L00830-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACCESSION NR: AP5015911 UR/0103/65/026/006/1094/1098
62-501.35

AUTHOR: Vinogradov, V. N. (Moscow); Golubev, G. A. (Moscow)
44,55 44,56

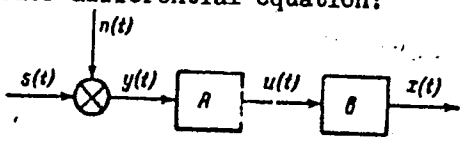
TITLE: One statistical problem in the synthesis of a control system

SOURCE: Avtomatike i telemekhanika, v. 26, no. 6, 1965, 1094-1098

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: A plant B is described by this m-order differential equation:

$$\sum_{i=1}^{m} a_i(t)\frac{d^i}{dt^i}x(t) = \sum_{j=1}^{l} b_j(t)\frac{d^j}{dt^j}u(\cdot) \qquad (m > l)$$



and has constrained control inputs. The plant output variable registers with the value of the useful signal s(t) at a fixed advanced time instant t_N. An additive mixture of the useful signal and noise (a Gaussian random process) is applied to the controller A. Under the above conditions, an algorithm for controlling the plant during $t_0 t_N$ is synthesized. Orig. art. has: 2 figures and 42 formulas.

Card 1/2

L00830-66

ACCESSION NR: AP5015911

ASSOCIATION: none

SUBMITTED: 04Jul64 ENCL: 00 SUB CODE: DP

NO REF SOV: 002 OTHER: 002

Card 2/2

VINOGRADOV, V.N.; SHREYBER, G.K.; SOROKIN, I.Ya.

Wear of glass plastics during abrasion with loose abrasives.
Plast.massy no.8:41-44 '64. (MIRA 18:4)

AUTHOR: Vinogradov, V. [illegible]

TITLE: Synthesizing optimal systems of one class with an allowance for a limited actuating signal

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 427-434

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory, optimal control system

ABSTRACT: The problem of synthesizing an optimal system with a limited actuating signal is theoretically solved on the basis of the theory of dual-mode control. The maximum [illegible] value of the output coordinate is regarded as [illegible] the storage-type measurement of the input signal, [illegible] information to the follower, hence the control system belongs with the [illegible] class. The synthesis

Card 1/2

L 52580-65

ACCESSION NR AP5018115

problem is reduced to the problem of creating the best estimator of the useful signal and to the problem of constructing the follower. Orig. art. has: 2 figures and 48 formulas

ASSOCIATION: none

SUBMITTED: 28Sep64 ENCL: 00 SUB CODE: DC, IE

NO REF SOV: 003 OTHER: 001

Card 2/2

VINOGRADOV, V.N.; ZHMURKO, V.Ya.

Snowslides. Priroda 52 no.12:123 '63. (MIRA 17:3)

1. Institut vylkanologii Sibirskogo otdeleniya AN SSSR, Petropavlovsk-Kamchatskiy.

MIKHAYLOV, M.I., otv. red.; TUROK-POPOV, V.M., red.; VINOGRADOV, V.N., red.; ROGINSKAYA, A.Ye., red.; VOLKOVA, V.V.,

[The labor movement in modern times] Rabochee dvizhenie v novoe vremia; sbornik statei. Moskva, Izd-vo "Nauka," 1964. 542 p. (MIRA 17:3)

1. Akademiya nauk SSSR. Institut istorii.

VINOGRADOV, V.N.; APOLLOV, B.A., prof. (Moskva)

Snow dams in Kamchatka. Priroda 53 no.3:126-127 '64. (MIRA 17:4)

1. Institut vulkanologii Sibirskogo otdeleniya AN SSSR, Petropavlovsk-Kamchatskiy.

VINOGRADOV, Viktor Nikonovich; VEREVKINA, N.M., red.; MORGUNOVA, G.M., tekhn. red.

[Drawing] Cherchenie. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1963. 96 p. (MIRA 16:12)
(Mechanical drawing--Instruction)

VINOGRADOV, V.N.

Scotch pine on sands of the lower Dnieper Valley during the drought season. Bot.zhur. 47 no.11:1675-1680 N '62.
(MIRA 16:1)

1. Nizhnedneprovskaya nauchno-issledovatel'skaya stantsiya obleseniya peskov i vinogradarstva na peskakh, g. TSyurupinsk.
(Dnieper Valley—Pine) (Plants, Effect of aridity on)

VINOGRADOV, V.N.

Methodology for a comparative economic evaluation of mineral deposits. Razved. i okh. nedr. 28 no.7:22-24 Jl '62. (MIRA 15:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.

(Mines and mineral resources)

VINOGRADOV, V.N.; POPOV, V.G.; SMETNEV, A.S.

Clinical picture of collapse in myocardial infarction. Terap. arkh. 33 no.10:3-11 '61. (MIRA 15:1)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N. Vinogradov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(HEART—INFACTION) (SHOCK)

VINOGRADOV, V.N.; YASTREBTSOVA, N.L.; GORNAK, K.A.

Pathogenesis of experimental atherosclerosis in dogs. Biochemical, functional and morphological studies on dogs with different degrees of hypercholesterinemia. Vest. AMN SSSR 16 no.12:43-54 '61. (MIRA 15:2)

1. I Moskovskiy meditsinskiy institut i Institut normal'noy i patologicheskoy fiziologii AMN SSSR.
(ARTERIOSCLEROSIS) (CHOLESTEROL)

VINOGRADOV, V.N.

NESTEROV, A.I. (Moskva); TUSHINSKIY, M.D. (Leningrad); GOREV, N.N.(Kiyev); DOLGO-SABUROV, B.A. (Leningrad); ZAKUSOV, V.V. (Moskva); MURONTSEV, S.N. (Moskva); CHUMAKOV, M.P. (Moskva); ZHDANOV, V.M., prof. (Moskva); NEGOVSKIY, V.A., prof. (Moskva); BIRYUKOV, D.A. (Leningrad); LITVINOV, N.N., prof. (Moskva); SOKOLOVA-PONOMAREVA, O.D. (Moskva); KUPALOV, P.S. (Leningrad); BATKIS, G.A. (Moskva); KOSYAKOV, P.N., prof. (Moskva); SHMELEV, N.A. (Moskva); BUSALOV, A.A., prof. (Moskva); MOLCHANOVA, O.P. (Moskva); STRASHUN, I.D.; BLOKHIN, N.N. (Moskva); PREOBRAZHENSKIY, B.S. (Moskva); VISHNEVSKIY, A.A. (Moskva) CHERNIGOVSKIY, V.N. (Moskva); PAVLOVSKIY, Ye.N., akademik (Leningrad); MYASNIKOV, A.L. (Moskva); VINOGRADOV, V.N. (Moskva); MAYEVSKIY, V.I.; DAVYDOVSKIY, I.V. (Moskva); IOFFE, V.I. (Moskva); KURASHOV, S.V.; ANOKHIN, P.K. (Moskva); BOGDANOV, I.D. (Kiyev); ZIL'BER, L.A. (Moskva); BRONOVITSKIY, A.Yu.; CHEBOTAREV, D.F., prof.

Debate on the address by Professor V.V.Parin, academician secretary of the Academy of Medical Sciences of the U.S.S.R.; abridged comments by members of the Academy of Medicine and the directors of institutes. Vest.AMN SSSR 14 no.8:19-31 '59. (MIRA 12:11)

1. Deystvitel'nyye chleny AMN SSSR (for Nesterov, Tushinskiy, Gorev, Zakusov, Kupalov, Strashun, Preobrazhenskiy, Vishnevskiy, Chernigovskiy, Myasnikov, Vinogradov, Anokhin, Zil'ber).

(Continued on next card)

NESTEROV, A.I.---(continued) Card 2.

2. Chleny-korrespondenty AMN SSSR (for Dolgo-Saburov, Chumakov, Zhdanov, Biryukov, Sokolova-Ponomareva, Batkis, Shmelev, Molchanova, Blokhin, Ioffe, Bogdanov). 3. Direktor Instituta gerontologii AMN SSSR (for Gorev). 4. Direktor Instituta farmakologii i khimioterapii AMN SSSR (for Zakusov). 5. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I.Lenina (VASKhNIL); direktor Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR (for Murontsev). 6. Direktor Instituta po izucheniyu poliomiyelita AMN SSSR (for Chumakov). 7. Direktor Instituta eksperimental'noy meditsiny AMN SSSR (for Biryukov). 8. Direktor Instituta obshchey i kommunal'noy gigiyeny AMN SSSR (for Litvinov). 9. Direktor Instituta pediatrii AMN SSSR (for Sokolova-Ponomareva). 10. Direktor Instituta virusologii AMN SSSR (for Kosyakov). 11. Direktor Instituta tuberkuleza AMN SSSR (Shmelev). 12. Direktor Instituta grudnoy khirurgii AMN SSSR (for Busalov). 13. Direktor Instituta pitaniya AMN SSSR (for Molchanova). 14. Direktor Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (for Blokhin). 15. Direktor Instituta khirurgii AMN SSSR (for Vishnevskiy).

NESTEROV, A.I.--- (continued) Card 3.

16. Direktor Instituta fiziologii AMN SSSR (for Chernigovskiy). 17. Direktor Instituta terapii AMN SSSR (for Myasnikov). 18. Direktor Gosudarstvennogo izdatel'stva meditsinskoy literatury (for Mayevskiy). 19. Vitse-prezident AMN SSSR (for Davydovskiy). 20. Ministr zdravookhraneniya SSSR (for Kurashov). 21. Direktor Instituta infektsionnykh bolezney AMN SSSR (for Bogdanov). 22. Chlen-korrespondent AN BSSR: predsedatel' Uchenogo meditsinskogo soveta Ministerstva zdravookhraneniya BSSR (for Bronovitskiy). 23. Predsedatel' Uchenogo meditsinskogo soveta Ministerstva zdravookhraneniya USSR (for Chebotarev).
(MEDICINE)

VINOGRADOV, V.N., prof., Geroy Sotsialisticheskogo Truda; YARESHKO, N.T. (Moskva)

Antihyaluronidase and anti-O streptolysin in patients with acute nephritis. Klin.med. 38 no.8:48-54 Ag '60. (MIRA 13:11)

1. Deystvitel'nyy chlen AMN SSSR (for Vinogradov).
(HYALURONIDASE) (ANTIHEMOLYSIN) (KIDNEYS—DISEASES)

SMIRNOV, Ye.I., general-polkovnik meditsinskoy sluzhby, glav. red.; VOVSI,M.S., general-mayor meditsinskoy sluzhby, otv. red.; VINOGRADOV, V.N., red.; DAVIDENKOV, S.N., polkovnik meditsinskoy sluzhby, red.; LANG, G.F., red. [deceased]; SHUL'TSEV, G.N., red.; GOROVOY-SHALTAN, V.A., prof., polkovnik meditsinskoy sluzhby, red.

[Soviet medicine in the Great Patriotic War 1941-1945] Opyt sovetskoi meditsiny v Velikoi Otechestvennoi voine 1941-1945 gg. Moskva, Medgiz. Vol.26. 1949. 312 p. (MIRA 14:6)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Vovsi, Vinogradov, Davidenkov)
(WORLD WAR, 1939-1945—MEDICAL AND SANITARY AFFAIRS)
(NERVOUS SYSTEM—DISEASES)

VINOGRADOV, V. N.

PHASE I BOOK EXPLOITATION SOV/5953

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh. 3d, 1958.

Iznos i iznosostoykost'. Antifriktsionnyye materialy (Wear and Wear Resistance. Antifriction Materials) Moscow, Izd-vo AN SSSR, 1960. 273 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 1)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya.
Resp. Ed.: M. M. Khrushchov, Professor; Eds. of Publishing House: N. Ya. Elekanov, and S. L. Orpik; Tech. Ed.: T. V. Polyakova.

PURPOSE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya Konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines) which was held April 9-15, 1958. Problems discussed were in 5 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairman: Ya. M. Gut'yar, Doctor of Technical Sciences, and A. K. D'yachkov, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: O. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairman: B. V. Deryagin, Corresponding Member of the Academy of Sciences USSR, and I. V. Kragel'skiy, Doctor of Technical Sciences); 4) Wear and Wear Resistance (Chairman: M. M. Khrushchov, Doctor of Technical Sciences); and 5) Friction and Antifriction Materials (Chairman: I. V. Kragel'skiy, Doctor of Technical Sciences, and M. M. Khrushchov, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov, L. Th. Prushanskiy, Candidate of Technical Sciences, was scientific secretary. The transactions of the conference were published in 3 volumes, of which the present volume is the first. This volume contains articles concerning the wear and wear resistance of antifriction materials. Among the topics covered are: modern developments in the theory and experimental science of wear resistance of materials, specific data on the wear resistance of various combinations of materials, methods for increasing the wear resistance of certain materials, the mechanism of the seizing of metals, the effect of various types of lubricating materials on seizing, abrasive wear of a wide variety of materials and components under many different conditions, modern developments in antifriction materials, and the effects of finish machining on wear resistance. Many personalities are mentioned in the text. References accompany most of the articles.

Card 12/13

6

VINOGRADOV, V.N., inzh.

Development of telecasting in 1960. Vest.sviazi 20 no.2: 5-6 F '60. (MIRA 13:5)
(Television broadcasting)

AUTHOR: Vinogradov, V.N., Engineer SOV/111-59-1-7/35

TITLE: The Development of the Technology of the Television Transmission Network (Razvitiye tekhniki peredayushchey televizionnoy seti)

PERIODICAL: Vestnik svyazi, 1959, Nr 1, pp 6 - 9 (USSR)

ABSTRACT: There now are 60 powerful TV stations and over 70 low-powered relay stations in the USSR. An area with about 50 million people is reached by the TV programs. A total of 2,5 million TV sets have now been sold. The plan, between 1959 and 1965, provides for the construction of dozens of TV and TV relay stations, the establishment of more special channels for an exchange of TV programmes among Moscow, Leningrad, the capitals of the republics, and the important centers of the country, and the introduction of color TV. The 2/1-, 5/2.5- and 15/7.5-kw FM TV stations operating on the first five channels and the mobile PTS-52 TV station, as well as a lot of other TV equipment does not meet present requirements. Production of a new 4-channel studio camera was prepared in 1957 to '58. The Proyektnyy institut Ministerstva svyazi SSSR (Project Institute of the USSR Communications

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Ministry) has worked out a series of new types based on this camera. They will be suitable to cover all kinds of programs including full-length films, for which 2 channels are reserved. Photoconductive camera tubes will be largely utilized. Specific equipment for small TV centers has been worked out at one of the scientific research institutes of the Gosudarstvennyy komitet po radioelektronike (State Radioelectronics Committee), simultaneously with the new type projects (series 418 to 423) prepared by the Project Institute of the USSR Communications Ministry. The new small TV center equipment includes two studio TV channels for KT-6M cameras with L1-201 pick-up tubes of the image-orthicon type and two film channels for KT-30 cameras with photoconductive pick-up tubes. The small TV center will also be equipped with two movie projectors for wide film (35 mm) and substandard film (16 mm) and a projector for stills. It is possible to reduce the number of channels, in order to lessen costs. Unifying interchangeability of essential parts was one of the guiding principles in design. The camera channels operate on three different transmission ca-

meras with either LI-201, LI-101 or photoconductive pick-up tubes. This applies also to the mobile PTS-59 TV station. The center of the frame is characterized by 600 horizontal, 550 vertical and an angular equivalent of 500 lines. This makes possible the distinction of at least 8 shades of established brightness. The geometrical raster distortion is not more than 3%. An adjusting gamma correction within the limits from 0.35 to 1.0 is provided in the apparatus. The 4-channel type of a small TV center contains about 1,200 radio tubes of 26 types, 100 semiconductors and 34 electron tubes of 8 types. So are the centers of Kherson, Nikolayev, Orenburg, Komsomol'sk-na-Amure, Petropavlovsk (Kamchatka), and Magadan. The new mobile TV PTS-3 station is going to replace the former PTS-52. It will be installed in a ZIL-158 bus. A still more advanced type of a mobile TV station will be the PTS-59 which is under development. It will have 4 camera channels and may be used in connection with the other PTS or the ARTU (car-borne) or RTU (portable) TV installations. It has a range of over 30 km. ARTU TV installation, mounted on a ZIM car, may record street scenes

at a speed of 5 km/h of the ZIM. It will have a range of 5 km and may be operated in connection with the PTS-59. The RTU installation has a maximum range of 500 m The transmitting camera has small dimensions and weighs about 2 kg; it has a photoconductive pick-up tube. The entire installation weighs 16 kg. Production of PTS-59, ARTU and RTU will start in 1959. On order of the USSR Communications Ministry, the Nauchno-issledovatel'skiy kinofotoinstitut (Scientific Research Institute for Motion Pictures and Photography) together with the Moskovskaya televizionnaya filial-laboratoriya (Moscow Television Branch-Laboratory) brought into being a TV programme-canning device of type UZTP-57. It has a special picture tube of about 230 mm diameter. It operates in conjunction with a standard movie camera and 35 mm film. At present UZTP-57 is tested in the Moscow TV center. An ever expanding network of TV relay and rediffusion stations and points is being established to render possible the reception of at least two TV programmes. Stations would use channels 7 to 12 in the 174

to 230 mc range and, from 1959 on, channels 1 to 5 in the 48 to 100-mc range. New automatized TRSA-56 (TRSA-100) low-power rediffusion stations (Figure 4) will replace the present TRSO-20/7 rediffusion stations. TRSA-56 may be operated by remote control over 10 km from the station site or operate automatically. The image transmitter will have a power of at least 100 w, the sound transmitter about 30 w. The receiving antenna will be a 5-element wave duct; the transmitting antenna is of the double-turnstile type. There are 4 photos and 1 table.

BODROV, N.N.; VINOGRADOV, V.N.

[Radio trade] Torgovlia radiotovarami. Moskva, Gostorgizdat, 1952. 98 p. (MLRA 9:12)
(Radio industry)

VINOGRADOV, V. N.

"The Selecting and Mixing of Tree Varieties as Windbreaks for the Protection of Fields." Cand Agr Sci, Khar'kov Agricultural Inst, Khar'kov 1953. (RZhBiol, No 4, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

So: Sum. No. 481, 5 May 55

1. VINOGRADOV, V. N.

2. USSR (600)

4. Ukraine - Walnut

7. Walnuts in the Ukraine west of the Dnieper. Les i step', 5, No. 1, 1953.

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

VINOGRADOV, V.N.

Growth of European chestnut (Castanea sativa Mill.) in the forest plantations of Podolia. Bot.zhur.41 no.7:1035-1037 Jl '56. (Podolia--Chestnut) (MLRA 9:10)

VINOGRADOV, V. N.

AID P - 4347

Subject : USSR/Radio

Card 1/1 Pub. 89 - 7/15

Authors : Krivosheyev, M. I., Chief, Television Department, Main Radio Administration, Ministry of Communications, USSR and V. N. Vinogradov, Senior Eng., Television Department.

Title : Developing the television network of the USSR

Periodical : Radio, 2, 32-33, F 1956

Abstract : The article reviews the first 5 years of television in the USSR and enumerates networks already in operation. The majority of these stations are equipped with standardized equipment and transmit pictures at a 5 kw and sound at a 2.5 kw capacity, although stations operating at a 15 kw and 7.5 kw capacity have already been established. Data on equipment, particularly tubes, are given. A good explanation of the networks' operations is presented.

Institution : None

Submitted : No date

VINOGRADOV, V. N. Senior Engineer, Television Department

KRIVOSHEYEV, M. I., Chief, Television Dept., Central Radio Administration, Ministry of Communications USSR:

"Development of a Television Transmission Network in the USSR"

Radio, No. 2, 1956, pp 32-33

Translation M-1287, 8 Nov 56

Vinogradov, V. N.

27918. VINOGRADOV, V. N. i YELOVA, L. A. -- Lecheniye khronicheskikh nespetsificheskikh zabolevaniy legkikh bronkoskopickeskim metodom. Trudy XIII vsesoyuz. S'yezda terapevtov. L., 1949, S. 218-26.

SO: Letopis' Zhurnal'nykh Statey. Vol. 37, 1949.

Vinogradov, V.N.

BODROV, N.N.; VINOGRADOV, V.N.

[Trade of radio and television apparatus and appliances] Torgovlia radiotovarami. Moskva, Gos. torgovoe izd-vo, 1953. 111 p.
(MLRA 7:2)
(Radio industry)

VINOGRADOV, V.N.

USSR/ Electronics - Television

Card 1/2 Pub. 89 - 15/33

Authors : Krivosheyev, M. I.,* and Vinogradov, V. N.**

Title : Development of the television transmitting network in the USSR

Periodical : Radio 2, 32-33, Feb 56

Abstract : Names of new television centers are given, such as Kiev, Riga, Kharkov, Tallin, Sverdlovsk, Omsk, Tomsk, and others. Work in amateur television transmission is cited. Figures are given for length of waves and power used by various stations. The use of cables is mentioned such as the line from Moscow to Kalinin. Steps taken to improve the quality of the sound produced are explained with technical details and illustrations. Illustrations.

Card 2/2 Pub. 89 - 15/33

Periodical : Radio 2, 32-33, Feb 56

Abstract :

Institution : .....

Submitted : .....

* Chief of the Department of Television of the Central Radio Administration of the Ministry of Communications of the USSR

** Senior Engineer of the Department of Television

KRIVOSHEYEV, Mark Iosifovich; VINOGRADOV, Vadim Nikolayevich; GOROKHOVSKIY, A.V., red.; MARKOCH, K.G., tekhn.red.

[Development of television broadcasting technology] Razvitie tekhnicheskikh sredstv televizionnogo veshchaniia. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1960. 61 p. (MIRA 14:4)

(Television broadcasting)

VINOGRADOV, Viktor Nikonovich; RODIONOVA, Z.A., red.; KARPOVA, T.V., tekhn.red.

[Extracurricular work on mechanical drawing in school; teachers manual] Vneklassnaia rabota po cherchcniiu v shkole; posobie dlia uchitelia. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv. RSFSR, 1961. 100 p. (MIRA 14:6)
(Mechanical drawing—Study and teaching)

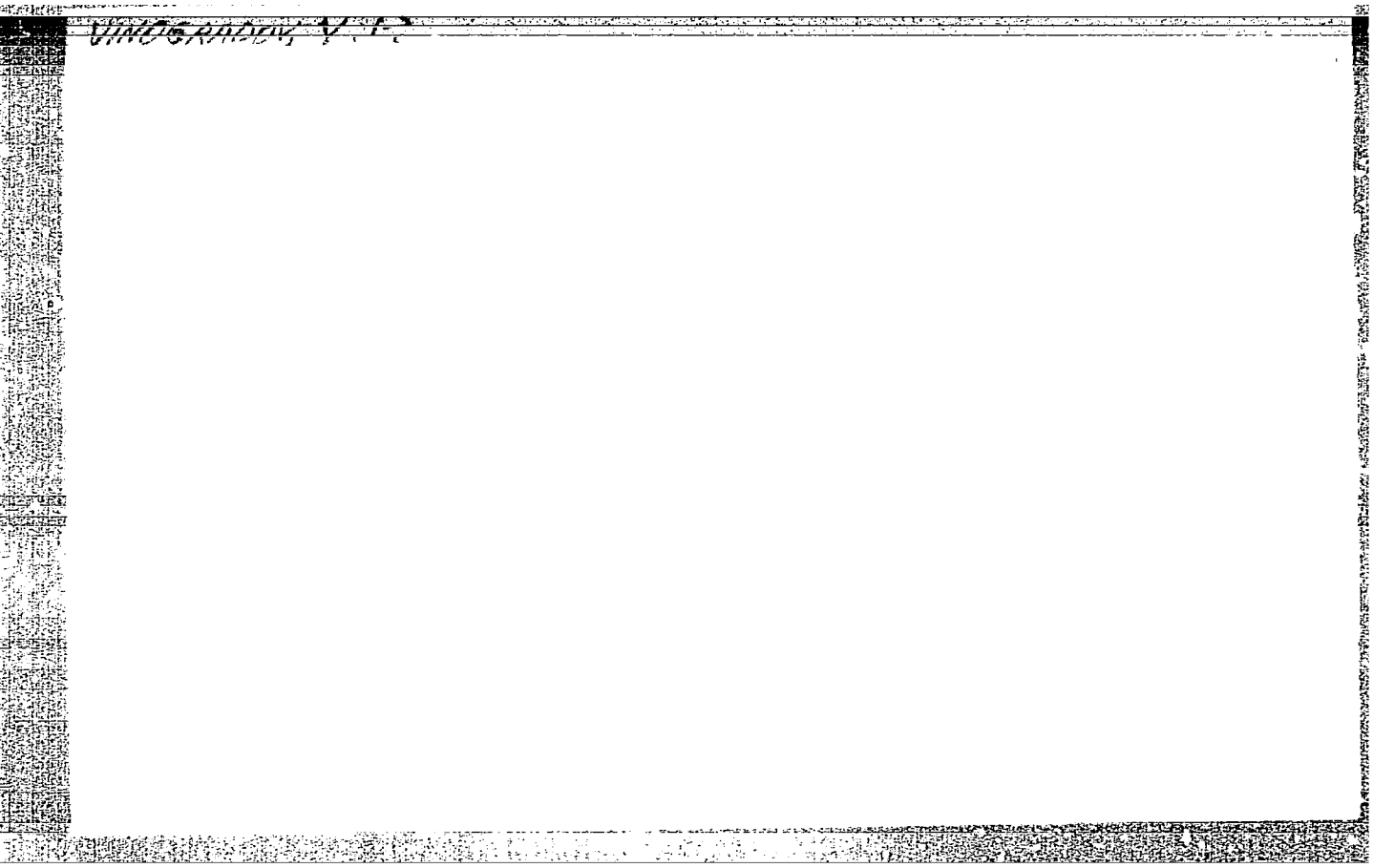
VINOGRADOV, V. P.

The physical principles of installing heating appliances Moskva, Gosizd., 1927. 71 p.

VINOGRADOV, V. P.

V. P. Vinogradov, "Methods of Disinfection of Clover Seeds," Doklady Vsesoiuznoi Akademii Sel'skokhoziaistvennykh Nauk imeni V. I. Lenina, vol. 7, no. 11-12, 1942, pp. 37-40. 20 Alk

Sira Si 90-53, 15 Dec1953



VINOGRADOV, V.P.

Treatment of so-called allergic diseases of the eye with sodium hyposulfite. Vest. oft., Moskva 31 no. 4:18-19 July-Aug. 1952. (CLML 22:5)

AUTHORS: Nazarov, I. N. Member, Academy of Sciences, USSR, Gusev, B. P., Makin, S. M., Mochalin, V. B., Nazarova, I.I., Vinogradov, V. P., Kruptsov, B. K., Shavrygina, O. A., Nazarova, D. V.

20-114-4-32/63

TITLE: The Condensation of Acetylene With Methylheptanone and Its Analogues (Kondensatsiya atsetilena s metilgeptanonom i yego analogami) The Synthesis of Linalool and Its Analogues (Sintez linaloola i yego analogov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 796-799 (USSR)

ABSTRACT: Several years ago a simple method of synthesis of different acetylene alcohols was worked out in the laboratory of the authors by means of condensation of aldehydes and ketones under the influence of powdery caustic potash with acetylene at high pressure (5-10 at superpressure). It was of interest to employ this method in the condensation of acetylene with methylheptanone and similar ketones, in order to obtain the corresponding acetylenealcohols. Linalool and some analogues may then be obtained easily by partial hydrogenation with a Pd-catalyst. Hitherto such condensations have usually been carried out under the influence of metallic sodium in a solution of liquid ammonia.

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It was found that methylheptanone and its various analogues may be condensed very easily with caustic potash and acetylene at the above-mentioned pressure. At 0-20°C they give as a result the corresponding tertiary acetylene alcohols with an almost quantitative yield (more than 90%). This reaction may also be carried out without acetylene pressure, however, somewhat more slowly and with a yield of only 60-80%. It has been previously shown in the same laboratory that acetylene alcohols which contain a non-substituted acetylenehydrogen may be hydrated highly selectively in the presence of palladium over calcium carbonate or copper coated zinc powder. Thereby vinylalcohols with an almost theoretical yield are obtained. The acetylene alcohols may not be selectively hydrated with other catalysts (Ni, Pt) and are therefore useless in the production of pure vinyl alcohols. An analogous picture may also be noticed with the hydrogenation of the above-described acetylene alcohols which are obtained by condensation of acetylene with methylheptanone and its analogues. These acetylene alcohols may also be highly selectively hydrated in the presence of a Pd-catalyst. They form linalool and its analogues

Card 2/4

with an almost theoretical yield. The purity control of the vinylalcohols (linalool and its analogues) was carried out by means of the acetylene test (with ammonia solution of silver or copper oxide), whose sensitiveness was determined by special tests and amounted to 0,2-0,3%. At the hydrogenation of the acetylene alcohols with a Pd-catalyst the acetylene test always disappears at the theoretical point, that is, as only one hydrogen molecule is strongly attached. The acetylene alcohols obtained in the course of this work are summarized in table 1. Linalool and its analogues (table 2) were obtained by a partial hydrogenation of the above-mentioned acetylene alcohols with Pd-catalysts. In the experimental part the methods and yields of the said substances are described in detail. There are 2 tables and 5 references, 3 of which are Soviet.

ASSOCIATION: Institute for Organic Chemistry imeni N.D. Zelinskiy of the AN USSR and Moscow Institute for Refined Chemical Technology imeni M.V. Lomonosov (Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR i Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova)

Card 3/4

SUBMITTED: March 12, 1957

4/4

20-114-6-29/54

AUTHORS: Nazarov, I. N., Academician, Makin, S. M., Mochalin, V. B., Nazarova, D. V., Vinogradov, V. P., Kruptsov, B. K., Nazarova I. I. and Shavrygina, O. A.

TITLE: The Synthesis of Methylheptenone and Methylheptadienone Analogues (Sintez analogov metilgeptenona i metilgeptadiyenona)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 114, Nr 6, pp. 1242-1245 (USSR)

ABSTRACT: This synthesis is of interest for the production of a number of corresponding analogues of natural isoprenoid compounds. The initial acetylene-alcohols for this purpose were produced according to the authors' method (reference 1). By a selective hydrogenation in the presence of palladium on calcium-carbonate acetylene alcohols are almost quantitatively converted to analogous vinyl alcohols (reference 2). These latter yield the corresponding analogues of methylheptenone in three different ways (reference 3). Method A. By the influence of gaseous hydrogen chloride or hydrogen bromide upon tertiary vinyl alcohols at 0 - 20°C primary haloid-derivatives of an allyl--type easily form (reference 4). Their condensation with sodium-acetate-acetic-ether with a subsequent saponification

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leads to methylheptenone analogues. Method B. At 140 - 190°C tertiary vinyl alcohols directly react with the same ether. An almost theoretical quantity of ethanol and CO_2 is separated and the same analogues as in A) are obtained. Method V. By the action of diketene upon tertiary vinyl alcohols in the presence of small amounts of triethylamine or piperidine, acetonacetic ethers of these alcohols are obtained (table 2). Their pyrolysis also leads to the above--mentioned analogues (reference 6). The 2,3-dimethyl-2--heptene-6-on (IV) necessary for the synthesis of irone was produced all three ways mentioned. Dimethylisopropenyl-carbinol (initial substance) was produced by the influence of methyl-lithium upon methyl-metacrylate. All methyl-heptenone analogues produced are comprised in table 1. The authors further produced: allyl- (I) (reference 9), crotyl- (II) and chlorocrotyl-acetone (III) (reference 8), dimethyl-isopropenyl-carbinol-acetoacetate, dimethylheptenone (IV), cyclohexylidenpentanone (IX) and tertiary butylheptadienone (XIII). The production methods and constants of these substances are given. There are 2 tables and 12 references, 6 of which are Slavic.

The Synthesis of Methylheptenone and Methyl[illegible] Analogues

ASSOCIATION: Institute of Organic Chemistry [illegible]elinskiy AS USSR and Institute for Fi[illegible] imeni M. V. Lomonosov, Moscow (Institut [illegible] im. N. D. Zelinskogo Akademii nau[illegible] Institut tonkoy khimicheskoy tekhnologii [illegible])

SUBMITTED: March 12, 1957

Card 3/3

VINOGRADOV, V. P.

79-2-39/64

AUTHORS: Nazarov, I. N. (Deceased), Krasnaya, Zh. A., Vinogradov, V. P.

TITLE: Acetylene - Derivatives (Proizvodnyye atsetilena) 190. The Production of Ethoxyacetylene and Its Use in the Synthesis of Unsaturated Aldehydes and Acids (190. Polucheniye etoksiatsetilena i primeneniye yego dlya sinteza nepredel'nykh al'degidov i kislot)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 460-474 (USSR)

ABSTRACT: The possibility of using ethoxyacetylene for the production of polyen compounds and isoprenoids as well as its hitherto complicated production were investigated; e.g. alkoxyacetylene was produced for vinylether by A. E. Favorskiy and M. N. Shchukina (reference 1), or from the acetals of bromoacetaldehyde by Jacobs (reference 2), or from halogen acetals by Eglinton (reference 3), respectively. In the present paper ethoxyactylene was also produced from vinylethylether (as reference 1), however, the method was considerably improved, e.g. α, β-dibromodiethylether was added to diethylaniline, simultaneously the β-bromovinylether produced was distilled off in vacuum (with a yield of 70-75%), the distillate (17% trans- and 83% cis-isomer) was heated with caustic potash powder in vacuum with mechanical stirring and thus ethoxyacetylene

Card 1/3

79-2-39/64

Acetylene - Derivatives. 190. The Production of Ethoxyacetylene and Its Use in the Synthesis of Unsaturated Aldehydes and Acids

was obtained. Whereas Favorskiy had a yield of only 25% and could work with only small quantities, greater quantities with a yield of 44% can be obtained this way. The condensation of the ethoxyacetylene with saturated, unsaturated, and cyclic ketones was investigated. The synthesis of the ethoxyethynylcarbinols can be carried out according to two methods: Either with the reaction of the ketones with magnesiumbromoethoxyacetylene (according to Iotsich), or of the ketones with ethoxyacetylene and caustic potash (according to Favorskiy). The products are given in tables. The yield is smaller according to the second method. The ethoxyethynylcarbinols were hydrated in alcoholic solution with a Pd-catalyst up to the ethoxyvinylcarbinols and were transformed into α, β-unsaturated aldehydes with sulfuric acid of 3%. The latter are given in tables. By-products with a boiling point higher by 10-15°C are formed in the hydration. Their production is explained by the not strictly selective hydration of the acetylene binding. Ethoxyacetylenecarbinols are transformed into ethylethers of the α,β-unsaturated acids (table) at room temperature under the influence of sulfuric acid of 10%; here never β-oxycompounds were obtained. The reaction between magnesiumbromoethoxyacetylene and aldehydes was also investigated. The preparation processes as well as the

Card 2/3

79-2-39/64

Acetylene - Derivatives . 190. The Production of Ethoxyacetylene and Its Use in the Synthesis of Unsaturated Aldehydes and Acids

tables of specific properties are given. There are 6 tables, and 15 references, 5 of which are Slavic.

ASSOCIATION: Institute for Fine Chemical Technology, Moscow (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: January 12, 1957

AVAILABLE: Library of Congress

Card 3/3

VLADIMIROV, V.; SOKOLOV, A.; YASONAS, G.; Prinimali uchastiya: ZADVORNYY, L.F.; VINOGRADOV, V.P.; VLADIMIROV, V.A., red.; BOLOTINA, A.V., red. izd-va; KHENOKH, F.M., tekhn. red.

[Across Moscow in an automobile; transit routes and traffic on squares]Po Moskve na avtomobile; tranzitnye marshruty i dvizhenie na ploshchadiakh. Moskva, Izd-vo M-va kommun. khoz.RSFSR, 1962. 284 p. (MIRA 15:9)
(Moscow--Traffic regulations)
(Moscow--Automobiles--Road guides)

BLESHINSKIY, S.V.; KHARAKOZ, A.Ye.; ABRAMOVA, V.F.; VINOGRADOV, V.P.; BABENKO, V.T.; KACHKIMBAYEVA, S.A.; Prinimali uchastiye: USUBAKUNOV, M.; NAGAYEVA. A.G.; GORBUNOV, V.D.; MEDVEDEVA, V.A.; CHALOVA, Ye.P.; ALTYNNIKOVA, P.M.

Method for separating rare-earth elements based on the thermal dissociation of sulfates. Izv. AN Kir. SSR. Ser. est. i tekh. nauk 5 no.4:25-26 '63. (MIRA 16:10)

BLESHINSKIY, S.V.; KHARAKOZ, A.Ye.; LUKIN, I.N.; BABENKO, V.G.; CHALOVA, Ye.P.; Prinimali uchastiye: ABRAMOVA, V.F.; VINOGRADOV, V.P.; USUBAKUNOV, M.; GORBUNOV, V.D.; OSIPOVA, T.P.; NAGAYEVA, K.G.; MEDVEDEVA, V.A.; ALTYNNIKOVA, P.M.

Fluosilicic method for separating rare-earth elements. Izv. AN Kir. SSR. Ser. est. i tekh. nauk 5 no.4:23-24 '63. (MIRA 16:10)

VINOGRADOV, Vladimir Pavlovich; SINYAYEV, A.D., red.; KRASAVINA, A.M., tekhn. red.

[Reconnaissance patrol and reconnaissance detachment on the march and in combat] Razvedyvatel'nyi dozor i razvedyvatel'nyi otriad na marshe i vo vstrechnom boiu. Moskva, Voenizdat, 1963. 93 p. (MIRA 16:5)

(Military reconnaissance)

PeB/P1-4

ACCESSION NR: AP5003392

AUTHOR: Filippov, N. V.; Vinogradov, V. P.; Golub, G. V.

TITLE: Method of generating high-voltage pulses with the use of the plasma pinch effect. Class 21, No. 168362

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 44-45

TOPIC TAGS: pulse generation, high voltage pulse, plasma pinch, pinch effect

ABSTRACT: The Author Certificate introduces a method of generating high-voltage pulses by the plasma pinch effect. To excite high-voltage pulses at the solenoid terminals that are proportional to both the rate of change of the magnetic flux and the number of turns in the solenoid, the gas-discharge chamber is located in a longitudinal magnetic field, an insulating tube with the solenoid inside is positioned along the chamber axis, and a quick-varying magnetic field is excited by high-voltage pulses applied to the chamber electrodes. A ring-shaped plasma sheath is formed during discharge, and the magnetic-field intensity is changed by pinching the magnetic flux confined inside the sheath

[KM]

Card 1/2

L 34813-65
ACCESSION NR: AP5007392

ASSOCIATION: Predpriyatiye Goskomiteta po ispol'zovaniyu atomnoy energii SSSR (Enterprise of the State Committee on Utilization of Atomic Energy, SSSR)

SUBMITTED: 08May63	ENCL: 00	SUB CODE: EC, ME
NO REF SOV: 000	OTHER: 000	ATD PRESS: 3211

Card 2/2

CA VINOGRADOV, V. S.

9

Concentration of contaminated Krivoi Rog Basin ores D. Z. Skirko, V. S. Vinogradov, M. A. Al'tshuler, and I. G. Donchenko. *Gornyi Zhur.* 1932, No. 2, 25-32.—Discussion of the paper by Derkach and Evsiovich (C.A. 45, 7831g). The suitability of concn. in heavy liquids and by dry magnetic sepn. is disputed. Two alternate schemes, one for small-size lumps and the other for larger size, are outlines. S. K. Grebnev and V. I. Karmazin. *Ibid.* 32 6. - Concn. schemes for lumps, fines, and intermediates are outlined. Each of the schemes comprises several possibilities to be used in concn. of kinds of ore falling in one of the 3 classes yet differing from one another. A. I. Batanov. *Ibid.* 30 7. A flow-sheet is presented based on dry magnetic sepn. of the original ore in a strong field after classifying the ore into 25-12, 12-5, and 5-0-mm. size. The concentrate from the largest size is ready for further use. The tailings from the 3 size classes are recleaned, the new concentrates are combined, and subjected to a reducing roast. The roast is ground, magnetically sepd. in a weak field, the concentrate is combined with the 1st concentrate of the 12-5 mm class, and the whole is agglomerated. M. Hosch

VINOGRADOV, V. S.

VINOGRADOV, V. S. (Veterinarian) Treatment of wounds under artifical scab.

So: Veterinariya; 23; 7; July 1946; Uncl.
TAECON

ARSENT'YEV, Aleksandr Ivanovich; VINOGRADOV, Vladimir Samoylovich; DZYUBENKO, Mikhail Grigor'yevich; YESHCHENKO, Aleksey Andreyevich; KALYAKIN, Viktor Vasil'yevich; KARMAZIN, Vitaliy Ivanovich; KISELEV, Vyacheslav Mikhaylovich; KULIKOV Vladimir Vasil'yevich; MELESHKIN, Sergey Mikhaylovich; SINARENKO, Aleksandr Ivanovich; KHIVRENKO, Akim Foteyevich; SHKUTA, Eduard Ivanovich; SHOSTAK, Afonasiy Grigor'yevich; MOSKAL'KOV, Yevgeniy Fedorovich, retsenzent; SOSEDOV, Orest Orestovich, retsenzent; ROSSIT, Aleksandr Filippovich, otv. red.; SUROVA, V.A., red.izd-va; LAVRENT'YEVA, L.G., tekhn. red.

[Overall development of an iron-ore basin] Kompleksnoe razvitie zhelezorudnogo basseina. [By] A.I.Arsent'yev i dr.Moskva, Izd-vo "Nedra," 1964. 293 p. (MIRA 17:3)

VINOGRADOV, V.S.

Fototelegrafnyy Apparat FTOZ-52 (Facsimile Device FTOZ-52), by A. V. Semenov and V. S. Vinogradov, All-Union Scientific Research Institute of Railroad Transport, Moscow, Transzheldorizdat; 1956, 44 pp

This booklet gives a concise description of the FTOZ-52 facsimile transmitter, developed at the Telegraph Laboratory of the Central Scientific Research Institute.

The maximum obtainable size of the transmitted image is 288 X 203 mm and the maximum resolution is 0.2 mm. The breakdown of the image into its components is accomplished with the aid of a scanning mechanism and light-electro-optical system. Reproduction of the image is accomplished by an open electrothermal method on a special paper with the aid of mechanical scanning and recording needle.

The FTOZ-52 is a receiving-transmitting device with drum-type scanning. The speed of drum rotation is 90 rpm, and the feed speed is 0.265 mm for each rotation of the drum. Under these conditions the full-size facsimile is transmitted in 12 min. The device is designed to operate on two-wire circuit, high-frequency telephone channels or on radio channels. The effectively transmitted frequency band, for the carrier frequency of 1,800 c, is 1,000-2,600 c.

SUM. 1391

VINOSKANY T.C.

Synchronous rotation of the drums of the transmitting and receiving sets is controlled by an oscillator of high stability. Such a stability is maintained with a tuning-fork regulator at 1,800 c. The power is supplied to the facsimile transmitter from a single-phase 110-220 v ac line, and consumes about 320 va.

The main components of the device are scanning mechanism, light-electro-optical system, recording device, drive system with starting and sync motors, transmitting amplifier with photocell modulator and receiving amplifier with receiver of phasing pulses, variable voltage oscillator for 1,800 c. tuning-fork stabilizer, amplifier of synchronous motor power supply, electronic voltage stabilizer, and a rectifier.

The device is of a desk type and is built with sectionalized units. The tubes used in the device are 6Zh8, 6N8, 6P6, SG-4S, 6P3, 6A7, SG-2s, and 5Ts3. The over-all dimensions are 858X384X258 mm and the weight is 50 kg. (U)

SUNI.1391

VINOGRADOV, V.S.

Effect of total-body X-irradiation on regeneration of the sciatic nerve in the rabbit. Arkh.anat.gist.i embr. 39 no.11:44-50 N '60. (MIRA 14:5)

1. Kafedra nervnykh bolezney (nachal'nik - prof. S.I.Karchikyan) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
Adres avtora: Leningrad, ul. Lebedeva, 37a, Kafedra nervnykh bolezney Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(SCIATIC NERVE) (X RAYS—PHYSIOLOGICAL EFFECT)

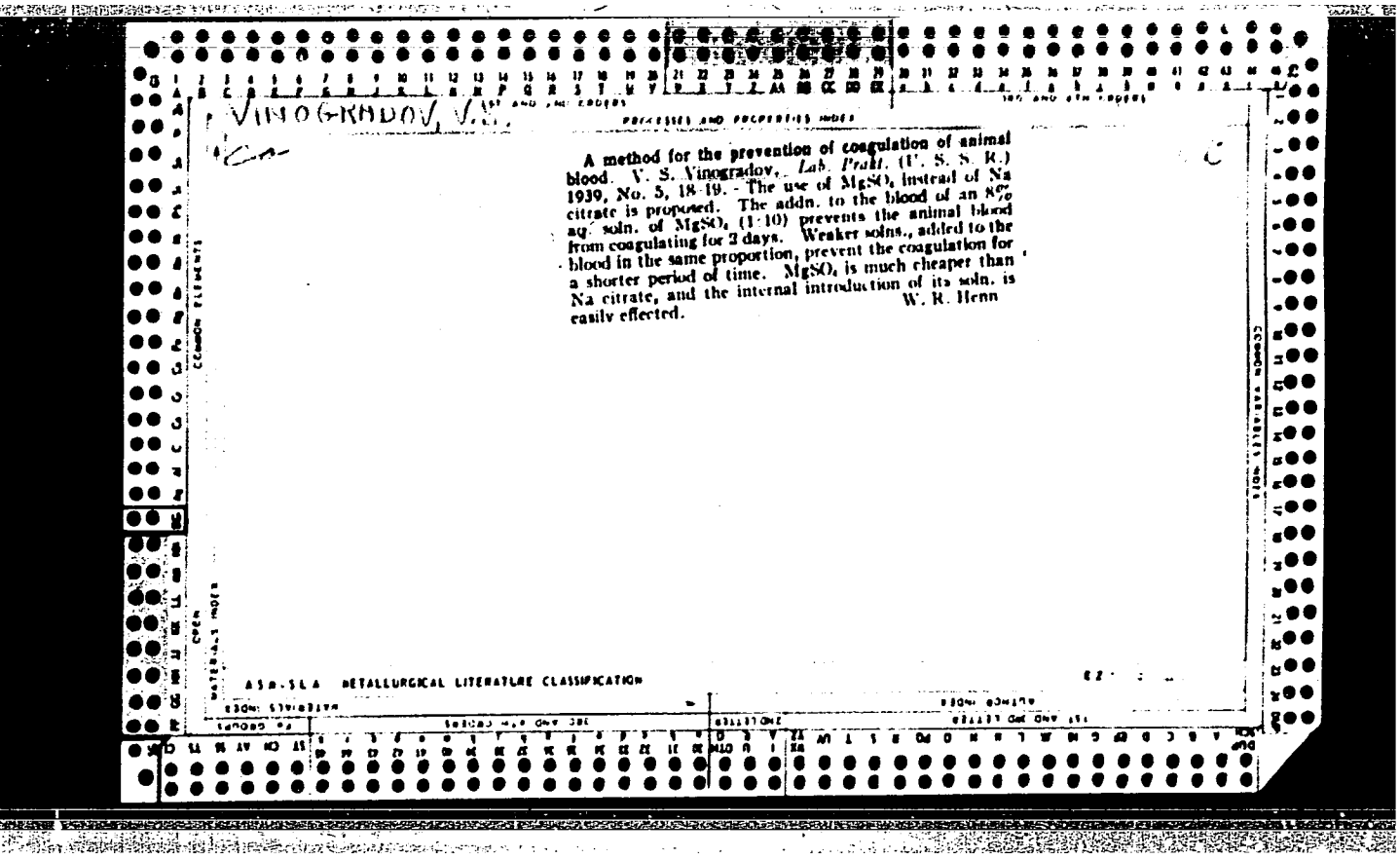
TIMOFEYEV, V.N., kand. tekhn. nauk, dotsent; VINOGRADOV, V.S., inzh.

Residual stresses in the surface layer of steel parts machined on lathes. Trudy GPI 17 no.4:69-74 '61. (MIRA 16:12)

VINOGRADOV, V.S., inzh.; IVANOV, N.I., inzh.

Use of ground-level stereophotogrammetrical surveying in construction of the Votkinsk Hydroelectric Power Station. Gidr. stroi. 32 no.3:14-16 Mr '62. (MIRA 16:7)

(Votkinsk Hydroelectric Power Station--Photographic surveying)



VINOGRADOV, V.S.

A method for the prevention of coagulation of animal blood. V. S. Vinogradov. *Lab. Prakt.* (U. S. S. R.) 1939, No. 5, 18-19. - The use of $MgSO_4$ instead of Na citrate is proposed. The addn. to the blood of an 8% aq. soln. of $MgSO_4$ (1:10) prevents the animal blood from coagulating for 2 days. Weaker solns., added to the blood in the same proportion, prevent the coagulation for a shorter period of time. $MgSO_4$ is much cheaper than Na citrate, and the internal introduction of its soln. is easily effected.
W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VINOGRADOV, V.S., inzh.; AL'TSHULER, M.A., kand. tekhn. nauk; POLYAKOV, V.G., inzh.; KUROCHKIN, A.N., inzh.; KARMAZIN, V.I., doktor tekhn. nauk; ZAIKIN, S.A., inzh.; OSTROVSKIY, G.P., inzh.[deceased]; NAUMENKO, P.I., inzh.; BOBRUSHKIN, L.G., inzh.; RUSTAMOV, I.I., inzh.; SHIFRIN, I.I., inzh.; GOLOVANOV, G.A., inzh.; KRASOVSKIY, L.A., inzh.; TSIMBALENKO, L.N., inzh.; RAVIKOVICH, I.M., inzh.; BAZILEVICH, S.V., kand. tekhn.nauk; ZORIN, I.P., inzh.; ZUBAREV, S.N., inzh.; TIKHOVIDOV, A.F., inzh.; SHITOV, I.S., inzh.; GAMAYUROV, A.I., inzh.; KUSEMBAYEV, Kh.N., inzh.; DEKHTYAREV, S.I., inzh.; VORONOV, I.S., inzh.; BURMIN, G.M., inzh.; BARYSHEV, V.M., inzh.; GOLOVIN, Yu.P., inzh.; MARCHENKO, K.F., inzh.; RYCHKOV, L.F., inzh.; NESTERENKO, A.M., inzh.; KABANOV, V.F., inzh.; PATRIKEYEV, N.N., inzh.[deceased]; ROSSMIT, A.F., inzh.; SOSEDOV, O.O., inzh.; POKROVSKIY, M.A., inzh., retsenzent: POLOTSK, S.M., red.; GOL'DIN, Ya.A., glav. red.; GOLUBYATNIKOVA,G.S., red. izd-va; BOLDYREVA, Z.A., tekhn. red.

[Iron mining and ore dressing industry]Zhelezorudnaia promyshlennost'. Moskva, Gosgortekhizdat, 1962. 439 p. (MIRA 15:12)

1. Moscow. TSentral'nyy institut informatsii chernoy metallurgii. (Iron mines and mining) (Ore dressing)

ACCESSION NR: AP4040703 S/0135/64/000/006/0028/0031

AUTHOR: Vinogradov, V. S. (Candidate of technical sciences)

TITLE: Properties of argon-shielded arc spot welds in aluminum

SOURCE: Svarochnoye proizvodstvo, no. 6 (630), 1964, 28-31

TOPIC TAGS: aluminum alloy, heat treatable alloy, nonheat treatable alloy, alloy welding, MIG spot welding, aluminum alloy welding, arc spot welding

ABSTRACT: The properties of MIG spot and plug welds in AMg6 and BAD-1 aluminum alloy sheets (1.5—3.0 mm thick) have been investigated Welds in the AMg6 alloy made with electrode wire of the same composition had satisfactory strength (see Fig. 1 of the Enclosure). At 300C welds had a strength of 270—400 kg per spot, roughly equal to that of the base sheet. Subjection to corrosion for 900 hr in 3% NaCl with 0.1% H_2O_2 had no effect on weld strength. The strength of the BAD-1 welds was much less satisfactory and varied at room temperature from 220 to 420 kg per spot because of hot cracks inside the weld nugget. It was concluded that the MIG method of spot welding

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ACCESSION NR: AP4040703

is applicable in the first place to nonheat-treatable alloys. In the welding of heat-treatable alloys, the selection of filler wire of corresponding composition is necessary. Orig. art. has: 4 figures and 7 tables.

ASSOCIATION: MATI

SUBMITTED: 00	ATD PRESS: 3072	ENCL: 01
SUB CODE: MM	NO REF SOV: 000	OTHER: 000

Card 2/3

ACCESSION NR: AP4039766 S/0125/64/000/006/0029/0032

AUTHOR: Vinogradov, V. S. (Moscow); Karan, A. B. (Moscow); Bol'shakova, V. M. (Moscow)

TITLE: Argon arc spot welding of unsupported aluminum alloy thin sheets

SOURCE: Avtomaticheskaya svarka, no. 6, 1964, 29-32

TOPIC TAGS: aluminum alloy, alloy thin sheet, arc spot welding, sheet arc spot welding, thin sheet, thin sheet welding, AMg6 alloy welding, AMg6 alloy

ABSTRACT: In an attempt to develop a suitable technique for TIG or MIG spot welding of unsupported thin aluminum alloy sheets, four welding techniques have been tested: TIG and MIG with melting through the upper sheet and TIG and MIG with holes predrilled in the upper sheet. Tests were conducted with AMg6 alloy sheets 1 mm (upper sheet) and 2 mm (bottom sheet) thick. ADSP-2 and ADSV-2 automatic welders fitted with modified electrode holders and a

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ACCESSION NR: AP4039766

time control unit were used. The time control unit permitted spot or continuous seam welding with direct or alternating current. Both techniques of TIG welding produced unsatisfactory results. Satisfactory spot welds were obtained with both MIG welding techniques. To obtain an adequate fusion, the bottom sheet should also be melted through. The oxide film on the bottom side of the bottom sheet supports molten metal and facilitates the weld formation. A d-c welding machine with steep or slowly drooping volt-ampere characteristics is recommended. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 14May63	DATE ACQ: 24Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 000	OTHER: 000

Card 2/2

BR

ACCESSION NR: AP4017076 S/3063/61/017/004/0069/0074

AUTHOR: Timofeyev, V. N. (Candidate of technical sciences, Docent); Vinogradov, V. S. (Engineer)

TITLE: Residual stresses in the surface layer of steel parts after turning

SOURCE: Gorkiy. Politekhnicheskiy institut. Trudy*, v. 17, no. 4. 1961, 69-74

TOPIC TAGS: residual stress, steel surface layer, steel part turning, residual tangential stress, steel part, steel stress

ABSTRACT: The magnitude, sign and character of distribution, through the depth of the surface layer, of the residual tangential stresses which arise in the turning of steel parts with mineral-ceramic and hard-alloy cutting tools. were determined. Determination of the residual stresses was accomplished by the method proposed by Academician N. N. Davidenkov (N. N. Davidenkov. Izmereniye ostatochny*kh napryazheniy v trubakh. Zhurnal tekhnicheskoy fiziki, 1931, no. 1). Essentially, the method consists of the sequential removal from the investigated surface of ring samples of metal layers and of the measurement of the diameter changes which occur in this process. On the basis of the experimental data, and through computation, a determination was made of the residual stresses which occurred in the removed layer. The device used for electric polishing and for

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ACCESSION NR: AP4017076

tensiometric (strain gauge) readings of the samples was described. The outfit consisted of an electrolytic bath for the removal of thin layers from the surface of the samples, a step-down transformer with a rectifier unit for current constancy, a mirror-type galvanometer for recording sample deformations during the polishing process and a panel for controlling the tensiometric resistance bridge. The preparation of the ring samples (of steel No. 45 with an internal diameter of 50 mm and height of 15 mm) and the test methodology were described. On the basis of the results, the authors found that: 1) when turning steel rings (with the cutting modes adopted in the experiment by means of hard-alloy and ceramic tools), residual tensile stresses develop in the surface layer; 2) the value of the stresses on the surface reaches 26-62 kg/mm^2 after turning with a hard-alloy cutter and 36-51 kg/mm^2 with a ceramic cutter; 3) the outline character of the residual stresses is uniform in almost all cases. High stresses on the surface rapidly decrease to a depth of 0.02-0.03 mm from the surface, after which there is a further gradual reduction until the sign changes; 4) the thickness of the stress layer until the sign changes is 0.055-0.08 mm; 5) the character of the function of stress as it relates to the depth of cutting differs for ceramic and hard-alloy cutting tools; and 6) under identical cutting conditions, residual stress in the surface layer after machining with a ceramic cutting tool is 15-30% lower than after cutting with a hard-alloy tool (an explanation for this last point was advanced). Orig. art. has: 11 figures.

Card 2/3

ACCESSION NR: AP4017076

ASSOCIATION: Politekhnicheskiy institut, Gorkiy (Gorkiy Polytechnical Institute)

SUBMITTED: 00 DATE ACQ: 20Mar64 ENCL: 00

SUB CODE: MM NO REF SOV: 004 OTHER: 000

Card 3/3

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S/048/60/024/01/05/009
B006/B014

24.7700

AUTHORS: Afanas'yeva, Ye. A., Vinogradov, V. S., Konorova, Ye. A.

TITLE: Dependence of the Currents in KBr Single Crystals on the Temperature and Voltage in the Pre-breakdown Field

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 1, pp. 66-74

TEXT: The article under review was read at the Second All-Union Conference on the Physics of Dielectrics (Moscow, November 20-27, 1958). One of the authors, Konorova, showed that a voltage pulse applied to a KBr crystal generates a current that exceeds the one produced by constant voltage and the same field strength by several orders of magnitude. This effect seems to confirm the hypothesis of autoelectronic emission from the cathode in a crystal located within a strong field. The authors first discuss the theory of this phenomenon. The arising kinetic problem is treated with a set of equations which corresponds to the one used in the phenomenological theory of semiconductors. The representation is based on an energy-level scheme shown in Fig. 1. The following section

Card 1/2

Dependence of the Currents in KBr Single Crystals on the Temperature and Voltage in the Pre-breakdown Field

S/048/60/024/01/05/009
B006/B014

describes experimental details. The current-voltage curves were measured in the temperature range -50°C - +24°C. Fig. 4 illustrates a typical curve for t=0°. Herefrom it follows that the I(V) curve may be represented by $I = \alpha V + I_{nonlinear}$. Here, α is determined from the slope of the linear branch of the curve. All the following diagrams are referred to $I_{nonlinear}$. Fig. 5 shows $\log I_{nonlinear} = f(V)$ for different temperatures. This function is practically an exponential function. The resulting experimental data are explicable by means of the crystal model under consideration and the hypothesis of autoelectronic emission. At present, there are no experimental data available on the existence of a broad capture level band in alkali-halide crystals. Nevertheless, it may be assumed that such a band exists since the edges of dislocations are electron traps. There are 8 figures, 1 table, and 3 references, 1 of which is Soviet.

84616

S/181/60/002/010/044/051
B019/B056

24.7500 (1043, 1145, 1160)

AUTHOR: Vinogradov, V. S.

TITLE: The Effect of Perturbation of the Charge Periodicity of Crystal Lattices Upon the Dielectric Losses in the Range of Super-high Frequencies

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10, pp. 2622 - 2628

TEXT: The effect of the interaction of impurity charges with the ions of the ground lattice upon the dielectric losses at frequencies $\omega \ll \omega(0)$ is investigated, where $\omega(0)$ is the border frequency of the optical lattice oscillations. For the potential energy of the ideal lattice $U_o = U_o(0) + \frac{1}{2}\sum_{\substack{\vec{k}\,\sigma \\ \vec{k}'\,\sigma'}} B^{\sigma\sigma'}_{\vec{k}\vec{k}'} b^{\sigma}_{\vec{k}} b^{\sigma'}_{\vec{k}'}$ is given, where $B_{\vec{k}\vec{k}'}$ are the second derivatives of the potential energy with respect to the displacement coordinates of the ions. A new equation of motion

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The Effect of Perturbation of the Charge Periodicity of Crystal Lattices Upon the Dielectric Losses in the Range of Super-high Frequencies

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$m_s \ddot{b}^s_{\vec{k}_1} + \sum_{\vec{k}'\sigma'} (B^{\sigma\sigma'}_{\vec{k}-\vec{k}'} + \delta B^{\sigma\sigma'}_{\vec{k}\vec{k}'}) b^{\sigma'}_{\vec{k}'_1} - f^{\sigma}_{\vec{k}} = (e^s_{\vec{k}} + \delta e^s_{\vec{k}}) E^{\sigma}_{k}$ is set up, the right side of which describes the interaction of the lattice ions with the electric field. The solutions are obtained by neglecting the inharmonic terms $f^{\sigma}_{\vec{k}}$, and for the dipole moment of the lattice, the expression $P^x = \sum_{\vec{k}s} (g^s_{\vec{k}} + \delta g^s_{\vec{k}}) u^{sx}_{\vec{k}}$ is obtained. Here $u^{\sigma}_{k} = b^{\sigma}_{\vec{k}} \sqrt{m_s}$ and $g^s_{\vec{k}} = e^s_{\vec{k}} / \sqrt{m_s}$. The expression for P^x is thoroughly investigated, and for the imaginary part of the dielectric constant the expression

$\varepsilon_2 \approx \frac{2N(\delta e)^2}{\varrho v_0^3} \omega (1 + \frac{2}{5} \varepsilon_{1i})$ is obtained. From the discussion of this formula and of the experimental results obtained with NaCl at 85°C the conclusion is drawn that the losses observed may be considered to be a property of the ideal periodic lattice. This may be explained by the effect of the inharmonic terms in the expression for the potential

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The Effect of Perturbation of the Charge Periodicity of Crystal Lattices Upon the Dielectric Losses in the Range of Super-high Frequencies

S/181/60/002/010/044/051
B019/B056

lattice energy. At decreased temperatures the absorption caused by this mechanism within the frequency range $\omega < \omega(0)$ tends towards zero.
V. A. Chuyenkov is thanked for discussing the results obtained. There are 5 references: 3 Soviet and 2 US.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Moskva
(Institute of Physics imeni P. N. Lebedev, Moscow)

SUBMITTED: March 7, 1960

24913 S/181/61/003/006/010/031
B102/B201

24,7400
9.4170

AUTHOR: Vinogradov, V.S.

TITLE: Shape of infrared absorption bands and dielectric losses at superhigh frequencies in ionic crystals

PERIODICAL: Fizika tverdogo tela, v. 3. no. 6, 1961, 1723-1730

TEXT: Infrared absorption bands observed experimentally in ionic crystals have, besides a central maximum, also some side maxima; this structure is ascribed to an effect of anharmonic terms in the expansion of potential energy with respect to the ion displacement. Ref.3 (M. Born, Huang K'un, Russian translation of the book "Dynamical theory of crystal lattices", 1958) contains a quantum-mechanical calculation of absorption, where the method by Wigner-Weisskopf is applied; the result obtained in that work is to the effect that the attenuation constants of the central and side maxima are proportional to T^3 at sufficiently high temperatures, a result that contradicts classical calculations (cf. M. Blackman. Zs. f. Phys. 86, 421, 1933). According to the latter, the attenuation constant for the

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side maxima is proportional to T only. A careful investigation has shown that Ref.3 contains some inaccuracies; thus, e.g., the formulation of initial conditions when solving the Schroedinger equation is incorrect; the neglect of certain matrix elements is also unjustified. The author of the present paper offers a new quantum-mechanical investigation of infrared absorption peaks and of dielectric losses basing on the same model as that of Ref.3, but applying another method. A crystal lattice consisting of hard ions (N elementary cells, small compared with the wavelength of the electric field in the lattice) is considered, described by the Schroedinger equation $i\hbar \frac{\partial \Psi}{\partial t} = (H_0+C_j+F)\Psi$ (1), where H_0 denotes the Hamiltonian in harmonic approximation, and

$$C_j = \frac{1}{2\sqrt{N}} \sum_{j'j''} \Phi \begin{pmatrix} 0 & j' & j'' \end{pmatrix} \left\{ a_+ \begin{pmatrix} -j' \end{pmatrix} a_+ \begin{pmatrix} j'' \end{pmatrix} + a_- \begin{pmatrix} j' \end{pmatrix} a_- \begin{pmatrix} -j'' \end{pmatrix} + 2a_- \begin{pmatrix} j' \end{pmatrix} a_+ \begin{pmatrix} j'' \end{pmatrix} \right\} Q \begin{pmatrix} 0 \\ j \end{pmatrix} \equiv RQ \begin{pmatrix} 0 \\ j \end{pmatrix} \quad (2),$$

denotes the anharmonic part of the potential energy (cf. Ref.3);

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$F = -(\xi\mu)\cos\omega(t-t_0)+\kappa$, ξ is the amplitude of the transverse macroscopic field, μ is the dipole moment of the volume. The effect of the electric field in (1) can be taken into account in two ways: in terms of perturbation theory, or in adiabatic approximation, depending on whether the frequencies are high or low. The ranges of application of the two approximations are shown here to be given by $\omega > \omega_0$ and $\omega < \omega_0$, where ω_0 denotes the frequency of the disperse oscillator (whose amplitude is $Q(\overset{0}{j})$).

For the energy absorbed per unit time, and if the field effect is taken account of in terms of perturbation theory, one obtains

$$\frac{dE}{dt} = \frac{\mathcal{E}^2}{4h}\sum_{\lambda k}\omega_{k\lambda}(\rho_\lambda - \rho_k)\left\{\frac{d}{dt}\left|\int_{t_0}^{t} dt\bar{\mu}_{k\lambda}e^{i\omega t}\right|^2 + \frac{d}{dt}\left|\int_{t_0}^{t} dt\bar{\mu}_{k\lambda}e^{-i\omega t}\right|^2\right\}, \quad (13)$$

$$\omega_{k\lambda} = \frac{E_k - E_\lambda}{h}, \quad \bar{\mu}_{k\lambda} = (s^+\mu^{int}s)_{k\lambda},$$

where $\rho_\lambda = [\exp(\Phi - E_\lambda)/kT]$ denotes the density matrix. In adiabatic

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Shape of infrared absorption ...

approximation, the factor $(\omega/\omega_0)^2$ stands before the summation sign. Ψ in (1), is given by

$$\Psi = \sum_\lambda U_\lambda \varphi_\lambda \exp\left(\frac{1}{ih}\int_{t_0}^{t} E_\lambda dt\right), \qquad (4),$$

the equation for U reads $i\dot{U} = (C^{int}+F^{int})U$, and the relative solution is to be sought in the form $U = sA$. The equation for the determination of A reads $i\dot{A} = (s^+F^{int}s)A$, and for the s-matrix one obtains:

$$\left.\begin{aligned} s_{ii} &= e^{-\Gamma_i(t-t_0)}, \\ s_{\substack{ij \\ (i\neq j)}} &= \frac{c_{ij}}{h}\frac{1-e^{i(\omega_{ij}+i\Gamma_j)(t-t_0)}}{\omega_{ij}+i\Gamma_j} + \sum_k \frac{c_{ik}c_{jk}}{h^2(\omega_{kj}+i\Gamma_j)} \times \\ &\times\left\{\frac{1-e^{i\omega_{ik}(t-t_0)}}{\omega_{ik}} - \frac{1-e^{i(\omega_{ij}+i\Gamma_j)(t-t_0)}}{\omega_{ij}+i\Gamma_j}\right\}\cdots \end{aligned}\right\} \qquad (17)$$

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where the Γ_i are given by

$$\Gamma_i \equiv \Gamma_i(\omega_i) = i \sum_k \frac{|c_{ik}|^2}{\hbar^2} p\left(\frac{1}{\omega_i - \omega_k}\right) + \pi \sum_k \frac{|c_{ik}|^2}{\hbar^2} \delta(\omega_i - \omega_k), \quad (18)$$

The absorbed energy (transitions $\lambda \to \lambda \pm j$) is found to be

$$\frac{dE}{dt}_{cp.} = \frac{\xi^2 \left| M\begin{pmatrix} 0 \\ j \end{pmatrix} \right|^2}{4v_\infty} \left\{ \frac{\frac{1}{\tau}}{(\omega_0 - \omega)^2} + \frac{\frac{1}{\tau}}{(\omega_0 + \omega)^2} \right\}, \quad (22)$$

(in adiabatic approximation the factor $(\omega/\omega_0)^2$ also enters this formula). Instead of these formulas, which hold for the two ranges $\omega \gtrless \omega_0$, formula

$$\left(\frac{dE}{dt}\right)_{cp.} = \frac{\delta^2 \left| M\begin{pmatrix} 0 \\ j \end{pmatrix} \right|^2}{2v_a} \frac{\omega^2 \frac{1}{\tau}}{(\omega_0^2 - \omega^2)^2}. \quad (23)$$

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Shape of infrared absorption ...

may be put. For $k \to \lambda\,(k \neq \lambda_{\pm j})$ transitions,

$$\left(\frac{dE}{dt}\right)_{sp.t} = \frac{\delta^2 \left|M\begin{pmatrix}0\\j\end{pmatrix}\right|^2}{2v_s}\,\pi \sum_{k\lambda} \omega_{k\lambda}(\rho_\lambda - \rho_k)\,\delta(\omega_{k\lambda} - \omega)\,\frac{|R_{k\lambda}|^2}{(\omega_0^2 - \omega_{k\lambda}^2)^2}, \quad (24)$$

is found after averaging over time. $1/\tau$ is independent of frequency and is given by

$$\frac{1}{\tau} = \frac{\pi v_s}{\hbar^2} \sum_{j'j''} \int \frac{\hbar^3 \left|\Phi\begin{pmatrix}0 & y-y\\ j & j' & j''\end{pmatrix}\right|^2 dy}{32\omega\begin{pmatrix}0\\j\end{pmatrix}\omega\begin{pmatrix}y\\j'\end{pmatrix}\omega\begin{pmatrix}y\\j''\end{pmatrix}} \times \quad (26)$$

$$\times \left\{\delta\left(\omega\begin{pmatrix}0\\j\end{pmatrix} - \omega\begin{pmatrix}y\\j'\end{pmatrix} - \omega\begin{pmatrix}y\\j''\end{pmatrix}\right)\left[\left(2n\begin{pmatrix}0\\j\end{pmatrix} + 2\right) n\begin{pmatrix}y\\j'\end{pmatrix} n\begin{pmatrix}y\\j''\end{pmatrix} + \right.\right.$$

$$+ \left(2n\begin{pmatrix}0\\j\end{pmatrix} + 1\right)\left(n\begin{pmatrix}y\\j'\end{pmatrix} + 1\right)\left(n\begin{pmatrix}y\\j''\end{pmatrix} + 1\right)\Big] + 4\delta\left(\omega\begin{pmatrix}0\\j\end{pmatrix} - \omega\begin{pmatrix}y\\j'\end{pmatrix} + \right.$$

$$\left.\left. + \omega\begin{pmatrix}y\\j''\end{pmatrix}\right)\left[\left(2n\begin{pmatrix}0\\j\end{pmatrix} + 2\right) n\begin{pmatrix}y\\j'\end{pmatrix}\left(n\begin{pmatrix}y\\j''\end{pmatrix} + 1\right) + \right.$$

$$\left. + \left(2n\begin{pmatrix}0\\j\end{pmatrix} + 1\right)\left(n\begin{pmatrix}y\\j'\end{pmatrix} + 1\right) n\begin{pmatrix}y\\j''\end{pmatrix}\right]\Big\},$$

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$$\gamma_+(\omega)=\frac{\pi v_0\left(1-e^{-\frac{\hbar\omega}{kT}}\right)}{\hbar\omega}\left\{\sum_{j'j''}\int\frac{\left|\Phi\left(\begin{matrix}0\mathbf{y}-\mathbf{y}\\ j\,j'\,j''\end{matrix}\right)\right|^2\hbar^2}{32\omega\left(\frac{\mathbf{y}}{j'}\right)\omega\left(\frac{\mathbf{y}}{j''}\right)}\times\right.$$

$$\left.\times\left(n\left(\frac{\mathbf{y}}{j''}\right)+1\right)\left(n\left(\frac{\mathbf{y}}{j''}\right)+1\right)\delta\left(\omega\left(\frac{\mathbf{y}}{j'}\right)+\omega\left(\frac{\mathbf{y}}{j''}\right)-\omega\right)d\mathbf{y}\right\},$$

$$\gamma_-(\omega)=\frac{\pi v_0\left(1-e^{-\frac{\hbar\omega}{kT}}\right)}{\hbar\omega}\left\{4\sum_{j'j''}\int\frac{\left|\Phi\left(\begin{matrix}0\mathbf{y}-\mathbf{y}\\ j\,j'\,j''\end{matrix}\right)\right|^2\hbar^2}{32\omega\left(\frac{\mathbf{y}}{j'}\right)\omega\left(\frac{\mathbf{y}}{j''}\right)}\times\right.$$

$$\left.\times n\left(\frac{\mathbf{y}}{j'}\right)\left(n\left(\frac{\mathbf{y}}{j''}\right)+1\right)\delta\left(\omega\left(\frac{\mathbf{y}}{j'}\right)-\omega\left(\frac{\mathbf{y}}{j''}\right)+\omega\right)d\mathbf{y}\right\}.$$

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Shape of infrared absorption ...

The subscript cp denotes the mean value. One may put $\left(\frac{\partial E}{\partial t}\right)_{cp\,v} = \frac{\varepsilon^2 \alpha_2 \omega}{2}$,

where

$$\alpha_2 = \frac{e^2}{M_{sp.} v_s} \frac{\omega \frac{1}{\tau}}{(\omega_0^2 - \omega^2)^2} + \frac{e^2}{2M_{sp.} v_s} \frac{\omega (\gamma_+(\omega) + \gamma_-(\omega))}{(\omega_0^2 - \varphi^2)^2}; \qquad (25),$$

The first term in this formula desribes the energy absorption on transitions of the disperse oscillator into other states; the second term describes the contribution of processes, in which the initial and end states of this oscillator are equal. At high temperatures, one finds $1/\tau \sim T^3$, γ_+, $\gamma_- \sim T$, and at low temperatures, $1/\tau \neq 0$, $\gamma_-(\omega) = 0$, $\gamma_+(\omega) \neq 0$, which contradicts the results of Ref.3. Experimental studies of tanδ in NaCl confirm the results. V.A. Chuyenkov is thanked for his discussions. There are 13 references: 5 Soviet-bloc and 8 non-Soviet-bloc.

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B102/B201

Shape of infrared absorption ... 24913

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR Moskva
(Institute of Physics imeni P.N. Lebedev AS USSR, Moscow)

SUBMITTED: December 26, 1960

Card 9/9

S/181/62/004/003/024/045
B125/B102

AUTHOR: Vinogradov, V. S.

TITLE: Application of the method of Green functions to the calculation of infrared absorption in ion crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 3, 1962, 712 - 717

TEXT: An expression for the complex polarizability $\alpha(\omega)$, which can be used also in the resonance region, is derived with the aid of the two-dimensional Green functions for temperature. The lattice consisting of rigid ions is placed in an electrical field and a volume is separated which is small relative to the wavelength of the electric crystal field, and which consists of N unit cells. $\alpha(\omega)$ can be expressed by means of an equation for the density matrix: $\alpha(\omega) = -(\pi e^2/v_a M_{red}\omega_0)\left\{G^1(t-t') + G^2(t-t') + G^1(t-t')^+ + G^2(t-t')^+\right\}_\omega$ (9). e is the ionic charge, v_a is the volume of the unit cell, M_{red} is the reduced ion mass, the subscript ω behind the braces indicates that the Fourier component is used. The retarded Green functions are

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Application of the method ...

$$G^1(t-t') = -i\theta(t-t')\left\langle\left[b_-\begin{pmatrix}\vec{y}\\ j\end{pmatrix},\ b'_-\begin{pmatrix}\vec{y}\\ j\end{pmatrix}\right]\right\rangle, \qquad (10),$$

$$G^2(t-t') = -i\theta(t-t')\left\langle\left[b_+\begin{pmatrix}\vec{y}\\ j\end{pmatrix},\ b'_-\begin{pmatrix}\vec{y}\\ j\end{pmatrix}\right]\right\rangle. \qquad (11).$$

The brackets denote commutation, $\langle\ \rangle$ denotes the averaging with the density matrix $\varrho = \exp(-(H_0 + C_j)/kT)$. The phonon creation and annihilation operators $b_+\begin{pmatrix}\vec{y}\\ j'\end{pmatrix}$ and $b_-\begin{pmatrix}\vec{y}\\ j''\end{pmatrix}$ with the wave vector $\vec{y}$ and the frequencies $\omega\begin{pmatrix}\vec{y}\\ j'\end{pmatrix}$, $\omega\begin{pmatrix}\vec{y}\\ j''\end{pmatrix}$ are used in the Heisenberg representation. j' and j" denote the numbers of the spectral branches. The operators b'_- and b_- depend on the time t' and t, respectively. Furthermore, $\theta(t) = 1$ for $t \geq 0$, $\theta(t) = 0$ for $t < 0$, $d\theta(t)/dt = \delta(t)$. The system of differential equations

Application of the method ...

$$\left.\begin{aligned}
i\hbar\frac{dG^1}{dt} &= \hbar\omega_0 G^1 + \sum_{yj'j''} B\begin{pmatrix}0y & -y\\ jj' & j''\end{pmatrix}(G^a + G^b + 2G^a),\\
-i\hbar\frac{dG^2}{dt} &= \hbar\delta(t-t') + \hbar\omega_0 G^2 + \\
&+ \sum_{yj'j''} B\begin{pmatrix}0y & -y\\ jj' & j''\end{pmatrix}(G^a + G^b + 2G^c),
\end{aligned}\right\} \quad (14)$$

$$\left.\begin{aligned}
i\hbar\frac{dG^a}{dt} &= -\hbar\left(\omega\begin{pmatrix}y\\ j'\end{pmatrix} + \omega\begin{pmatrix}y\\ j''\end{pmatrix}\right)G^a - 2B\begin{pmatrix}0 & -yy\\ j & j'j''\end{pmatrix}\left(n\begin{pmatrix}y\\ j'\end{pmatrix} + \right.\\
&\left. + n\begin{pmatrix}y\\ j''\end{pmatrix} + 1\right)(G^1 + G^2),\\
i\hbar\frac{dG^b}{dt} &= \hbar\left(\omega\begin{pmatrix}y\\ j'\end{pmatrix} + \omega\begin{pmatrix}y\\ j''\end{pmatrix}\right)G^b + 2B\begin{pmatrix}0 & -yy\\ j & j'j''\end{pmatrix}\left(n\begin{pmatrix}y\\ j'\end{pmatrix} + \right.\\
&\left. + n\begin{pmatrix}y\\ j''\end{pmatrix} + 1\right)(G^1 + G^2),\\
i\hbar\frac{dG^c}{dt} &= \hbar\left(\omega\begin{pmatrix}y\\ j'\end{pmatrix} - \omega\begin{pmatrix}y\\ j''\end{pmatrix}\right)G^c + 2B\begin{pmatrix}0 & -yy\\ j & j'j''\end{pmatrix}\left(n\begin{pmatrix}y\\ j''\end{pmatrix} - \right.\\
&\left. - n\begin{pmatrix}y\\ j'\end{pmatrix}\right)(G^1 + G^2).
\end{aligned}\right\} \quad (16)$$

following from the equations of motion for the operators $b_{\pm}\begin{pmatrix}\vec{y}\\ j\end{pmatrix}$ is solved

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Application of the method ...

$$\text{by } G^1(\omega)=\frac{1}{2\pi}\frac{\bar{\gamma}(\omega)}{\omega_0^2-\omega^2+2\omega_0\bar{\gamma}(\omega)},$$
$$G^2(\omega)=\frac{1}{2\pi}\frac{\omega-\omega_0-\bar{\gamma}(\omega)}{\omega_0^2-\omega^2+2\omega_0\bar{\gamma}(\omega)}.$$

(18). ω has a small positive imaginary addition. The substitution of (18) in (9) yields $\varkappa(\omega) = (e^2/M_{red}v_a)/(\omega_o^2 + 2\omega_o\gamma_1 - \omega^2 - 2i\omega_o\gamma)$ (20). γ_1 causes a small shift of the dispersion frequency and γ takes account of attenuation. The maximum $\gamma(\omega)$ is obtained at frequencies $\omega = \omega_1 \pm \omega_2$. The frequencies ω_1 and ω_2 correspond to the wave vectors with maximum state density. At low temperatures, the quantum effects have to be taken into account, and the maxima at $\omega = \omega_1 - \omega_2$ disappear, those at $\omega = \omega_1 + \omega_2$ are conserved. At sufficiently high temperatures, the temperature dependence of γ_1 and γ becomes linear. The deviation of the temperature dependence described by (20) from the experimental data is obviously due to the neglection of the effect of unharmonicity. At room temperatures and low temperatures, a better agreement between experi-

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ment and theory can be expected. There are 7 references: 3 Soviet and 4 non-Soviet. The two references to English-language publications read as follows: J. Neuberger, R. Hatcher. J. Chem. Phys., 34, 1733, 1961; M. Haas, Phys. Rev., 117, 1497, 1960.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva (Physics Institute imeni P. N. Lebedev AS USSR Moscow)

SUBMITTED: July 27, 1961 (initially), and November 17, 1961 (after revision)

Card 5/5

24.7150

43141
S/181/62/004/011/048/049
B108/B186

AUTHOR: Vinogradov, V. S.

TITLE: On the theory of the dielectric losses at very high frequencies in crystals with an imperfect lattice

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3348-3349

TEXT: G. Rupprecht and R. O. Bell (Phys. Rev., 125, 1915, 1962) studied the dielectric losses in $SrTiO_3$ within the frequency range $3 \cdot 10^9$-$36 \cdot 10^9$ cps as depending on frequency, temperature, and number of crystal defects. They showed that $(T - T_c)\tan\delta = \alpha + \beta T + \gamma T^2$ and $\varepsilon_0 = C/(T-T_c)$, where $T_c = 37^\circ K$, is the Curie-Weiss temperature, $C = 8.25 \cdot 10^4$ °K. In this frequency range the coefficients α, β, γ are proportional to the frequency ω. This fact can be explained by assuming (1) charged point defects in the crystal, or (2) defect planes associated with changes of the short-range forces between the ions. The imaginary part of the dielectric constant is calculated for these two cases on the basis of a previous paper (FTT, 2, 2622, 1960):

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(1) $$\varepsilon_1 = \frac{n\delta e^2 \omega}{3\rho}\left\{\frac{2}{v_\perp^3} + \frac{1}{v_\parallel^3}(\varepsilon_0 + 1)^2\right\}, \quad (3)$$

(2) $$\varepsilon_2^{\parallel} = \frac{n_1}{8\pi}\left(\frac{\Delta k}{eN_0}\right)^2 \frac{N_y N_z}{\rho v_\perp^3}\omega\varepsilon_0^2, \quad (4)$$

$$\varepsilon_2^{\perp} = \frac{n_1}{8\pi}\left(\frac{\Delta k'}{eN_0}\right)^2 \frac{N_x N_y}{\rho v_\parallel^3}\omega\varepsilon_0^2, \quad (5),$$

where n = concentration of charged defects, δe = change in charge owing to a defect, $v_\perp$, $v_\parallel$ = phase velocities of the transverse and longitudinal sound waves; n_1 = number of defect planes per unit volume, N_0 = number of elementary cells per unit volume, N_x, N_y, N_z = dimensions of the planes in lengths d of the elementary cell, Δk, $\Delta k'$ = change in the force

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constants for two neighboring ions, one in the plane and the other outside. Estimates of α, n, and n_1 showed that both types of defects may be important in explaining the VHF dielectric losses.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskova (Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: July 25, 1962

Card 3/3

VINOGRADOV, V. S.

Lebedev Physical Institute, Academy of Sciences, USSR
"On theory of dielectric losses at super high frequencies in ionic crystals with non-ideal lattice."

International Conference on Lattice Dynamics, Copenhagen Denmark, 5-9 August 1963

VINOGRADOV, V.S., kand. tekhn. nauk; POLUKHAYEV, M.A., inzh.

Welding vacuum-tight seams to join Armco-iron with copper. Mashinostroitel' no.1:30-31 Ja '65. (MIRA 18:3)

1. Moskovskiy aviatsionnyy tekhnologicheskiy institut.

VINOGRADOV, V.S.

Land stereophotogrammetric surveying in the construction of hydroelectric power stations. Geod. i kart. no.11:26-33 N '64. (MIRA 18:2)

VINOGRADOV, V.S. (Moskva); KARAN, A.B. (Moskva); BOL'SHAKOVA, V.M. (Moskva).

Selecting flow sheets for argon-arc suspended spot welding of aluminum alloys. Avtom. svar. 17 no.6:29-32 Je '64 (MIRA 18:1)

VINOGRADOV, V.S., kand. tekhn. nauk

Properties of electrically welded rivet joints in aluminum alloys. Svar. proizv. no.6:28-31 Je '64 (MIRA 18:2)

1. Moskovskiy aviatsionnyy tekhnologicheskiy institut.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 371
AUTHOR VINOGRADOV V.S.
TITLE On Neumann's problem for an equation of elliptic type.
PERIODICAL Doklady Akad. Nauk 109, 13-16 (1956)
reviewed 11/1956

According to a method proposed by Vekua (Doklady Akad. Nauk 101, 4, (1955)) the author solves the problem

$$(1)\quad a(x,y)\frac{\partial^2 U}{\partial x^2} + 2b(x,y)\frac{\partial^2 U}{\partial x \partial y} + c(x,y)\frac{\partial^2 U}{\partial y^2} + d(x,y)\frac{\partial U}{\partial x} + e(x,y)\frac{\partial U}{\partial x} + f(x,y)U = g(x,y)$$

$$(2)\quad \left.\frac{\partial U}{\partial n}\right|_{\Gamma} = 0.$$

Here $a(x,y)$, $b(x,y)$ and $c(x,y)$, in a certain finite region D, are bounded measurable functions which in D satisfy the condition $ac - b^2 \geq k > 0$, Γ is the boundary of D and n the outer normal of Γ. Since under the assumption of a sufficient smoothness of Γ by a conformal mapping the problem can be reduced to a corresponding problem for the unit circle, the author gives a solution only for the latter case. The solution $U(x,y)$ is said to be a function which satisfies (1) and (2) and which possesses continuous derivatives of first order and generalized derivatives of second order in the sense of Sobolev.

INSTITUTION: Mathematical Institute, Acad.Sci. USSR.

VINOGRADOV, V.S., Cand Phys Math Sci -- (diss) "Boundary problems for systems of differential equations of the first order and equations of the second order of the elliptic type." MAs, [Publ House of Acad Sci USSR], 1958, 7 pp (Acad Sci USSR. Math Inst im V.A. Steklov) 130 copies. Bibliography at end of text (18 titles) KL, 23-58, 101)