equipment

Card 1/1 Pub. 147 - 26/35

Authors : Aleksandrov, A. V.; Sinitsyn, V. I.; and Chmutov, K. V.

Title : Simple device for the control of cryostat temperature

Periodical : Zhur. fiz. khim. 30/1, 204-205, Jan 1956

Abstract : Description is given of a simple device for controlling the temperature of a cryostat by means of a cylindrical thermostat made of organic glass and placed on the cold transmitter. The accuracy of temperature stabilization accomplished by means of this device is  $0.25^{\circ}\text{C}$ . Three references: 2 USSR and 1 Israel (1953-1954). Drawing.

Institution : Acad. of Sc., USSR, Inst. of Phys. Chem., Moscow.

Submitted : October 27, 1955

ALEKSANDROV, A.V.; LOSKUTOV, V.V., retsenzents; MANUKHOV, V.V., nauchnyy  
redaktor; PETERSON, M.M., tekhnicheskiiy redaktor

[Marine pipe systems] Sudovye sistemy. Leningrad, Gos. soiuznaya  
izd-vo sudostroitel. promyshl., 1954. 376 p. [Microfilm] (MLRA 8:3)  
(Marine pipe fitting)

ALEKSANDROV, Anatoliy Vasil'yevich; CHMUTOV, K.V., red.; SHORYGIN, S.A., red.;  
MURASHOVA, N.Ia., tekhn.red.

[Indicators of invisible particles and radiations] Schetchiki  
nevidimyykh chastits i izlucheni. Pod red. K.V. Chmutova. Moskva,  
Gos. izd-vo tekhniko-teoret. lit-ry, 1958. 92 p. (MIRA 12:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Chmutov).  
(Nuclear counters) (Ionization chambers)

3 (5).

AUTHOR:

Aleksandrov, A. V.

SOV/20-127-3-41/71

TITLE:

New Data on the Coal Deposits of the Eastern Part of the  
Tungusskiy Basin

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 620-623 (USSR)

ABSTRACT:

The branch of the AS USSR mentioned in the Association has carried out investigations for two years concerning the above topic along the upper course of the river Vilyuy (about 1000 km long). Thus, an area of about 25000 km<sup>2</sup> was covered. Rocks of the sedimentary Upper-Paleozoic complex (with which all coal exposures are connected), a tuffaceous complex, and traps occur there. A short description is given of an investigation of these Soviet regions which are most unexplored from a geological standpoint (papers by M. M. Odintsov, L. Ye. Offman, B. I. Rybakov, G. Kh. Faynshteyn, V. L. Masaytis, Ye. S. Razumovskaya, A. S. Strugov, Ye. S. Bartoshinskaya, et al). The establishment of a reliable marking horizon for the correlation of the cross sections is rendered difficult by the insufficient exposure of sedimentary primary rocks. Boreholes are also completely absent. Nevertheless, the coal deposits of the region mentioned could be given a tentative estimation. The Tungusskaya coal-bearing mass shows

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New Data on the Coal Deposits of the Eastern Part of  
the Tunguskiy Basin

SOV/20-127-3-41/71

the largest expansion although on the map it forms single spots only. Traps have the highest position with regard to hypsometry, followed up by tuffaceous formations and, at last, sedimentary masses which, so to speak, fill up the recent relief depressions. On account of spore-pollen complexes and some discoveries of vegetation, they were ascribed to the Carboniferous and Permian. The upper Vilyuy mass may be related to the Katskaya ( $C_2+C_3$ ) and the Burguklinskaya ( $P_1$ ) suites of the northwest cross section of the Tunguskiy Basin on the one hand, and to the Ishanovsko intermediate suite ( $P_1^{1-P}$ ) and the Alykayevskaya ( $C_{2-3}^{a1}$ ) lower suite of the Kuznetskiy Basin on the other. A summarized cross section of the mass mentioned is given. According to the entire geological position, the author specifies the following seven coal-bearing regions: (1) Ulakhan-Vavskiy, (2) Lakharchano-Ambardakhskiy, (3) Chalbainskiy, (4) Ed'ek-Chachanskiy, (5) Chono-Chokhchul'skiy, (6) Akhtarandinskiy, and (7) Markokinskiy (Fig 1). From a petrographical

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New Data on the Coal Deposits of the Eastern Part of  
the Tunguskiy Basin

SOV/20-127-3-41/71

standpoint, the coals found in these regions belong, for the major part, to the class of humites and can be divided into several types. Most of them are transitional coals, ranging from pit coals to long-flaming and brown coals with low sulphur and ash content as well as sufficient caloric properties. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Sibirskoye otdeleniye Yakutskogo filiala Akademii nauk SSSR  
(Siberian Department of the Yakutskiy Branch of the Academy of Sciences, USSR)

PRESENTED: March 12, 1959, by D. V. Nalivkin, Academician

SUBMITTED: February 11, 1959

Card 3/3

ALEKSANDROV A.V.

RYTCHENKO, V.I.; inzhener; ALEKSANDROV, A.V.; inzhener; KITAYEV, A.S.;  
inzhener; YEMEL'YANOV, A.Ya.; inzhener; GALAKTIONOVA, Ye.N.,  
tekhnicheskii redaktor.

[Organization of battery shops in automobile works] Organizatsiia  
akkumuliatornykh tsekhov v avtomobil'nykh khoziaistvakh. Moskva,  
Nauchno-tekhn.izd-vo avtotransp.lit-ry, 1957. 119 p. (MIRA 10:11)

1. Moscow. Nauchno-issledovatel'skiy institut avtomobil'nogo transporta.  
(Automobiles--Batteries)

YEVGRAFOV, Georgiy Konstantinovich, prof., doktor tekhn.nauk; IOSILEVSKIY, Lev Izrailevich, kand.tekhn.nauk, dotsent; ~~ALEKSANDROV~~, Anatoliy Vasil'yevich, kand.tekhn.nauk, dotsent; ~~BOGDANOV~~, Nikolay Nikolayevich, kand.tekhn.nauk, dotsent; YEREMIEV, Genrikh Mikhaylovich, inzh.; CHIRKOV, Vladilen Pavlovich, inzh. Primali uchastiye: RYBIN, V.D., inzh.; ANTIPOV, A.S., inzh. MITROFANOV, Yu.M., inzh., retsenzent; KARAMYSHEV, I.A., inzh., red.; USENKO, L.A., tekhn.red.

[Prestressed bridge girders with stretching of the reinforcement before the concrete is placed] Predvaritel'no napriazhennye balochnye proletnye stroeniya mostov s napriazheniem armatury do betonirovaniya. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniya, 1962. 282 p. (MIRA 15:4)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Yevgrafov).  
(Bridges, Concrete) (Prestressed concrete)



ALEKSANDROV, Aleksandr Vasil'yevich; BOGACHEV, A.I., kand.tekhn.  
nauk, retsenaent; LOSKUTOV, V.V., kand.tekhn.nauk, retsen-  
zent; EYKHGORN, L.G., nauchnyy red.; OSVENSKAYA, A.A., red.  
ERASTOVA, N.V., tekhn. red.

[Ship systems]Sudovye sistemy. Leningrad, Sudpromgiz, 1962.  
428 p. (MIRA 15:8)

(Marine engineering)

SMIRNOV, Anatoliy Filippovich, doktor tekhn. nauk, prof.;  
ALEKSANDROV, Anatoliy Vasil'yevich; SHAPOSHNIKOV,  
Nikolay Nikolayevich; LASHCHENIKOV, Boris Yakovlevich;  
RABINOVICH, I.M., doktor tekhn. nauk, prof., retsenzent;  
OSIPOVA, E.M., red.; ZUBKOVA, M.S., red.

[Calculating structures by using computing machines; a  
manual for colleges] Raschet sooruzhenii s primeneniem vy-  
chislitel'nykh mashin; uchebnoe posobie dlia vuzov. [By]  
A.F.Smirnov i dr. Moskva, Stroizdat, 1964. 379 p.  
(MIRA 18:2)

L 6789-65 EWT(m) Pa-4 DIAAP/AFWL/APGC(c)/ASD(a)-5/SSD  
ACCESSION NR: AP4047251

18/0213/64/004/005/0825/0830

AUTHORS: Ushakova, N. P.; Aleksandrov, A. V.

TITLE: Statistical characteristics of radioactivity in the atmosphere over the Atlantic Ocean

SOURCE: Okeanologiya, v. 4, no. 5, 1964, 825-830

TOPIC TAGS: research ship observation, atmospheric radioactivity, statistical distribution, fallout, aerosol

ABSTRACT: In considering the activity of fallout and the concentration of activity--functions of a great number of random variables (time and meteorological conditions), the distribution of atmospheric radioactivity above the North Atlantic might be expected to be gaussian (as observed on investigations in September and November 1961), but the actual distribution, represented on histograms, differs strongly from normal distribution. Distribution maximums are strongly shifted from the mean toward low values, and there is a noticeable tail of high values (skewing to the right). The histograms appear to be composites of two distributions, each approaching normal form, but differing in shape for the high and low intensities.

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L 6789-65

ACCESSION NR: AP4047251

This means that the two maximums result from different processes. Statistical evaluation indicates that the concentration of radioactive material is more stable than the activity of fallout. This may be due to slowly or weakly settling components in active aerosols. The concentration distribution completely "forgets" previous values in approximately four days; fallout has a corresponding period of but two and a half days. The observed phenomena must be explained on the basis of three types of components: rapidly settling components, moderately settling components, and slowly settling components. Active fallout is well known to be closely related to active precipitation, but studies show that processes in the lower layers of the atmosphere are but secondary to stratospheric processes, and that prolongation of fallout is a function of stratospheric conditions. The nature of the correlation functions of concentration, fallout, and the time of correlation does not depend on conditions of atmospheric contamination. The functions are stable objective characteristics, representing processes of atmospheric purification. The statistical approach may lead to a sensible theory of purification of the atmosphere. Orig. art. has: 5 figures.

ASSOCIATION: Morskoy gidrofizicheskiy institut AN UССР (Marine Hydrophysical Institute AN UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: ES, CB

NO REF SOV: 001

OTHER: 000

Card 2/2

ALEKSANDROV, A.V.

Analytical dependence of the degree of compression and the  
power of a compressor station on its flow-through capacity.  
Gaz.prom. 10 no.2:39-42 '65.

(MIRA 18:12)

ALEKSANDROV, A.V., inzhener.

Another demonstration for a theorem of a method of given  
stresses. Trudy NIIZHT no.11:331-332 '55. (MLRA 9:10)

*MLRA 9:10*  
(Girders) (Strains and stresses)

SOV/124-58-7-8084

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 111 (USSR)

AUTHOR: Aleksandrov, A.V.

TITLE: An Energy Method for Determining the Critical Loads of Frameworks (Energeticheskiiy sposob opredeleniya kriticheskikh nagruzok ramnykh sistem)

PERIODICAL: Tr. Mosk. in-ta inzh. zh.-d. transp., 1957, Nr 91, pp 149-166

ABSTRACT: The method of successive approximations is used to determine critical loads. To determine the first-approximation deformations in the rods of a frame, the author recommends that the deflection (slope) of one frame assembly, or of some specially selected section thereof, be taken as given. The angles of rotation of the remaining frame assemblies and of their respective component rods are determined by solving the system of equations of the slope-deflection method (wherein allowance is made for the longitudinal forces). When the method proposed by the author is used, it is also necessary in the initial approximation to set a value for the parameter P. In this case, the first approximation of the value of the critical parameter will

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SOV/124-58-7-8084

An Energy Method for Determining the Critical Loads of Frameworks

be  $P_* = P_1 + \Delta P_1$ , where  $\Delta P_1 (< 0)$  (to use the author's terminology) is the "critical increment". This critical increment is rendered more precise in the ensuing approximations. The author makes no effort to provide theoretical substantiation for his recommendations. Hence there remain unanswered the questions as to whether or not the approximation process would always theoretically converge, as to whether or not it would work well from the practical point of view, and as to whether the value obtained for the parameter  $P_*$  is actually the minimum.

L.K. Narets

1. Structures--Load distribution
2. Structures--Effectiveness
3. Mathematics--Applications

Card 2/2



SMIRNOV, Anatoliy Filippovich, prof.; ALEKSANDROV, A.V., kand. tekhn. nauk,  
red.; KHITROV, P.A., tekhn. red.

[Rigidity and vibrations of structural elements] Ustoichivost' i  
kolebaniia sooruzhenii. Moskva, Gos. transp. zhel.-dor. izd-vo,  
1958. 570 p. (MIRA 11:9)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR  
(for Smirnov).  
(Bridges) (Vibration) (Strains and stresses)

ALEKSANDROV, A.V. (Moskva)

Resistance to deformations caused by the central compression  
in the elastic-plastic stage. Stroi.mekh.i rasch.soor. 2  
no.1:42-46 '60. (MIRA 13:6)  
(Elastic rods and wires)

SMIRNOV, Anatoliy Filippovich, doktor tekhn. nauk, prof.; ~~ALEKSANDROV, Anatoliy Vasil'yevich~~, kand. tekhn. nauk, dots.; MONAKHOV, Nikolay Ivanovich, kand. tekhn. nauk, dots.; PARFENOV, Dionisiy Fedorovich, dots.; SKRYABIN, Aleksandr Ivanovich, kand. tekhn. nauk, dots.; FEDORKOV, Georgiy Vasil'yevich, kand. tekhn. nauk, dots.; KHOLCHEV, Vasil'y Vasil'yevich, kand. tekhn. nauk, dots.; DARKOV, A.V., prof., retsenzent; STARSHINOV, K.K., kand. tekhn. nauk, retsenzent; BURCHAK, G.P., kand. tekhn. nauk, red.; VERINA, G.P., tekhn. red.

[Strength of materials] Soprotivlenie materialov. Moskva, Vses. izdatel'sko-poligr.ob"edinenie M-va putei soobshchenia, 1961. 591 p.  
(MIRA 14:12)

1. Chlen-korrespondent Akademii Stroitel'stva i Arkhitektury SSSR  
(for Smirnov).

(Strength of materials)

ALEKSANDROV, A.V., kand.tekhn.nauk, dotsent

Effect of the cross-section asymmetry on the behavior of a compressed  
rod in the elastic plastic phase. Trudy MIIT no.131:190-204 '61.  
(MIRA 14:5)

(Elastic rods and wires)

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S/044/61/000/011/045/049  
C111/C444

AUTHOR: Aleksandrov, A. V.

TITLE: The numerical solution of linear differential equations  
by aid of the differentiation matrix

PERIODICAL: Referativnyy zhurnal, Matematika, no. 11, 1961, 41,  
abstract 11V231. (Tr. Mosk. in-ta inzh. zh.-d. transp.,  
1961, vyp. 131, 253-266) X

TEXT: One describes the numerical integration of the linear  
differential equations of the building mechanics with variable coeffi-  
cients by aid of the differentiation matrix  $D$  which transforms the  
vector of the function  $y$  (with the components  $y_0, y_1, \dots, y_n$ ) into  
the vector of its first derivative  $y'$  (with the components  $y'_0, y'_1, \dots$   
 $\dots, y'_n$ ) according to the formula

$$y' = hy'_0 + Dy.$$

For an arbitrary partition of the integration interval from  $x=0$  to  
 $x = a$  there are formulas given for the construction of the matrix  $D$ .  
There<sup>n</sup>by the function  $y(x)$  which is to be differentiated, is  
Card 1/3

32522

S/044/61/000/011/045/049

C111/C444

The numerical solution of linear . . . approximated by two polynomials according to the formula  $y(x) = y'_0 H(x) + Q(x)$ , where  $y'_0$  is the value of the derivative of the function  $y(x)$  in the point  $x=0$  and

$$H(x) = \frac{(-1)^n}{a_1 a_2 \dots a_n} x(x-a_1)(x-a_2)\dots(x-a_n);$$

$$Q(x) = y_0 [R_0(x) - R'_0(0) H(x)] + y_1 [R_1(x) - R'_1(0) H(x)] + \dots + y_n [R_n(x) - R'_n(0) H(x)],$$

$R_i(x)$  ( $i=0,1,\dots,n$ ) being the polynomials of Lagrange. The above mentioned approximation is used in order to express the vectors of the higher derivatives by the vector of the function  $\mathbf{y}$  and by the initial parameters  $y'_0, y''_0, \dots, y^{(m)}_0$ . The author writes down the linear differential equation with variable coefficients in matrix form and reduces the problem to a system of linear algebraic equations with

Card 2/3

32522

S/044/61/000/011/045/049

C111/C444

The numerical solution of linear . . . respect to the unknown quantities  $y_0, y_1, \dots, y_n$ . In order to illustrate the described method, and in order to estimate the exactness of it, the author calculates the critical load per unit length of the perimeter for a round plate of constant thickness with strictly fixed borders.

[Abstracter's note: Complete translation.]

X

Card 3/3

ALEKSANDROV, A.V., kand.tekhn.nauk, dotsent

Transposition method for calculating plate-beam construction.  
Trudy MIIT no.174:4-18 '63.

Tensions in suspended spans of an elastic arch with rigid tie-  
beam taking into account the rigidity of the joints. Ibid.:  
118-122 (MIRA 18:1)



LOSKUTOV, Vladimir Vasil'yevich; KHORDAS, Georgiy Saulovich.  
Prinimal uchastiye LAZAREV, I.L., inzh.; ALEKSANDROV,  
A.V., dots., kand. tekhn. nauk, retsenzent; MOCHUL'SKIY,  
A.A., inzh.; GUS'KOV, M.G., nauchn. red.; OZEROVA, Z.V.,  
red.; SHISHKOVA, L.M., tekhn. red.

[Hydraulic calculations of ship systems] Gidravlicheskie  
raschety sudovykh sistem. Leningrad, Sudpromgiz, 1963.  
311 p. (MIRA 17:3)

USHAKOVA, N.P.; ALEKSANDROV, A.V.

Statistical characteristics of atmospheric radioactivity over  
the Atlantic Ocean. Okeanologia 4 no.5:825-830 '64  
(NINA 1881)

1. Morskoy gidrofizicheskiy institut AN UkrSSR.

SHCHEGOLEV, Aleksandr Pavlovich; ALEKSANDROV, A.V., kand. tekhn.  
nauk, retsenzent; KARELIN, V.F., nauchn. red.; NIKITINA,  
R.D., red.

[Testing and adjustment of ship ventilation systems] Ispy-  
tanie i nastroiika sudovykh ventiliatsionnykh sistem. Le-  
ningrad, Izd-vo "Sudostroenie," 1964. 102 p.

(MIRA 17:4)

OVCHINNIKOV, Ivan Nikolayevich. Primal uchastiye YAKUSHIN, I.A.,  
inzh.; OBRAZTSOV, B.M., kand. tekhn. nauk, retsenzent;  
RUBASHKIN, R.A., inzh., retsenzent; TISHKOVETS, I.V.,  
nauchn. red.; NIKITINA, R.D., red.; ALEKSANDROV, A.V., kand.  
tekhn. nauk, red.

[Ship systems and pipelines; arrangement, manufacture and in-  
stallation] Sudovye sistemy i truboprovody; ustroistvo, izgo-  
tovlenie i montazh. Leningrad, Sudostroenie, 1964. 310 p.  
(MIRA 18:3)