"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

LEVANIDOVA, I.M.; RUBANENKOVA, L.S.

Methods of studying the life cycles of amphibiotic insects. Zool. zhur. 44 no.1:34-45 '65. (MIRA 18:4)

1. Tikhookeanskiy nauchno-issledovatel'skiy institut rybnogo khozyaystva i okeanografii Vladivostok.

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RUBANIK, I.

KISELEV, A. (Zaporozh'ye); ABRAMOV, P. (Zaporozh'ye); BAYEV, G. (Zaporozh'ye); AGARKOV, V. (Zaporozh'ye); GOSTRYY, I. (Zaporozh'ye); MAYBORODA, I. (Zaporozh'ye); RUBANIK, I. (Zaporozh'ye); SMERDOV, A. (Zaporozh'ye); KHLIVENKO, V. (Zaporozh'ye); DOLGONOVSKIY, N. (Zaporozh'ye).

We support the patriotic initiative of the Muscovites; a letter from active members of mass defense work in Zaporozh'ye. Voen.znan.32 no.12:17 D '56. (MLRA 10:2)

1. Predsedatel' Dneprovskogo alyuminiyevogo zavodskogo komiteta Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu (for Kiselev). 2. Chlen komiteta (for Abramov, Bayev). 3. Obshchestvennyye instruktory (for Agarkov, Gostryy, Mayboroda, Rubanik). 4. Aktivisty oboronno-massovoy raboty (for Smerdov, Khlivenko). 5. Sekretar' Dneprovskogo zavodskogo komiteta Leninskogo kommunisticheskogo soyuza molodezhi Ukrainy (for Dolgonovskiy).
(Military education)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SISAKYAN, N.M., akademik; RUBANIK, K.P., kand.yurid.nauk

Some problems in international cooperation in science; results of the 11th session of the general meeting of UNESCO. Vest.AN SSSR 31 no.5:78-88 My '61. (MIRA 14:6)
(Science--International cooperation)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, K. P.

AUTHOR: Rubanik, K. P. 30-9-17/48

TITLE: The Activity of UNESCO in the Field of Social Sciences (Deyatel'nost' YUNESKO oblasti sotsial'nykh nauk).

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 9, pp. 91-99 (USSR).

ABSTRACT: One of the most important tasks of UNESCO consists in the development of the international cooperation in the social domain. The agenda for 1957/58 was approved of and carried in the IX general conference in November and December 1956 in Delhi. The author reports in detail on the working method of UNESCO. 18 international scientific organizations work within UNESCO and possess a consultative status in it. Among the tasks of the departments of UNESCO are social - scientific information, the promotion of international understanding for the purpose of consolidating peace, the fight against race - discrimination, the investigation of the social consequences of the progressing technization as well as the project of the further approach and peaceful understanding between West and East. The first consultation thoroughly dealing with this project took place in Paris in April 1957. The Soviet delegate E. N. Zhukov, in his fundamental statements emphasized that a treatment of these problems principally

Card 1/2

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The Activity of UNESCO in the Field of Social Sciences. 30-9-17/48

had to start from the viewpoint of an absolute equality of the two domains (East and West) dividing mankind, also in cultural problems, when an obvious success was to be attained. From the author's report it becomes evident that the scientific quarters of the USSR expect very much from a more intensive cooperation.

AVAILABLE: Library of Congress.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

30(7) SOV/30-59-4-7/51

AUTHORS: Sisakyan, N. M., Corresponding Member, Academy of Sciences, USSR, Rubanik, K. P.

TITLE: The UNESCO and International Cooperation in the Years 1959-1960 (YuNESKO i mezhdunarodnoye sotrudnichestvo v 1959-1960 gg.)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 4, pp 79-87 (USSR)

ABSTRACT: In 1958 representatives of Soviet science took part in the work carried out by the UNESCO. A round-table conference dealing with the topic "Man and Scientific Progress" took place in Paris in November 1958; on this occasion Academician N. N. Semenov spoke about the achievements of Soviet science and technology. Soviet scientists attended also conferences and symposia dealing with problems of science which were held by the UNESCO. 20 Soviet scientists collaborated in 1958 as experts of the UNESCO for technical aid to underdeveloped countries. The UNESCO periodical "International Bulletin for Social Sciences" published in 1958 the following papers by Soviet authors: A. I. Yorysh: "Institutions of State Administration in the USSR", K. I. Klimenko, M. Ye. Rakovskiy: "Technical and Economic Problems of Automation of the Production in the USSR".

Card 1/3

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SOV/30-59-4-7/51

The UNESCO and International Cooperation in the Years 1959-1960

I. P. Tsameryan and S. L. Ronin, staff members of the Academy of Sciences of the USSR, prepared the following pamphlets to be published by the UNESCO: "Education in Social Sciences in the USSR", "Equality of Rights of Races and Nations in the USSR". The Soviet scientists L. A. Zenkevich, G. V. Bogomolov, Ye. M. Zhukov and V. A. Kovda work in various institutions of the UNESCO. According to the authors' opinion the program of the UNESCO may, in spite of several shortcomings, serve as a basis of international cooperation. They regard it as a great mistake that the People's Republic of China is not a member of the UNESCO. According to a suggestion made by the USSR, an International Conference on Semiconductors and the Establishment of a Convention for Scientific-technical Collaboration is to be convened in the years 1961-1962. An International Congress for Oceanography is to be convened in New York in September 1959 and a Conference on the Equipment of an International Research Ship is to be held in 1960. The periodical "Kur'yer YuNESKO" published the article "Solar Energy. Hopes and Reality" by the Soviet scientist V. A. Baum. A Conference on the Use of Electronic Computers is to be convened in Paris in June 1959. At

Card 2/3

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The UNESCO and International Cooperation in the Years 1959-1960 SOV/30-59-4-7/51

request of the International Association for Legal Sciences the Legal Institute of the AS USSR works out a bibliographical survey of Soviet law.

Card 3/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SISAKYAN, N.M.; RUBANIK, K.P.

UNESCO and international scientific cooperation during 1959 and 1960. Vest. AN SSSR 29 no.4:79-87 Ap '59. (MIRA 12:5)

1. Chlen-korrespondent AN SSSR (for Sisakyan)
(Science--International cooperation)
(United Nations Educational, Scientific and Cultural Organization)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, K.P.

Activities of UNESCO in the field of natural sciences; short notice.
Vest. AN SSSR 27 no.6:85-91 Je '57. (MIRA 10:7)
(United Nations Educational, Scientific, and Cultural Organization)
(Science)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SINYAVSKAYA, V.M., inzh.; GAVRISH, P.D., inzh.; RUBANIK, M.N., inzh.

Actual testing of the hydraulic structures of the Stalingrad hydroelectric development. Gidr. stroi. 31 no.9:21-27 S '61. (MIRA 14:12)
(Volga Hydroelectric Power Station (22d Congress of the CPSU)--
Hydraulic structures)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBNIK, Mikhail Yakovlevich, doktor khim. nauk; GORKHOVSKIY, Yaroslav Borisovich, kand. khim. nauk;

[Incomplete catalytic oxidation of olevins]Nepolnoe kataliticheskoe okislenie olefinov. Kiev, Tekhnika, 1964. 234 p. (MIRA 18:1)

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Ca

2

The kinetics of the burning of carbon monoxide. II. Heat of activation in the presence of various catalysts. V. S. FINKELSHTEIN, M. YA. RUBANIK AND I. A. KHITZMAN. *J. Phys. Chem.* (U. S. S. R.) 3, 425-38(1932); cf. *C. A.* 23, 2024.—On the catalysts Fe_2O_3, Al_2O_3, Cr_2O_3, ZnO and fireclay the heat of activation was 25-26 cal., on CuO, 22 cal. and on the very active MnO_2 and pyrolusite 8-10 cal. On the less active catalysts the mechanism consists of activation of O and reaction with 2 mols. of CO; on the more active, of activation of O_2 and reaction with surface-adsorbed oxide. F. H. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

B-I-8

BC

Catalysts for ammonia synthesis. V. Finkelstein [with M. Rubanik, K. Avaljani, and I. Chrisman] (Acta Physicochim. U.R.S.S., 1934, 1, 521—524).—An account is given of some studies of Fe-Mo catalysts for the synthesis of NH_3. By a dynamic method the heat of activation of the synthetic reaction is found to be 21·8 ± 3 kg.-cal. The heat of activation of the decomp. of NH_3 at 350—620°/180 mm. is 11·7 kg.-cal.

O. J. W.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

MATERIALS INDEX

3RD AND 4TH ORDERS

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-I-8

Kinetics of ammonia synthesis on technical iron catalyst. V. Fishbeltrin and M. Rubanik (with H. V. Poljanova) (Acta Physiochim. U.R.S.S., 1935, 3, 945–906; cf. B., 1935, 801).—The order of reaction is 2 and the heat of activation 21 ± 2 kg.-cal. It is suggested that the primary step requiring the activation is $xFe + N_2 + H_2 \rightarrow 2Fe_xNH$. R. S.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

Fe GROUPS

3RD AND 4TH ORDERS

2ND LETTER

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

18

Kinetics of ammonia synthesis by technical iron catalysts. V. S. Finkel'shtein and M. Ya. Rubanik. *J. Phys. Chem.* (U. S. S. R.) 6, 1051-8(1935). *Acta Physicochem. U. R. S. S.* 3, 945-50(1935). —The apparent energy of activation of NH_3 formation was 21 Cal./mol. Considering the various reaction energies required, it seems that the primary step in NH_3 synthesis is not nitride, but imide formation by direct union of N and H.

F. H. Rathmann

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PROCESSES AND PROPERTIES INDEX

ca

2

The kinetics of the ammonia synthesis on technical iron catalyst. V. S. Finkel'stein and M. Ya. Rubanik. *Acta Physicochim. U. R. S. S.* 5, 921 [illegible]. Correction to *C. A.* 31, 1687[1]. M. M. C.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Kinetics of the synthesis of ammonia on technical iron catalysts. V. S. Finkelstein and M. Ya Rubanik. J. Phys. Chem. (U. S. S. R.) 8, 793-4(1936).—F. and R. derive the equation $Be^{-Q/RT} \cdot \frac{p}{f_{T,p}\,RT} = AZS'$ where S' = velocity of cold gas, $f_{T,p}$ = correction factor for real rather than ideal gases, Z = percentage of NH_3 (cf. C. A. 30, 7286[9]) and find that it is applicable to their own previous data and to the data of Haber and Greenwood (cf. C. A. 9, 2820). F. H. R.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

PROCESSES AND PROPERTIES INDEX

Bc

B-I-2

Ferromolybdenum catalysts of ammonia synthesis. M. J. RUBANIK, T. V. ZABOLOTSKI, and M. T. RUSOV (J. Chem. Ind. Russ., 1937, 14, 484—485).—The activity of an 8:2:0·2 Fe-Mo-Al_2O_3 catalyst is > that of Fe-Al_2O_3 catalyst, and is greater when the constituents are fused in an electric arc than when they are calcined at a lower temp. Inclusion of Al_2O_3 in Fe-Mo catalysts does not raise their activity, but prevents inactivation. R. T.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

The activity of catalysts and the energy of activation in heterogeneous catalysis. M. Ya. Rubanik. *Bor. Inst. Fizich. Chem., Akad. Wiss. Ukr. S. S. R.* 11, 11-32(1938); *Khim. Referat. Zhur.*, 1939, No. 10, 6.—The theories of Schwab, Kremer and Adadurov, Rimaier and Dietz are discussed. The explanation given by Schwab and Adadurov concerning the logarithmic relation between A and E in the equation $A = ae^{E/RT} = aI^{E/R}$ is not verified by other investigators and the equality of the values of the coeff. a and b for a reaction taking place with different catalysts proves that the expression $A = ae^{bE}$ is obtained as a result of the action of forces connected with the mechanism of the reaction. The relation between A and E would remain the same if the reaction proceeded homogeneously. In verification of the conclusions the observations of Gapon, Roginskii and Rosenkevich are quoted concerning the exponential connection between the consts. of the Arrhenius equation for homogeneous unimol. reactions.

W. R. Henn

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PROCESSES AND PROPERTIES INDEX

CA

18

Effect of sintering of copper catalyst on its activity and activation energy in the dehydrogenation of ethyl alcohol. M. Ya. Rubanik. *Repts. L. V. P'isarzhevs'kii Inst. Phys. Chem., Acad. Sci. Ukrain. S. S. R.* 11, 33-41(in Russian, 41-2; in English, 42)(1938).—Dehydrogenation of EtOH was investigated by the dynamic method, by use of a Cu catalyst which was sintered, to det. the effect of structure on the activity and activation energy. The catalyst, which was reduced at 200°, showed a rapid reduction in activity at higher temps. Thus, after the expt. at 348° the catalyst gave 2.78 cc. of H_2/3 min. at 282°, compared with 12 cc. of H_2/3 min. at 256° before deactivation. The energy of activation of this catalyst was 7.9 kg.-cal. and after treatment in H_2 at 400° it was 7.2 kg.-cal. The results show that the energy of activation decreases with the temp. of sintering. Results are tabulated and graphed.

B. Z. Kamich

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PROCESSES AND PROPERTIES INDEX

7

CB

Photoelectric method of determining acetylene in air. M. Rubanik and K. Sadovnikova. *Novosti Tekhniki* 1940, No. 9, 32-3.--The CH:CH is first absorbed in an Ilosvay soln. The tube contg. the Ilosvay soln. is placed between the source of current and the photocell and the absorption of light by the glass and soln. ($I\beta$) as well as the absorption of light by the soln. ($I\alpha$) contg. the CH:CH are detd. The index of absorption is $\alpha = \lg. I\beta - \lg. I\alpha$ with $I\beta$ and $I\alpha$ recorded by the galvanometer. The index is plotted against the concn. of CH:CH. The method was used with good results in the analysis of air in industrial plants contg. 0.5×10^{-6} to 0.5×10^{-5}% of CH:CH. A diagram of the set-up is included.

B. Z. Kamich

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

13

Purification of air by removal of admixture of acetylene by oxidation. V. A. Roiter, M. Ya. Rubanik, Yu. A. Snigurovskaya and E. A. Sadovnikova (Inst. Phys. Chem. Acad. Sci. U.S.S.R.). *J. Applied Chem.* (U.S.S.R.) 18, 450-8(1945)(English summary).—It was shown that C_2H_2 can be removed from air by oxidation in passage over the following catalysts: MnO_2, Mn ore promoted by Ag salts. The former is effective over a wide concn. range, the latter only for small concns. Various factors involved were studied. Generally, 160° is a sufficiently high temp. for complete removal of C_2H_2. G. M. Kosolapoff

COMMON ELEMENTS

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

3RD LETTER

3RD AND 4TH ORDERS

MATERIALS INDEX

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, M.Ya.; SNIGUROVS'KA, Yu.O.; PIONTKOVS'KA, M.A.

Kinetics of the oxidation of ethylene to ethylene oxide on a silver catalyst. Dop. AN URSR no.2:37-40 '49. (MLRA 9:9)

1. Institut fizichnoi khimii im. L.V. Pisarzhevs'kogo AN URSR. Predstaviv diysniy chlen AN URSR O.I. Brods'kiy.
(Oxidation) (Ethylene)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Rubanik, M. Ya.

USSR/ Chemistry - Inorganic chemistry

Card 1/1 Pub. 116 - 6/29

Authors : Gorokhovatskiy, Ya. B.; Rubanik, M. Ya.; Belaya, A. A.; Popova, Ye. N.; Kholyavenko, K. M.; and Shcherbakova, G. D.

Title : Kinetics of catalytic oxidation of ethylene into ethylene oxide in a zone exceeding the maximum limit of spontaneous combustion

Periodical : Ukr. khim. zhur. 21/6, 714-720, Dec 1955

Abstract : The relation between the rate of reaction and the ethylene and oxygen contents in the basic reaction mixture was investigated in a zone exceeding the maximum limit of spontaneous combustion. It was established that the yield does not depend upon the ethylene content in the mixture but increases with the increase in the oxygen content of the mixture. The equation governing the kinetics of oxidation of ethylene over a silver catalyst (in the case of rich ethylene mixtures) is presented. The heat of activation for the summary ethylene oxidation process was established at 18 kcal/mol. Ten references: 3 USSR, 1 Austral., 1 Canad., 4 Eng. and 1 USA (1945-1954). Tables; graphs.

Institution : Acad. of Sc., Ukr. SSR. Inst. of Phys. Chem. im. L. V. Pisarzhevskiy

Submitted : April 14, 1955

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, M.Ya.; KHOLYAVENKO, K.M.; GOROKHOVATSKIY, Ya.B.; BELAYA, A.A.; POPOVA, Ye.N.; SHCHERBAKOVA, G.D.

Effect of macrofactors on the rate of catalytic oxidation of ethylene. Ukr.khim.zhur. 22 no.2:190-196 '56. (MLRA 9:8)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN USSR.
(Oxidation) (Ethylene)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Rubanik, M.Ya.

KHOLYAVENKO, K.M.; RUBANIK, M.Ya.

Diagram method study of the effect of internal diffusion on the oxidation rate of ethylene. Ukr. khim. zhur. 24 no.1:55-62 '58. (MIRA 11:4)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
(Ethylene) (Oxidation) (Chemical reaction, Rate of)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Kubanik, M. Ya.

GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.

Catalytic oxidation of propylene on silver. Ukr. khim. zhur. 24 no.1:63-67 '58. (MIRA 11:4)

1.Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Oxidation) (Propylene) (Catalysts)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

5(4) SOV/76-33-6-33/44

AUTHORS: Kholyavenko, K. M., Rubanik, M. Ya.

TITLE: Influence of the Porosity of a Silver Catalyst on the Accessibility of Its Internal Surfaces in the Process of Ethylene Oxidation (Vliyaniye poristosti serebryanogo katalizatora na dostupnost' vnutrenney poverkhnosti yego v protsesse okisleniya etilena)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6, pp 1381-1386 (USSR)

ABSTRACT: In the manufacture of tableted catalysts (C) from powders, it should be attempted to attain an optimum structure porosity. The tablets contain two types of pores - the micropores, i.e. the pores of the powder itself, the dimension of which depends on the production method of the powder, and the macropores, i.e. the pores between the powder particles, the dimensions of which depend on the dispersity of the powder and on the pressure in tableting. The industrial use demands maximum strength of the catalyst tablets. The high pressure applied for this reason can, however, bring about a reduction of the specific surface, and reduce its utility for the reaction. For this reason, the investigations mentioned in the title

Card 1/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SOV/76-33-6-33/44

Influence of the Porosity of a Silver Catalyst on the Accessibility of Its Internal Surfaces in the Process of Ethylene Oxidation

were carried out. The tablets of the silver catalyst with different pore structures were obtained by pressing the silver powder at pressures of from 154-4350 atmospheres. The macrostructure of the (C) was determined by an approximation method from the gas permeability, the effective diffusion coefficient, and the porosity (Ref 4). The general internal surface was measured by the method of low-temperature adsorption of nitrogen. The measurement results obtained (Tables 1, 2) show that a reduction of porosity of the tablets from 52 to 18% by an increase in pressure in tableting leads to a reduction of the diameter of the macropores and to an increase in branching, that the catalyst surface does not change, and that the effective diffusion coefficient of the reacting substance (ethylene) decreases. The porous structure of the tableted silver catalysts has micropores with a mean diameter of 10^{-6} cm and macropores of 10^{-4} cm. The specific surface of the former is 1.06 m^2/g, and of the latter 0.14 m^2/g. The experiments on the influence on the oxidation rate of

Card 2/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Influence of the Porosity of a Silver Catalyst on the Accessibility of Its Internal Surfaces in the Process of Ethylene Oxidation SOV/76-33-6-33/44

ethylene by the internal porosity of the tableted silver catalyst (in a flow-circulation plant with a mixture of 3% ethylene in air) over a temperature interval of 180-300°C (Tables 3, 4) showed that at a reduction of porosity from 55 to 36% no influence can be observed; a further reduction leads to a retardation of the process which is the greater, the higher the temperature is. The present experiments confirm the connection between the utility of the internal surface of the porous catalyst structure and the oxidation rate of ethylene. There are 1 figure, 4 tables, and 8 references, 7 of which are Soviet.

ASSOCIATION: Akademiya nauk USSR, Institut fizicheskoy khimii im. L. V. Pisarzhevskogo, Kiyev (Academy of Sciences of the UkrSSR, Institute of Physical Chemistry imeni L. V. Pisarzhevskiy Kiyev)

SUBMITTED: December 9, 1957

Card 3/3

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

5(1,3)

AUTHORS: Gorokhovatskiy, Ya. B., Rubanik, M. Ya., Kholyavenko, K. M.

SOV/20-125-1-21/67

TITLE: On the Influence Exercised by Reaction Products on the Rate of the Catalytic Oxidation of Ethylene (Vliyaniye produktov reaktsii na skorost' kataliticheskogo okisleniya etilena)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 83-86 (USSR)

ABSTRACT: The problem mentioned in the title was to be investigated in detail in the present paper since it is still rather insufficiently dealt with in publications (Ref 1). These reaction products are ethylene oxide, CO_2, and steam. The flow-circulation method (Ref 2) was employed for these investigations. The rate was measured with constant concentrations in the cycle of the initial substances and with different concentrations of the reaction products. For this purpose the flow rate and the ethylene concentration of the supply mixture were measured at a constant temperature. The acceleration of the flow led to a decrease in the ethylene oxidation. The reaction rate, however, increased (Table 1).

Card 1/3

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This effect may be explained only by the decrease of concentration of the inhibiting products (Ref 3). In order to find out which product mainly inhibits the reaction, traps (collecting vessels)(Fig 1) were introduced between the pump and the reactor. In these traps the individual reaction products were captured which formed during the passage through the catalyst. Since in this way the product concerned was eliminated (or its quantity at least strongly reduced) its influence could be estimated by a comparison of the reaction rate in its presence and absence. Table 2 shows the action of H_2O and CO_2 on the oxidation rate of C_2H_4 at 215°. The reaction rate increases by approximately 1.2 - 1.25 times due to dehydration without a variation in the selectivity. A simultaneous removal of H_2O and CO_2 increases the rate by about 1.6 - 1.7 times. The selectivity decreasing in the case of a removal of CO_2 shows that CO_2 inhibits the reaction of the complete ethylene oxidation more strongly than the reaction of C_2H_4O formation. Higher amounts of CO_2 have a weaker inhibiting effect than smaller ones (Fig 2).

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

On the Influence Exercised by Reaction Products on the Rate of the Catalytic Oxidation of Ethylene SOV/20-125-1-21/67

Table 3 shows the action of C_2H_4O. Its removal accelerates the reaction more than mere dehydration. Acceleration was, however, not uniform in the various experiments. In this case probably the decrease of concentration of the remaining C_2H_4O has produced an effect. This was confirmed by experiments on another catalyst (Table 3). The reaction products form a series with respect to their inhibiting effect: $C_2H_4O > CO_2 > H_2O$. A. A. Belaya, Ye. N. Popova and G. D. Shcherbakova took part in the experimental work. V. A. Royter, Corresponding Member, AS UkrSSR gave advice. There are 2 figures, 3 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk USSR (Institute of Physical Chemistry imeni L. V. Pisarzhevskiy of the Academy of Sciences, UkrSSR)

PRESENTED: November 25, 1958, by B. A. Kazanskiy, Academician

SUBMITTED: December 9, 1957

Card 3/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

06456

S/073/60/026/005/008/019
B004/B063

11.1330

AUTHORS: Gorokhovatskiy, Ya. B., Rubanik, M. Ya.

TITLE: Electron Mechanism of the Reaction of Oxygen and Ethylene With Silver

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 5, pp. 594-599

TEXT: The authors discuss data published on the sorption of initial substances or reaction products on catalysts. Most of these data were obtained under conditions that do not occur in practice. It is noted that the sorption of a gas mixture may differ from that of its components. The present work was carried out to obtain data on the sorption of ethylene on silver in the presence of oxygen. The method applied is based on the measurement of the contact potential difference (cpd) having the reversed sign of the work function. The measurement was made with a vibrating device suggested by V. I. Lyashenko in Ref. 6. Silver films served as experimental electrodes, and gold as a reference electrode. It was found that cpd is lowered by increasing temperature and blowing air through the cell

Card 1/3

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Electron Mechanism of the Reaction of Oxygen and Ethylene With Silver

S/073/60/026/005/008/019
B004/B063

simultaneously. After a decrease of temperature, the original value was no more attained. However, it was reached again by etching the silver film with HNO_3. This was ascribed to the formation of a negatively charged, chemically adsorbed layer of oxygen on the silver surface. Oxygen attracted electrons of the metal, and was polarized and sometimes even ionized. An addition of 3-3.7% of ethylene to air increased cpd. It decreased again when only air was blown through the cell. cpd changed by 15-100 mv. However, when ethylene with an oxygen content of only 1-2% was blown through the cell, cpd changed by 300-400 mv. A comparison with nickel electrodes has shown that between 20 and 120°C silver adsorbs more C_2H_4 than nickel, and nickel more than gold. The work function was lowered by the displacement of electrons from the C_2H_4 molecule to silver, or to the oxygen adsorbed on silver. C_2H_4 was positively charged. This effect became stronger with an increase of the partial pressure of C_2H_4. C_2H_4 was not adsorbed on degassed silver. Summing up: The adsorption of an oxygen-ethylene mixture differs from the separate adsorption of ethylene and oxygen.

Card 2/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

BELOUSOV, V.M.; GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.; GERSHINGORINA, A.V.

Catalytic oxidation of propylene and acrolein on a copper contact. Dokl.AN SSSR 132 no.5:1125-1128 Je '60. (MIRA 13:6)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo Akademii nauk USSR. Predstavleno akademikom A.A.Balandinym.
(Propene) (Acrolein) (Oxidation)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

KORNEYCHUK, G.P.; RUBANIK, M.Ya.

Reactor with a piston turbulator for measuring catalytic activity. Kin.i kat. 2 no.4:633-636 Jl-Ag '61. (MIRA 14:10)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN USSR, Kiyev.

(Catalysis)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

S/020/61/137/006/015/020
B101/B201

AUTHORS: Belousov, V. M., Gorokhovatskiy, Ya. B., Rubanik, M. Ya., and Gershingorina, A. V.

TITLE: Study of the kinetics of the catalytic oxidation of propylene to acrolein by means of the circulating flow

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1396-1398

TEXT: The authors wanted to complete the data on the kinetics of the oxidation of propylene to acrolein by means of a cuprous catalyst. The circulating-flow method was employed for the purpose. The data presented in Table 1 show that raising the rated flow to over four times remains without an effect upon the rate W_1 of acrolein formation, upon W_2 of the CO_2 formation, upon the transformation degree X_{O_2} of oxygen, and the selectivity $S_{C_3H_6}$. Hence, the experimental data were not distorted by diffusion effects. The kinetics of the process was studied by means of a catalyst containing 2.4 g Cu per liter. [Abstracter's Note: no information is supplied regarding

Card 1/8

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

composition and preparation of the catalyst]. The carborundum carrier, grain size 2-3 mm, was large-porous (mean diameter $6 \cdot 10^{-2}$ cm). Some of the experimental data are presented in Table 2. The formation of acrolein and CO_2 was found to be proportional to the O_2 concentration, and to be little dependent upon the propylene concentration. With constant concentration of the initial substances in the cycle, the formation rate of C_3H_4O and CO_2 drops with rising concentration of these oxidation products, this fact being indicative of their inhibiting action. With constant propylene concentration the rate W_1 of acrolein formation obeys the equation $W_1 = k_1[O_2]/(1 + b\Delta[O_2])$; the formation rate W_2 of CO_2 obeys the equation $W_2 = k_2[O_2]/[C_3H_4O]^{0.7}$. $[O_2]$ is the oxygen concentration in the cycle, $\Delta[O_2]$ is the decrease of oxygen concentration, k_1, k_2, and b are constants. The term $b\Delta[O_2]$ takes account of the inhibiting action. The invariable values of k_1 and k_2 on a change of the velocity of flow by the sevenfold, of $[O_2]$ by the fivefold, confirm the validity of these equations. Selectivity in-

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creases somewhat with rising propylene concentration (Fig. 1). The activation energy E_1 for the acrolein formation, E_2 for the CO_2 formation were in the temperature range between 335-380°C: $E_1 = E_2 = 36 \pm 2.5$ kcal/mole; $b = 4.25 \exp(-10000/RT)$ [Abstracter's Note: printing error in the original text]. To clarify which of the oxidation products have an inhibiting action, individual products were removed from the cycle. As may be seen from Table 3, the reaction rate rose to the 2.5 to 3-fold on removal of C_3H_4O and H_2O. If all reaction products were removed, the transformation degree of O_2 remained the same as in the case where only C_3H_4O and H_2O were removed. CO_2 is thus without effect upon the reaction rate. Data obtained confirm the results by O. V. Isayev and L. Ya. Margolis (Kinetika i kataliz, 1, no. 2, 237 (1960)), according to which the oxidation rate of propylene is linearly dependent upon the oxygen concentration. They contradict, however, other conclusions reached by those researchers, according to which the oxidation products have no inhibiting action, and the propylene concentration is without any effect. The authors conclude from their data that a parallel

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formation of C_3H_4O and CO_2 takes place predominantly at lower temperatures, and a parallel-consecutive formation of CO_2 at higher temperatures. Ye. N. Popova, D. Ya. Nechiporuk, and M. V. Rybakova are thanked for their assistance. There are 1 figure, 3 tables, and 8 Soviet-bloc references.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk USSR (Institute of Physical Chemistry im. L. V. Pisarzhevskiy, Academy of Sciences, UkrSSR)

PRESENTED: December 10, 1960, by A. A. Balandin, Academician

SUBMITTED: December 9, 1960

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.; POPOVA, Ye.N.

Effect of the carrier on the properties of propylene oxidation catalysts. Kin.i kat. 3 no.1:133-138 '62. (MIRA 15:3)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN USSR.
(Propene) (Oxidation) (Catalysts)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

BELAYA, A.A.; RUBANIK, M.Ya.

Effect of preparation techniques on the specific activity of silver in ethylene oxidation. Kin.i kat. 3 no.2:201-207 Mr-Ap '62. (MIRA 15:11)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN UkrSSR.
(Catalysts, Silver) (Ethylene) (Oxidation)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

BELOUSOV, V.M.; GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.

Kinetics of oxidation of propylene to acrolein on a copper catalyst. Kin.i kat. 3 no.2:221-229 Mr-Ap '62. (MIRA 15:11)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN UkrSSR.
(Propene) (Acrolein) (Catalysts, Copper)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GOROKHOVATSKIY, Ya.B.; POPOVA, Ye.N.; RUBANIK, M.Ya.

Transfer processes in the oxidation of propylene to acrolein.
Kin.i kat. 3 no.2:230-236 Mr-Ap '62. (MIRA 15:11)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN UkrSSR.
(Propene) (Acrolein) (Catalysis)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SHAPOVALOVA, L.P.; GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.

Oxidation of unsaturated hydrocarbons on a copper catalyst.
Ukr.khim.zhur. 28 no.9:1031-1036 '62. (MIRA 15:12)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR.
(Olefins) (Oxidation)
(Copper catalysts)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

BELOUSOV, V.M.; RUBANIK, M.Ya.

Method of competing reactions used for studying the mechanism of catalytic oxidation of lower hydrocarbons. Kin. i kat. 4 no.6:892-897 N-D '63. (MIRA 17:1)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GOROKHOVATSKIY, Ya.B.; POPOVA, Ye.N.; RUBANIK, M.Ya.

Properties of the carrier of catalyst for the oxidation of propylene to acrolein as dependent on the amount of copper. Zhur. prikl. khim. 36 no.12:2725-2728 D'63. (MIRA 17:2)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN UkrSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SHAPOVALOVA, L.P.; GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.

Effect of the products on the rate of isobutylene oxidation on a copper catalyst. Dokl. AN SSSR 152 no.3:640-643 S '63. (MIRA 16:12)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR. Predstavleno akademikom M.M.Balandinym.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

SHAPOVALOVA, I.F.; GOROKHOVATSKIY, Ya.B.; RUDANIK, M.Ya.

Kinetics of isobutylene oxidation to methylacrolein on a copper catalyst. Kin. i kat. 5 no.2:330-336 Mr-Ap '64. (MIRA 17:8)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN UkrSSR.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

KHOLYAVENKO, K.M.; RUBANIK, M.Ya.; CHERNUKHINA, N.A.

Chemisorption method used for determining the surface area of silver deposited on a carrier. Kin. i kat. 5 no.3:505-512 My-Je '64. (MIRA 17:11)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GEREY, S.V.; KHOLYAVENKO, K.M.; RUBANIK, M.Ya.

Chemisorption of ethylene and oxygen under conditions close to catalysis. Part 3: Infrared spectra of ethylene chemisorbed on silver. Ukr.khim.zhur. 31 no.5:449-457 '65. (MIRA 18:12)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR. Submitted July 22, 1964.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GELLER, B.A.; NEYMARK, I.Ye.; RUBANIK, M.Ya.; GRAGEROV, I.P.; POLYAKOV, M.V.; RUSOV, M.T.; DAIN, B.Ya.; REKASHEVA, A.F.; STRAZHESKO, D.N.; LUNENOK, V.A.; ROYTER, V.A.; SULIMA, L.V.; FOMENKO, A.S.

Aleksandr Il'ich Brodskii, 1895- ; on his seventieth birthday. Zhur. fiz. khim. 39 no.6:1540-1541 Je '65. (MIRA 18:11)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GEREY, S.V.; KHOLYAVENKO, K.M.; RUBANIK, M.Ya.

Chemisorption of oxygen and ethylene on silver under conditions close to catalysis. Report 1: Chemisorption of a mixture of oxygen and ethylene. Ukr.khim.zhur. 31 no.2:166-171 '65. (MIRA 18:4)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

LYASHENKO, L.V.; PIS'MENNYY, Yu.G.; GOROKHOVATSKIY, Ya.B.; RUBANIK, M.Ya.

Relation between the catalytic and electronic properties of a semiconductor. Decomposition of nitrous oxide on thin copper oxide films. Kin.i kat. 5 no.6:1056-1062 N-D '64. (MIRA 18:3)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

GEREY, S.V.; KHOLYAVENKO, K.M.; RUBANIK, M.Ya.

Chemisorption of ethylene and oxygen on silver under conditions close to catalysis. Report No.2: Effect of the preceding adsorption of oxygen on the subsequent adsorption of ethylene. Ukr. khim. zhur. 31 no.3:263-270 '65. (MIRA 18:4)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

YEMEL'YANOV, V.B.; TARKOVSKAYA, I.A.; RUBANIK, S.K.

Exchange sorption of complex ions of heavy metals by active carbon. Ukr. khim. zhur. 31 no.8:778-782 '65. (MIRA 18:9)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

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L 38550-65 EWT(m)/EWG(m)/T RWH

ACCESSION NR: AP5006460 S/0021/65/000/002/0214/0218 16 15

AUTHOR: Yemel'yanov, V. B.; Tarkovs'ka, I. A. (Tarkovskaya I. A.); Rubanik, S. K. B
Academician AN UkrSSR

TITLE: The exchange sorption of heavy metal cations by active charcoal

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1965, 214-218

TOPIC TAGS: ion exchange, zinc, cadmium, nickel, iron, copper, calcium, [illegible] activated charcoal, heavy metal ion, exchange sorption, preparative

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

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ACCESSION NR: AP5006460

atmosphere and consequently to change its adsorptive behavior. In air, the platinized [illegible] is an electrochemical anionite and in hydrogen -- as a cationite. By com-

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SUBMITTED: 06Mar64 ENCL: 01 SUB CODE: GC,IC

NO REF SOV: 009 OTHER: 002

Card 2/3

8(6) SOV/112-59-2-2282

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, p 3 (USSR)

AUTHOR: Rubanik, V. F.

TITLE: Development of Rural Electrification in the Ukraine Over the Years of Soviet Rule (Razvitiye sel'skoy elektrifikatsii na Ukraine za gody Sovetskoy vlasti)

PERIODICAL: Tr. Kiyevsk. tekhnol. in-ta pishch. prom-sti, 1957, Nr 18, pp 19-30

ABSTRACT: Bibliographic entry.

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Card 1/1

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.F.

Course of development of Soviet electric power engineering. Trudy KTIPP no.20:87-95 '59. (MIRA 13:12)
(Electric power production)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.F.

Role of the electrification of agriculture in closing the gap between collective farm and public properties. Trudy KTIPP no.23:57-66 '60. (MIRA 15:1)
(Electricity in agriculture)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G., kand. biolog. nauk; ZHERONKINA, T.A.

Some data on the grafting of conifers. Vest. AN Kazakh. SSR 18 no.10:90-93 O '62. (MIRA 17:9)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Biology of the TienShan spruce (Picea schrenkiana F. et May.) and types of spruce forests in the Malaya Almatinka forest district. Trudy Alma-At.bot.sada 2:80-96 '54. (MIRA 9:7)
(Malaya Almatinka Valley--Spruce)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Vegetative propagation of several species of spruce at the Alma Ata Botanical Garden. Vest.AN Kazakh.SSR 11 no.4:111-117 Ap '54. (MLRA 7:5)
(Alma Ata--Spruce) (Spruce--Alma Ata)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Acclimatization results of conifers in the Alma-Ata Botanical Garden. Biul.Glav.bot.sada no.20:53-56 '55. (MLRA 8:9)

1. Botanicheskiy sad Akademii nauk Kazakhskoy SSR.
(Alma-Ata) (Coniferae--Acclimatization (Plants))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.; SMAGULOV, A.

Behavior of some species of the genus Acer in the Alma-Ata Botanical Garden. Trudy Alma-At.bot.sada 3:62-69 '56. (MLRA 10:3)
(Alam-Ata--Maple)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.; LINCHEVSKIY, O.A.; MATYUSHENKO, A.N.; MEL'NIK, A.F.; SOLONINOVA, I.N.; BRAILOVSKAYA, M.Ya., red.; OSTROVERKHOV, A.P., red.; MUSHEGYAN, A.M., prof., doktor biol.nauk, red.; ROROKINA, Z.P., tekhn.red.

[Woody plants of the Alma-Ata Botanical Garden] Drevesnaia rastitel'nost' Alma-Atinskogo botanicheskogo sada. Pod red. A.M. Mushegiana. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1962. 328 p. (MIRA 15:12)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Botanicheskiy sad.
(Alma-Ata--Woody plants)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.; KORNEYCHIK, Zh.N.; MEL'NIK, A.F.; SOLONINOVA, I.N.; ZHERONKINA, T.A.; KALUGIN, E.S.; TKACHENKO, V.S.; BESSCHETNOV, P.P.; PROTASOV, A.N.; PARAVYAN, A.V., doktor biol. nauk, otv. red.

[List of trees and shrubs recommended for landscaping in populated places of Kazakhstan] Spisok derev'ev i kustarnikov, rekomenduemykh dlia ozeleneniia naselennykh punktov Kazakhstana. Alma-Ata, Izd-vo AN KazSSR, 1963. 85 p. (MIRA 17:3)

1. Akademiya nauk Kazakhskoy SSR. Institut botaniki. 2. Glavnoye upravleniya lesnogo khozyaystva i okhrany lesa Soveta Ministrov Kazakhskoy SSR (for Tkachenko). 3. Kazakhskiy sel'skokhozyaystvennyy institut (for Besschetnov, Protasov).

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.; ZHERONKINA, T.A.

Grafting Siberian pine on Scotch pine in the Alma-Ata Botanical Garden. Trudy Alma-At. bot. sada 7:76-85 '63. (MIRA 16:10)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G., inzh.

Erection of poles for crossings of electric transmission lines. Mont. i spets. rab. v stroi. 25 no.5:17-19 My '63. (MIRA 16:7)

1. Trest Sibstal'konstruktsiya.
(Electric lines—Poles and towers)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

MEL'NIK, A.F., mladshiy nauchnyy sotrudnik; MUSHEGYAN, A.M., kand.biolog. nauk; RUBANIK, V.G., kand.biolog.nauk; SUVOROVA, R.I., red.; GLAZYRINA, D.M., red.; ALFEROVO, P.F., tekhn.red.

[Trees and shrubs at the Alma-Ata Botanical Garden] Derev'ia i kustarniki Alma-Atinskogo botanicheskogo sada. Pod red. A.M. Mushegiana. Alma-Ata, 1959. 274 p. (MIRA 13:4)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Botanicheskiy sad. (Alma-Ata--Arboretums)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK V.G.; MEL'NIK, A.F.

Trees and shrubs of the Alma-Ata Botanical Garden. Trudy Alma-At. bot. sada 4:142-162 '59. (MIRA 12:12)
(Alma-Ata--Trees) (Alma-Ata--Shrubs)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, Valentina Grigor'yevna; MUSHEGYAN, A.M., prof., otv. red.; IVANOVA, E.I., red.; KHUDYAKOV, A.G., tekhn. red.

[Coniferae in Alma-Ata] Khvoinye porody v Alma-Ate. Alma-Ata, Izd-vo AN KazSSR, 1963. 138 p. (MIRA 17:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

M

Country : USSR
Category : CULTIVATED PLANTS. Ornamental.

Abs. Jour: : REF ZHUR BIOL., 21, 1958, NO 96191

Author : Rubanik, V.G.; Saagulov, A.
Institut. : Alma-Ata Botanical Garden, AS Kazakh SSR
Title : The Cultivation of Cebtain Species of the Genus Acer at Alma-Ata Botanical Garden

Orig. Pub. : Tr. Alma-Atinsk. botan. sada. AN KazSSR, 1956, 3, 62-69

Abstract : At the Alma-Ata Botanical Garden of the Academy of Sciences Kazakh SSR there grow 13 species and varieties of maples. The phenophases pf the introduced maples (bursting of leaves, flowering, fruiting ripening, etc.), the relation to winter temperatures and frosts are presented. Among the 13 maple species 6 species and varieties appear to be most resistant to low temperatures and are characterized by good growth at Alma-Ata: the Amur hedge, Tatarian, silver and cutleaf silver maples and the violet boxelder.--L.N. Abramashvili

Card: 1/1

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Ki

Country : USSR
Category : Cultivated Plants. Ornamental.

Abs. Jour. : Ref Zhur-Biologiya, 21, 1958, No. 96190

Author : Rubanik, V.G.
Institut. : Academy of Sciences Kazakh SSR
Title : The Problem of Decorating the City of Alma-Ata with Plantings of Coniferous Species.

Orig. Pub. : Vestn. AN KazSSR, No.12, 88-91

Abstract : The coniferous species are listed which grow under the natural conditions of Kazakhstan (in the mountains of the Trans-Ili and Dzhungar Ala-Tau, along the Irtysh River, etc.). The author believes that among the conifers found in the mountains it is expedient to use Schrenk's spruce and the semiglobe, Zeravshan and Turkestan junipers. Based on tests in raising conifers the Scotch, yellow pines, Pinus hamata, Eastern redcedar, Siberian larch, Siberian cedar, and Siberian fir are recommended.--L.N. Abramashvili

Card: 1/1

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Winter hardiness of coniferous species in nurseries of the Alma-Ata Botanical Garden. Trudy Alma-At. bot. sada 4:4-11 '59.
(MIRA 12:12)

(Alma-Ata--Coniferae) (Plants--Frost resistance)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Western yellow pine in Alma-Ata. Biul.Glav.bot.sada no.32: 37-38 '58. (MIRA 12:5)

1. Alma-Atinskiy botanicheskiy sad AN KazSSR.
(Alma-Ata--Pine)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Rubanik, V. G.

USSR/Cultivated Plants.-Introduction and Acclimatization M-2

Abs Jour : Ref Zhur - Biol., No 1, 1958, No 1448

Author : V.G. Rubanik
Inst : Not Given
Title : An Attempt to Acclimatize Species of Conifers in the Alma-Ata Botanical Garden

Orig Pub : Byul. gl. botan. sada, 1955, issue 20, 53-56

Abstract : The pines - yellow, common, hooked, white, the Siberian larch and Engelmann spruce are distinguished by the best growth. They form straight stems with well developed crowns. These species can be recommended for cultivation in Alma-Ata and vicinity. The local Tienchan spruce grows slowly and is not fruitbearing in open spaces, suffers from scorching by the sun and can, therefore, be utilized only when planted in groups.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.

Vegetative propagation of some spruce species. Trudy Alma-At. bot.sada 5:11-19 '60. (MIRA 13:6)
(Spruce) (Plant cuttings)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.G.; KADOCHNIKOVA, A.A.

Organizing expositions of vegetation zones at the Alma-Ata Botanical Garden. Trudy Alma-At.bot.sada 5:20-34 '60. (MIRA 13:6)

(Alma-Ata--Botany--Exhibitions)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.I.

Botanical garden during the past 25 years. Trudy Alma-At.bot. sada 5:3-10 '60. (MIRA 13:6)
(Alma-Ata--Botanical gardens)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V. P.

Rubanik, V.P.
"Resonance Phenomena in Certain Nonlinear Systems." Cand Phys-Math Sci, Kiev State U, Kiev 1953. (Referativnyy Zhurnal--Mekhanika, Jan 54)

SO: SUM 168, 22 July 1954

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.P., aspirant.

Passing through resonance in a nonlinear system with two degrees of freedom. Stud.nauk.pratsi no.16:107-117 '55. (MLRA 10:2)
(Differential equations) (Vibration)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.P., aspirant.

Mutual influence of harmonics in nonlinear systems while passing through resonance. Stud.nauk.pratsi no.16:83-105 '55. (MLRA 10:2)
(Differential equations) (Vibration)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.P.

25(2); 24(6) PHASE I BOOK EXPLOITATION SOV/2591

Akademiya nauk SSSR. Institut mashinovedeniya

Kolebaniya v turbomashinakh; sbornik statey (Vibrations in Turbomachines; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 117 p. Errata slip inserted. 2,300 copies printed.

Resp. Ed.: S. V. Serensen, Academician, Academy of Sciences, USSR; Ed. of Publishing House: Ya. A. Klimovitskiy; Tech. Ed.: V. V. Volkova.

PURPOSE: This collection of articles is intended for scientific research workers, engineers, and designers in the field of turbomachinery.

COVERAGE: This collection of articles deals with vibrations in turbomachinery. The following topics are discussed: vibrations and stresses in the rotor and bearings of a turbogenerator, vibrations and stability of beams, flexural vibrations of a rotating shaft, whirling speeds of a flexible rotor with two unbalanced masses, acceleration through resonance of a nonlinear system, whirling speed and clearance in bearings, dynamic stresses in blades of an axial compressor, and damping of vibrations. No personalities are mentioned. References follow several of the articles.

Dayshik, M.L., F.M. Dimentberg, A.S. Zil'berman, G.L. Lyudin, M.I. Prignovskiy, and K.Ye. Sakharov. Investigation of Vibrations and Stresses in the Rotor and Bearings of a High-power Turbogenerator During Operation 5

The authors discuss an experimental investigation made on a high-power turbogenerator in order to analyze the real state of stress of the rotor and vibrations of the rotor and bearings. The dynamic behavior of the whole system of joined rotors and bearings is treated. The influences of bases and foundations are not taken into consideration.

Bolotin, V.V. Vibration and Stability of Beams Under Action of Nonconservative Forces 23

A cantilever rectilinear beam loaded by uniforaly distributed following forces acting in the plane of its maximum rigidity is analyzed for stability at planar deformation. Critical parameters of the loading with and without consideration of damping are established.

Gusarov, A.A. Acceleration Through Critical Speeds of a Flexible Rotor With Two Unbalanced Masses in the Presence of Friction 51

The author derives a system of two complex differential equations as a solution to the problem. The solution is based on the following assumptions: that the mass of the shaft, the gyroscopic movements of masses caused by deflections of the shaft, and the initial deflections of the shaft are negligible; that the shaft supports are absolutely rigid; that the shaft itself is torsionally rigid; and that the acceleration through critical speeds is uniform.

Rubanik, V.P. Acceleration Through Resonance in One Case of a Nonlinear System 75

Analysis is made of a nonlinear vibrating system with one degree of freedom having a nonlinear restoring force and excited by a low-frequency sine-shaped disturbing force. The effect of the rate of acceleration on amplitudes of the motion is discussed.

Natanson, V.Ya. (Deceased). Critical Speeds of a Rotor and Clearances in Bearings 81

The effect of the clearance in rolling contact bearings on the motion and whirling speed of a rotor is discussed. Rotors having no critical speed are described together with an experimental checking installation for selecting eccentricities of disks.

Rusanova, Ye.I. Investigation of Dynamic Stresses in Blades of an Axial Compressor With a Wide Control Range 104

The basic results of an experimental investigation of dynamic stresses in blades of an axial compressor by means of wire resistance transducers placed in the root sections are presented. The behavior of the blade at various speeds, including resonance, is described.

Sergeyev, S.I. Damping of Vibrations of Anisotropoelastic Rotors 114

Conditions for successful damping of a rotor with unequal elasticity coefficients along its principal axis are discussed. The inertia and

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

05786

16(1) SOV/41-11-4-12/15

AUTHOR: Rubanik, V.P. (Chernovtsy)

TITLE: Application of the Asymptotic Method of N.M.Krylov and N.N. Bogolyubov to Quasilinear Differential-Difference Equations

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1959, Vol 11, Nr 4, pp 446-449 (USSR)

ABSTRACT: Given the equation

(1) $\ddot{x}(t)+\alpha_1\dot{x}(t)+\alpha_2 x(t)+\beta_1\dot{x}(t-\tau_1)+\beta_2 x(t-\tau_2) = \varepsilon F[x(t),\ \dot{x}(t),\ x(t-\tau_3),\ \dot{x}(t-\tau_4),\varepsilon]$,

where α, β, τ are constants, $\varepsilon>0$ is a small parameter, and F is differentiable sufficiently often. Let the linear equation

(2) $\ddot{x}(t)+\alpha_1\dot{x}(t)+\alpha_2 x(t)+\beta_1\dot{x}(t-\tau_{10})+\beta_2 x(t-\tau_{20}) = 0$,

where $\tau_{10} = \tau_1-\varepsilon\Delta_1$, $\tau_{20} = \tau_2-\varepsilon\Delta_2$, have periodic solutions

(3) $x(t) = a\cos(\omega_0 t+\varphi)$,

where ω_0 satisfies the system

Card 1/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

05786

Application of the Asymptotic Method of N.M.Krylov and N.N.Bogolyubov to Quasilinear Differential-Difference Equations SOV/41-11-4-12/15

(4) $-\omega^2+\alpha_2+\beta_1\omega\sin\omega\tau_{10}+\beta_2\cos\omega\tau_{20}=0,$

$-\alpha_1\omega-\beta_1\omega\cos\omega\tau_{10}+\beta_2\sin\omega\tau_{20}=0.$

Then for the solution of (1) it is set up:

(5) $x(t)=a(t)\cos\psi(t)+\varepsilon U_1\left[a(t)_1\,\psi(t)\right]+\varepsilon^2 U_2\left[a(t)_1\,\psi(t)\right]+\ldots,$

where

(6) $\psi(t)=\omega_0 t+\varphi(t),\ \frac{da}{dt}=\varepsilon A_1(a)+\varepsilon^2 A_2(a)+\ldots.$

$\frac{d\varphi}{dt}=\varepsilon B_1(a)+\varepsilon^2 B_2(a)+\ldots..$

The constants in (5) are obtained by a substitution into (1) and the comparison of coefficients . An example is given. There are 5 Soviet references.

SUBMITTED: December 10, 1958

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

31103

S/199/61/002/006/002/003
B112/B138

16.3400 16.3900

AUTHOR: Rubanik, V. P.

TITLE: Parameter dependence of the solutions of differential difference equations

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 6, 1961, 904-912

4

TEXT: The author derives the following three theorems: 1. If $f(t,x,y,\lambda)$ is a uniformly bounded and continuous function, if

$$\lim_{\lambda\to\lambda_0}\int_0^t f(\vartheta,x,y,\lambda)\,d\vartheta = \int_0^t f(\vartheta,x,y,\lambda_0)\,d\vartheta,$$

and if the equation

$$dx(t)/dt = f(t,x(t),x(t-\delta(\lambda)),\lambda) \qquad (3)$$

with the initial condition $x(t,\lambda) = \varphi_0(t)$ (4) (δ is a non-negative continuous function) has an unambiguous continuous solution for $\lambda = \lambda_0$,

Card 1/2

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31103

then there will be a solution $x(t,\lambda)$ of the problem (3), (4), which depends continuously on the parameter λ. 2. If $X(t,x,y)$ is a uniformly bounded and continuous function, and if the equation $d\xi(t)/dt = X_0(\xi(t), \xi(t))$, where

$$X_0(x,y) = \lim_{T\to\infty} \frac{1}{T} \int_0^T X(t,x,y)dt,$$

has an unambiguous solution, $\xi(t)$ satisfying the initial condition $\xi(0) = \xi_0$, then there will be a continuous solution $x(t,\varepsilon)$ of the equation $dx(t)/dt = \varepsilon X(t,x(t),x(t-\delta(\varepsilon)))$, which coincides with $\xi(t,\varepsilon)$ in a certain neighborhood of 0. 3. Theorem 1 will also be valid if the word "continuous" is replaced by the word "analytic". A. D. Myshkis (Uspekhi matem. nauk, IV, No. 5 (1949), 99), M. A. Krasnosel'skiy and S. G. Kreyn (Uspekhi matem. nauk, X, 3 (1955), 47-52), and N. N. Bogolyubov (O nekotorykh statisticheskikh metodakh v matematicheskoy fizike, Izd. Ak. nauk USSR, Kiyev, 1945) are referred to. There are 3 Soviet references.

SUBMITTED: August 8, 1960

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

6,4731

S/141/61/004/004/016/024
E140/E435

AUTHOR: Rubanik, V.P.

TITLE: Multifrequency resonant oscillations in quasi-linear systems with delayed arguments

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.4, 1961, 726-734

TEXT: The type of system considered is one encountered in many branches of modern technology, one example being a frequency-modulated radar altimeter. The system parameters and the noise can be taken as slowly varying functions of time. To solve this problem in the general case the asymptotic methods of Kryloy and N.N.Bogolyubov for systems of ordinary differential equations are applied. The noise signals of slowly varying frequencies are considered to be of small amplitude. The system is then described by a differential-difference equation system. It is assumed that the roots of the characteristic equation of the system are simple and that there is one zero root, some purely imaginary roots and complex roots with a negative real part. The number of purely imaginary roots is always finite but not connected with the order of the system. Systems with roots having a very small real

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Card 1/2

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

Multifrequency resonant ... S/141/61/004/004/016/024
E140/E435

part will be approximated by the nearby system with purely imaginary roots. The system is solved by a method of successive approximations. An example is solved completely and numerically, in which the equations correspond, for example to an electrical system consisting of remote but coupled oscillatory circuits containing nonlinear elements. There are 1 figure and 6 Soviet-bloc references.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovitsy State University)

SUBMITTED: November 26, 1960

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.P., dotsent; IVAKHNENKO, O.G. [Ivakhnenko, O.H.]

Concerning a simplified method for solving nonlinear differential equations and equations with time-varying parameters. Avtomatyka no.1:93-94 '62. (MIRA 15:2)

1. Ispolnyayushchiy obyazannosti zaveduyushvhego kafedroy Chernovitskogo universiteta (for Rubanik).
(Differential equations)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

RUBANIK, V.P.

Resonance phenomena in quasi-linear oscillatory systems with retarded arguments. Izv. vys.uch.zav.; mat. no.5:75-86 '62. (MIRA 15:9)

1. Chernovitskiy gosudarstvennyy universitet.
(Oscillation) (Difference equations)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6

S/740/62/000/007/001/004

AUTHOR: Rubanik, V. P.

TITLE: Transition through resonance in nonlinear systems with many degrees of freedom under the action of multi-frequency perturbing forces.

SOURCE: Akademiya nauk SSSR. Institut mashinovedeniya. Problemy prochnosti v mashinostroyenii. no. 7. 1962, 3-18.

TEXT: In linear oscillatory systems resonance phenomena occur only upon coincidence of the frequency of external perturbing forces with one of the proper frequencies of the system and upon the coincidence of some of the proper frequencies of the system (internal resonance). In the nonlinear systems specified in the title, various complicated compound resonance conditions of the type

$$\sum_{k=1}^{n} p_k \omega_k + \sum_{l=1}^{m} r_l \nu_l = 0, \qquad (1)$$

arise, wherein ω are the proper frequencies of the system, ν_l are the frequencies of the perturbing forces (not necessarily commensurable), and p_k and r_l are integers. In particular, if there is no ν_l in Eq. (1), a complicated resonance obtains. Supplementing Mitropol'skiy's solutions for single-frequency external forces and for systems without internal resonance (PMM, v. 14, no. 2, 1950; also Nestatsionarnyye protsessy v nelineynykh kolebatel'nykh sistemakh //Nonstationary processes in nonlinear oscillatory systems//, Kiyev. Izd-vo AN UkrSSR, 1955), the present paper elaborates a variant of the asymptotic model that is suitable for the investigation of the transition

Card 1/2

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through resonance in a linear system of multi-frequency forces (with noncommensurable frequencies) and in the presence, within the system, of various combined and internal resonance conditions of the type defined in Eq.(1). In the investigation of single-frequency resonance oscillations, the proposed method affords an advantage over Mitropol'skiy's method by enabling one to find all resonance phenomena that are possible in a given system - internal, external, and combined. The equations obtained are suitable for numerical integration only, whereupon amplitude-frequency (AF) resonance curves with and without internal system resonance are obtained. The AF curves admit an interpretation of the transitional resonance characteristics of a system for both the fundamental and the higher resonance frequencies, and also permit an evaluation of the effects of the presence of an internal resonance. A sample calculation is made for the torsional oscillation of the driveshaft of the M-105 in-line aircraft engine, equipped with a nonlinear elastic coupling in which the fifth and sixth harmonics are the most significant ones with the working cycle of that engine. The calculated AF curves are compared with experimental measurements on that engine reported in Neyman, I.Sh., Krutil'nyye kolebaniya mnogomassovoy nelineynoy sistemy (Torsional oscillations of a multimass nonlinear system). Oborongiz, 1947. Good agreement is found. There are 5 figures and 4 Russian-language Soviet references (The 3 cited, plus Krylov, N.M., et al., Asimptoticheskiye metody v teorii nelineynykh kolebaniy // Asymptotic methods in the theory of nonlinear oscillations /. Fizmatgiz, 1958).

ASSOCIATION: None given.

Card 2/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

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AUTHOR: Rubanik, V.P.

TITLE: Single-frequency resonance oscillations in quasilinear systems with delayed arguments.

SOURCE: Akademiya nauk SSSR. Institut mashinovedeniya. Problemy prochnosti v mashinostroyenii. no.7. 1962, 19-28.

TEXT: N.N.Bogolyubov's asymptotic method (Sb. trudov In-ta stroit. mekh. AN UkrSSR, no.10, 1949; and, with Yu.A.Mitropol'skiy, Asimptoticheskiye metody v teorii nelineynykh kolebaniy // Asymptotic methods in the theory of nonlinear oscillations //. Fizmatgiz, 1958) is generalized here for the case of nonautonomous quasilinear systems with delayed arguments. An asymptotic representation in general form is given for a two-parameter family of single-frequency solutions of a quasilinear equation of second order with delayed arguments, which accounts for all resonances that are possible in the system. The asymptotic solution obtained is applied to the investigation of the effect of the delay in the argument on various resonance phenomena in the systems investigated. It is concluded, from an example with assumed specific values, that the delays in the arguments τ and $\epsilon\Delta$ of the fundamental equation act like negative friction terms. From an investigation of the

Card 1/2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810002-6"

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phenomenon of transition through various resonance conditions it appears that the phenomenon of transition through the fundamental resonance in systems with delay is not substantially at variance with the same phenomenon in an ordinary oscillatory system. As a second example, the effect of delays of the argument on the parametric resonance in a nonlinear system is examined. The parametric resonance which occurs in a system without delay is compared with the two solutions of the system of equations employed for the determination of the stationary oscillatory regime in the presence of delays. The conditions for the existence of a state of stationary parametric oscillations are determined. There are 4 figures and 5 Russian-language Soviet references.

ASSOCIATION: None given.

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