33441
S/064/62/000/001/004/008
B110/B138

5.3400

AUTHORS: Fioshin, M. Ya., Lebedev, I. M., Kazakova, L. I., Gankin, S. Z., Khol'mer, O. M., Gurevich, G. I., Neyman, Ye. Ya.

TITLE: Electrosynthesis of ω-oxypentadecanoic acid

PERIODICAL: Khimicheskaya promyshlennost', no. 1, 1962, 41 - 43

TEXT: ω-oxypentadecanoic acid (I) is produced by "mutual" anodic condensation of ω-acetoxyundecanoic acid (II) and adipic acid monoethyl ester (III), during the electrolysis of an aqueous solution of a mixture of their salts: $CH_3COO(CH_2)_{10}COO^- + {}^-OOC(CH_2)_4COOC_2H_5$ $\rightarrow CH_3COO(CH_2)_{14}COOC_2H_5 + 2CO_2$ and then saponification of ethyl ester. The authors wished to obtain better yields by substituting the aqueous by an alcoholic medium, and the Pt anode by PbO_2, magnetite, and graphite anodes. A cylindrical glass electrolyser with cylindrical, Pt anode, perforated Ni cathode and graphite rod anode concentrically arranged, was

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Electrosynthesis of...

filled with an alcoholic solution of II, III, potash, and soda. Current intensity, voltage, and temperature were measured, and the electrolysis was concluded when 0.7 - 1.0 ml of 0.1 N KOH solution (phenol phthalein) was used per ml of electrolyte. After distilling C_2H_5OH at 20 mm Hg, the following quantities were fractionated at 2 - 5 mm Hg: (a) 30% at 160°C; (b) 25% at 183°C; and (c) 30% at 183 - 200°C. The (c) substance was the ester of I. ~10% ester was separated from (a) and (b). It was saponified for 2 hrs with a 50% KOH solution in the presence of ethanol, then acidified with HCl, and I was extracted with toluene. With 125 ml C_2H_5OH, 21 g II, 45 g III, and 5 g K_2CO_3, the I yield was 45 - 48% at 10 a/dm^2. As 3.42 times the theoretical amount of current is required with an aqueous solution, the yield, 27% must be appropriately divided: 27/3.42 ≈8%. As Pt consumption is 150 g ton the possibility of using PbO_2, magnetite, or graphite was studied. The dependence of yield on electrolysis conditions was studied with nonporous graphite in ethyl and propyl alcohol with 112 g of II, 238 g of III, and 24 g of K_2CO_3 at 60 - 65°C. Yield of I, 48 - 50%, was not dependent on the current

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intensity in a wide range. Maximum yields were obtained with a II : III ratio of 2 : 1 and 1 : 3 at 12 a/∂m^2, 60 - 65°C and a K_2CO_3 concentration of 20 g/liter. Voltage increases rapidly with anode density and decreases with K_2CO_3 concentration. The optimum is 40 - 50 v. With 7 g/liter H_2O, a ratio of II : III = 1 : 3, and at 14 a/∂m^2 and 60 - 65°C, the yield is 49.2% decreasing to 35%, with 100 g/liter of H_2O. Optimum yields (49.2% current efficiency) are obtained with ethanol or propanol solutions of 112 g/liter II, 238.6 g/liter III, 24 g/liter K_2CO_3;, 7 g/liter H_2O and anode density of 14 a/∂m^2 at 60 - 65°C. If the old solution was replaced when acidity reached 1.2 - 1.4 ml of 0.1 N KOH/ml, yield was 44 - 45% (41.5% current efficiency) at 15 a/∂m^2 and 65 - 70°C. Yield was almost doubled by using an alcoholic electrolyte (six times the current efficiency). Part II which is bound as a salt and does not react, can be recycled. The higher energy consumption (voltage increase 3 - 4 times) is compensated by increased current efficiency. There are 4 figures, 1 table, and 3 Soviet references.

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FIOSHIN, M. Ya., kand. tekhn. nauk; FEOKTISTOV, L. G.

Fourth All-Union Conference on the Electrochemistry of Organic Compounds. Zhur. VKHO 7 no.5:568-570 '62.
(MIRA 15:10)

(Electrochemistry--Congresses)
(Chemistry, Organic)

KHOMYAKOV, V. G.; FIOSHIN, M. Ya.; AVRUTSKAYA, I. A.; SEDOVA, S. S.

Electrochemical reduction of nitrocyclohexane in an aqueous medium. Zhur. VKHO 7 no.5:584-585 '62. (MIRA 15:10)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva.

(Cyclohexane) (Reduction, Electrolytic)

FEOKTISTOV, L.G., kand.tekhn.nauk; FIGSHIN, M.Ya.

Electrochemistry of organic compounds. Vest.AN SSSR 32 no.8:123-124 Ag '62. (MIRA 15:8)
(Organic compounds) (Electrochemistry)

FIOSHIN, M.Ya.; GIRINA, G.P.

Anode processes in the electrolysis of carboxylic monoester salts. Dokl. AN SSSR 143 no.2:384-387 Mr '62.
(MIRA 15:3)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

(Esters)
(Electrolysis)

S/204/62/002/004/011/019
E075/E436

AUTHORS: Fioshin, M.Ya., Kamneva, A.I., Mirkind, L.A., Salmin', L.A., Korniyenko, A.G.

TITLE: Synthesis of higher unsaturated dicarboxylic acids by the electrolysis of monoesters of lower acids in the presence of 1,3-butadiene

PERIODICAL: Neftekhimiya, v.2, no.4, 1962, 557-565

TEXT: Investigation was made of the synthesis of unsaturated dicarboxylic acids by the electrolysis of potassium monomethyladipate in the presence of 1,3-butadiene. Methanol was used as a solvent and the electrolysis carried out at -10 to -15°C. It was shown that at low current densities (1 to 1.5 A/dm^2) and high concentration of 1,3-butadiene (more than 4 times the molar quantity of monomethyladipate) the reaction is directed almost completely towards the formation of diesters of the unsaturated acids. The relative content of C_{18} acid increases with the concentration of butadiene. The relationship between the relative contents of C_{14} and C_{18} acids in the neutral products is given by

$$k_1 = \frac{1}{a + bC_D} \qquad (2)$$

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where a = 0.282, b = 0.063 and C_D is the concentration of butadiene. The total yield of acids is expressed approximately by

$$A = a \exp(-bD_o) \qquad (1)$$

where a = 100, b = 0.074 and D_o is the current density in A/dm^2. The esters obtained were those of 6-dodecene-1, 12-dicarboxylic acid and 6,10-hexadecadiene-1, 16-dicarboxylic acids. Saponification of the esters with aqueous alkali gave the unsaturated dicarboxylic acids. The maximum yield of the C_{18} acid was 49.1% under the optimum conditions, i.e. current density - 0.5 A/dm^2, butadiene concentration - 9 mole/litre, the ratio of current passed to that required by theory - 0.25. The maximum yield of the C_{14} acid was 67.5%. The results indicate that the reaction constitutes a practical method for the synthesis of higher dicarboxylic acids. There are 7 figures and 3 tables.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva (Moscow Institute of Chemical Technology imeni D.I.Mendeleyev)

FIOSHIN, M. Ya.; KAMNEVA, A. I.; MIRKIND, L. A.; SAIMIN', L. A.; KORNIYENKO, A. G.

Synthesis of higher unsaturated dicarboxylic acids by the electrolysis of lower acid monoesters in the presence of 1,2-butadiene. Neftekhimia 2 no.4:557-565 Jl-Ag '62. (MIRA 15:10)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva.

(Acids, Organic) (Esters) (Butadiene)

BAKHCHUSARAYTS'YAN, N.G.; FIOSHIN, M.Ya.; DZHAFAROV, E.A.; KRIZOLITOVA, M.A.

Use of lead dioxide anodes in the electrolysis of iobuturic acid.
Zhur.prikl.khim. 35 no.7:1643-1644 Jl '62. (MIRA 15:8)
(Lead oxide) (Electrolysis) (Isobuturic acid)

FIOSHIN, M.Ya.; VASIL'YEV, Yu.B.

Kinetics of anodic and chemical reactions in Kolbe electrosynthesis. Izv.AN SSSR.Otd.khim.nauk no.3:437-446 Mr '63. (MIRA 16:4)

1. Institut elektrokhimii AN SSSR.
(Chemistry, Organic--Synthesis) (Electrolysis)

FIOSHIN, M.Ya.; KAMNEVA, A.I.; ITENBERG, Sh.M.; KAZAKOVA, L.I.; YERSHOV, Yu.A.

Synthesis of dimethyl ester of sebacic acid by the method of anodic condensation. Khim. prom. no.4:263-266 Ap '63. (MIRA 16:8)

FIOSHIN, M.Ya.; TOMILOV, A.P.; AVRUTSKAYA, I.A.; KAZAKOVA, L.I.; YESKIN, N.T.; GROMOVA, G.A.

Means of synthesizing diols. Zhur. VKHO 8 no.5:600 '63. (MIRA 17:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

FIOSHIN, M.Ya.; KAZAKOVA, L.I.

Use of insoluble anodes in the electrosynthesis of organic compounds. Khim. prom. no.10:760-762 O '63. (MIRA 17:6)

TOMILOV, A.P.; FIOSHIN, M.Ya.

Reaction of free radicals during electrolysis of organic compounds. Usp.khim. 32 no.1:60-92 Ja '63. (MIRA 16:2)

1. Institut elektrokhimii AN SSSR.
(Radicals (Chemistry))
(Organic compounds) (Electrolysis)

FIOSHIN, M.Ya.; KAZAKOVA, L.I.

Flow sheet of the anodic condensation of monomethyl adipate. Dokl. AN SSSR 152 no.5:1132-1135 O '63. (MIRA 16:12)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva.

MIRKIND, L.A.; FIOSHIN, M.Ya.

Measurement of platinum electrode capacity in sodium acetate solutions with added methanol and 1,3-butadiene. Dokl. AN SSSR 154 no.5:1163-1166 F'64. (MIRA 17:2)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva. Predstavleno akademikom A.N. Frumkinym.

GIRINA, G.P.; FIOSHIN, M.Ya.

Kolbe's electrosynthesis studied by the measurement of the capacity of platinum anode in aqueous acetate solutions. Izv. AN SSSR. Ser. khim. no.8:1387-1393 Ag '64.
(MIRA 17:9)

1. Institut elektrokhimii AN SSSR.

MIRKIND, L.A.; FIOSHIN, M.Ya.; ROMANOV, V.I.

Adsorption of neutral molecules on an anodic polarized platinum electrode. Part 1. Zhur. fiz. khim. 38 no.9:2223-2229 S '64.
(MIRA 17:12)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyva.

MIRKIND, L.A.; FIOSHIN, M.Ya.; ROMANOV, V.I. (Moscow)

Adsorption of neutral molecules on the anodically polarized platinum electrode. Part 2: Polarization and capacity measurements in aqueous methanol and methanoldiene solutions of sodium acetate. Zhur. fiz. khim. 38 no.12:2840-2847 D '64. (MIRA 18:2)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

FIOSHIN, M.Ya.; TOMILOV, A.P.

Electrochemical dimerization as a promising method for the synthesis of organic compounds. Khim. prom. 40 no.9:649-657 S '64.
(MIRA 17:11)

FIOSHIN, M.Ya.; DZHAFAROV, E.A.

Electrochemical method of production of some monocarboxylic acids. Dokl. AN Azerb. SSR. 21 no.5:25-29 '65. (MIRA 18:9)

1. Institut khimii AN AzerSSR.

FIOSHIN, M.Ya.; SALMIN', L.A.; MIRKIND, L.A.; KORNIYENKO, A.G.

Electrochemical synthesis of unsaturated dicarboxylic acids. Zhur.VKHO 10 no.5:594-595 '65.

(MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva.

AVRUTSKAYA, I.A.; FIOSHIN, M.Ya.

Effect of cyclohexylhydroxylamine on the polarographic reduction of nitrocyclohexane. Elektrokhimiia 1 no.12:1491-1494 D '65.
(MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva. Submitted March 31, 1965.

AVRUTSKAYA, I.A.; KHOMYAKOV, V.G.; KIOSHIN, M.Ya.

Polarographic analysis of cyclohexylhydroxylamine in the presence of nitrocyclohexane. Zav. lab. 30 no.1:28-29 '64. (MIRA 17:9)

1. Moskovskiy khimiko-tekhnologicheskiy institut.

FIPIN, M.

PA 157T93

USSR/Radio - Radio, Receivers, Crystal Amplifiers Dec 49

"Amplifier for a Crystal Receiver," M. Fipin, 2 pp

"Radio" No 12

Crystal receivers are more and more widely used for radiofying places not yet electrified. Many readers have expressed interest in suitable amplifiers for adapting sets to loud-speaker operation. Describes amplifier designed for this purpose by chief of Omsk Oblast Radio Committee and submitted to local radio factory for serial production. Factory model uses a 2K2M and SB-244 tube. Includes four diagrams.

157T93

FIPIN, M.

177T95

USSR/Radio - Loud-Speakers Dec 50

"'Rekord' (Loud-Speaker) With 'Alni' Magnet," M. Fipin

"Radio" No 12, p 31

Describes "Rekord" loud-speaker using magnet of aluminum-nickel alloy. This type "Rekord" loud-speaker is now produced by local plants.

177T95

FIPIN, M.

USSR/Radio - Phonographs
Motors

Dec 51

"Phonograph Motors," M. Fipin

"Radio" No 12, p 36

Describes 2 widely used turntable motors, the APM and the MS-1. The APM is a single-phase shaded-pole induction motor with a nominal speed of 78 rpm and a range of 65 to 90 rpm. The synchronous motr · MS-1 rotates at 78.95 rpm when fed from 50 cps mains.

208T92

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S/035/60/000/04/17/017
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 4, pp. 71-72, # 3394

3.1230 3.2300

AUTHOR: Firago, B. A.

TITLE: Reading of Standard Time in Observations of Sputnik-2 (1957β)

PERIODICAL: Byul. st. optich. nablyudeniya iskusstv. sputnikov Zemli, 1958, No. 3, pp. 3-6 (English summary)

TEXT: This is a report at the seminar on photographic observations of Earth's artificial satellites. The observations of Sputnik-2 at Station No. 039 (Pulkovo) were related to the standard time of the Time Service of the USSR. The high-speed shutter of the НАФА-3С/25-с (NAFA-3s/25-s) camera produces light signals, while observing the sputnik, and their fixation on the photoemulsion makes it possible to determine sputnik coordinates relative to the stars. The same signals are marked, by some auxiliary means, on the standard time scale. When the shutter is functioning, electric signals are fed to the printing chronograph, and their lag relative to interruptions of light are known. Second signals from a quartz clock are fed to the same input of the chronograph, prior

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Reading of Standard Time in Observation of Sputnik-2 (1957β)

and after the observation, and the difference in the lags of the chronograph in its two modes of operation is determined. The summary lag of the relay communication line is also found. In the chronograph used, the errors in marking -- hundredth fractions of a second are small; their imprints on the tape are used for reading the thousandth fractions of a second. The root-mean-square error of one reading of the chronograph, when the marking device is properly adjusted, amounts to $\pm 0^{s}.0010$. The run of the chronograph is not constant, and therefore it is used for a minimum time, $5\text{-}10^{m}$, or even $1\text{-}2^{m}$. The ordinary series of impacts-imprints do not affect the motion of the chronograph disks and its run. The correction and the run of the chronograph are determined from dozens of signals from the quartz clock. The correction and the run of the clock are determined by the Pulkovo Time Service from the reception of radiosignals with allowance for the lags. The preliminary universal time of radiotransmission is then reduced to the system of standard time. The root-mean-square error of relating observations to the quartz clock amounts to $\pm 0^{s}.0015$, and of the latter to the standard time $\pm 0^{s}.0015$. The standard equipment, available at the stations of photographic observations of Earth's artificial satellites, when using good astronomical clocks, makes it possible to perform readings and to relate the

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A001/A001

Reading of Standard Time in Observation of Sputnik-2 (1957 β)

relative time instant to the united standard time with the root-mean-square error of ± 0.s002, after excluding systematic errors amounting to 0.s001. Considering the error of the standard time itself (± 0.s004), it can be concluded that the improvement of the accuracy of reading the universal time while observing Earth's artificial satellites will be possible only after conversion to atomic or molecular time standards with continuous transmission of second signals.

B. A. Firago

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S/035/60/000/04/16/017
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 4, p. 71, # 3393

3.1230 3.2300

AUTHORS: Panova, G. V., Syshchenko, T. Ye., Firago, B. A., Shchegolev, D. Ye.

TITLE: Observations of the Second Earth's Artificial Satellite (1957 β) at Station No. 039 (Pulkovo)

PERIODICAL: Byul. st. optich. nablyudeniya iskusstv. sputnikov Zemli, 1959, No. 6, pp. 1-5 (English summary)

TEXT: Results of observations and processing of photographs taken with two standard cameras are described in detail. Coordinates were determined by the method of A. A. Kiselev and partially by A. N. Deych's method. One "node" point was obtained from one negative relative to which coordinates and time were interpolated several times. The following factors were taken into account: diurnal rotation of the sky, refractional parallax of the sputnik, systematic errors in measuring the edge of the sputnik track, track curvature and sputnik acceleration. Relative time instants were reduced to the standard time of the USSR with

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Observations of the Second Earth's Artificial Satellite (1957β) at Station No. 039 (Pulkovo)

allowance for the lag of the camera, chronograph and other units of the equipment, the run and corrections of the printing chronograph and quartz clock. Astrographic coordinates of the node points (68 in total) are published for the epoch of 1950.0; other data include: instant in the system of standard time and universal approximately-uniform time TU_2, angular velocity and position angle of the sputnik motion, and some other data. The accuracy of the published time instant is characterized by the root-mean-square error of $\pm 0^s.005$; the inner (in distinction from the error of instants) accuracy of coordinates is $\pm 0^s.2$ sec δ and $\pm 3''$.

B. A. Firago

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FIRAGO, B.A.

Systematic errors in graduation lines for hundredths of seconds on a chronograph disk. Biul.sta.opt.nabl.isk.sput. Zem. no.6:15-16 '59. (MIRA 13:6)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya. (Chronograph)

FIRAGO, B.A.

Fainting of an artificial satellite caused by its entering the earth's umbra. Biul.sta.opt.nabl.isk.sput.Zem. no.8:13-14 '59. (MIRA 13:6)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya.
(Artificial satellites--Tracking)

FIRAGO, B.A.

Shutter control of a standard photographic camera. Biul. sta.opt.nabl.isk.sput.Zem. no.9:6-7 '59.
(MIRA 13:3)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Shutters, Photographic)

ZATSIORSKIY, L.M.; FIRAGO, B.A.

Determining lags of a standard camera and a recording chronograph. Biul.sta.opt.nabl.isk.sput.Zem. no.9:7-9 '59. (MIRA 13:3)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Astronomical photography)

FIRAGO, B.A.

Conformity of the accuracy in determining position coordinates and the precision of time recording in observing artificial earth satellites. Biul.sta.opt.nabl.isk.sput. Zem. no.9:14-16 '59. (MIRA 13:3)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Artificial satellites--Tracking)

FIRAGO, B.A.

Determining the topo- and geocentric distances of a satellite and its altitude above the earth's surface. Biul.sta.opt.nabl. isk.sput.Zem, no.10:11-16 '59. (MIRA 13:3)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Artificial satellites--Tracking)

OMAROV, T.B.; PANOVA, G.V.; SYSHCHENKO, T.Ye.; FIRAGO, B.A.; SHCHEGOLEV, D.Ye.; LIYGANT, M.; SAVRUKHIN, A.P.

Results of photographic observations of artificial satellites. Biul.sta.opt.nabl.isk.sput.Zem. no.10:17-24 '59. (MIRA 13:3)

1. Astrofizicheskiy institut AN KazSSR (for Omarov). 2. Glavnaya astronomicheskaya (Pulkovskaya) observatoriya AN SSSR (for Panova, Syshchenko, Firago, Shchegolev). 3. Nachal'nik stantsii nablyudeniya iskusstvennykh sputnikov Zemli, Institut fiziki i geofiziki AN Tadzhikskoy SSR (for Savrukhin). 4. Nachal'nik stantsii Tartusskogo gosudarstvennogo universiteta (for Liygant).
(Artificial satellites--Tracking)

FIRAGO, B.A.; SHCHEGOLEV, D.Ye.

Precision in the rapid processing of photographs of artificial earth satellites. Biul.sta.opt.nabl.isk.sput.Zem. no.1:9-10 '60. (MIRA 13:5)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya.
(Artificial satellites--Tracking)

PHASE I BOOK EXPLOITATION SOV/5573

Akademiya nauk SSSR. Astronomicheskiy sovet

Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli. no. 5 (15) (Academy of Sciences of the USSR. Astronomic Council. Bulletin of the Stations for Optical Observation of Artificial Earth Satellites. No. 5 (15)) Moscow, 1960. 17 p. 500 copies printed.

Sponsoring Agency: Astronomicheskiy sovet Akademii nauk SSSR.

Resp. Ed.: Ye. Z. Gindin; Ed.: D. Ye. Shchegolev; Secretary: O. A. Severnaya.

PURPOSE: This bulletin is intended for scientists and engineers concerned with optical tracking of artificial satellites.

COVERAGE: The bulletin contains six articles, two of which deal with the construction and operating principles of two new semiautomatic telescopes for tracking satellites. Two other articles are concerned with the reduction of data from photographs and the determination of satellite orbital parameters.

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The remaining articles discuss visual satellite observations and the results of photographic observations of the satellites 1958 δ1 and 1958 δ2. No personalities are mentioned. There are 2 references: 1 Soviet and 1 English.

TABLE OF CONTENTS:

Observers: O. I. Babich, P. N. Polupan, Ye. V. Sandakova, A. P. Stefanov, Zh. M. Shcherban'. Calculations: L. M. Sherbaum. Measurements made on KIM-3 instrument

FIRAGO, B. A.

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PHASE I BOOK EXPLOITATION SOV/5570

Akademiya nauk SSSR. Astronomicheskiy sovet

Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli. no. 1 (11) (Academy of Sciences of the USSR. Astronomical Council. Bulletin of the Stations for Optical Observation of Artificial Earth Satellites. No. 1 (11)) Moscow, 1960. 22 p. 500 copies printed.

Sponsoring Agency: Astronomicheskiy sovet Akademii nauk SSSR.

Resp. Ed.: Ye. Z. Gindin; Ed.: D. Ye. Shchegolev; Secretary: O.A. Severnaya.

PURPOSE: This bulletin is intended for scientists and engineers concerned with optical tracking of artificial satellites.

COVERAGE: This bulletin contains short articles on optical equipment, techniques, and results of observations of artificial earth satellites. Also covered are the precision of satellite photography and the equations of motion of satellites. No personalities are mentioned. There are no references.

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FIRAGO, B.A.

Academy of Sciences (Cont.) SOV/5570

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FIRAGO, O.D.

PHASE I BOOK EXPLOITATION SOV/5576

Akademiya nauk SSSR. Astronomicheskiy sovet.

Byulleten; stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli. no. 8 (18) (Bulletin of the Stations for Optical Observations of Artificial Earth Satellites. No. 8 (18) Moscow, 1960. 23 p. 500 copies printed.

Sponsoring Agency: Astronomicheskiy sovet Akademii nauk SSSR.

Resp. Ed.: G. A. Leykin; Ed.: D. Ye. Shchegolev; Secretary: O. A. Severnaya.

PURPOSE: This bulletin is intended for scientists and engineers concerned with optical tracking of artificial satellites.

COVERAGE: The bulletin contains seven articles concerned with methods and equipment used for the photographic observation of artificial earth satellites, the brightness of satellites and equipment for its determination, and the results of photographic observation of satellites. No personalities are mentioned. There are 14 references, all Soviet.

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Bulletin of the Stations (Cont.) SOV/5576

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Bulletin of the Stations (Cont.) SOV/5576

AVAILABLE: Library of Congress

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AC/dwm/mas
10-27-61

KISELEV, A.A.; FIRAGO, B.A.; SHCHEGOLEV, D.Ye.

Instructions for determining the coordinates of artificial earth satellites from photographs obtained with the NAFA-3s/25-S cameras. Biul.sta.opt.nabl.isk.sput.Zem. no.3:1-35 '60. (MIRA 13:7)

1. Sotrudniki Glavnoy astronomicheskoy observatorii AN SSSR.
(Arificial satellites--Tracking)
(Astronomical photography)

SYSHCHENKO, T.Ye.; FIRAGO, B.A.; SHCHEGOLEV, D.Ye.; NEVEL'SKIY, A.V., mladshiy nauchnyy sotrudnik; KIRICHENKO, A.G., vychislitel'; BRATIYCHUK, M.V.; MAKSYUTOV, mladshiy nauchnyy sotrudnik; KALIKHEVICH, F.F., mladshiy nauchnyy sotrudnik; IVAKINA, T.Ya., laborant; KLEPESHTA, I.; RAYKHL, R.; VRATNIK, A.

Results of photographic observations of artificial earth satellites. Biul.sta.opt.nabl.isk.sput Zem. no.4:17-23 '60. (MIRA 13:11)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR (for Syshchenko, Firago, Shchegolev). 2. Astrosovet AN SSSR (for Nevel'skiy). 3. Nachal'nik stantsii opticheskikh nablyudeniy iskusstvennykh sputnikov Zemli, Uzhgorod (for Bratiychuk). 4. Stantsiya opticheskikh nablyudeniy iskusstvennogo sputnika Zemli, Uzhgorod (for Kirichenko). 5. Astronomicheskaya observatoriya im.Engel'gardta, Kazan' (for Maksyutov). 6. Nikolayevskoye otdeleniye Glavnoy astronomicheskoy observatoriya v Prage, Chekhoslovakiya (for Klepeshta, Raykhl, Vratnik).

(Artificial satellites--Tracking)

32681
S/035/61/000/012/003/043
A001/A101

3.2300

AUTHOR: Firago, B.A.

TITLE: Determination of satellite coordinates by means of azimuthal cameras with allowance for diurnal rotation of the celestial sphere

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 12, 1961, 21, abstract 12A189 ("Byul. st. optich. nablyudeniya iskusstv. sputnikov Zemli", 1960, no. 5, 12-14, Engl. summary)

TEXT: If a satellite and stars are not photographed simultaneously while observing with azimuthal cameras, diurnal rotation of the celestial sphere should be taken into account in processing of observations. Formulae are derived for determination of instantaneous satellite coordinates α_0, δ_0 at epoch T_0=1950.0 with allowance for precession. It follows from the formulae derived that sky diurnal rotation should not be taken into account, if the satellite and stars were photographed simultaneously ($\Delta\alpha_m = 0$) or with an interval of an integer number of stellar days. If $|\Delta\alpha| \leq 1^m$, the formulae obtained can be used in a simpler form with an accuracy up to 0".01. In visual and approximate photographic

Card 1/2

32681
S/035/61/000/012/003/043
A001/A101

Determination of satellite coordinates ...

observations the correction for sky diurnal rotation can be calculated, up to 1962.5, by the formula: $\Delta\alpha = k\,(t_{stel}-t)$, $\Delta\delta = 0$, where t are readings of the "average" chronograph.

G. Panova

[Abstracter's note: Complete translation]

Card 2/2

KISELEV, A.A.; FIRAGO, B.A.

Determining the scale of astrophotographs and the angular velocity of a fast-moving celestial object. Biul.sta.opt.nabl. isk.sput.Zem. no.8:3-6 '60. (MIRA 14:3)
(Artificial satellites--Tracking)
(Astronomical photography)

37924
S/035/62/000/005/013/098
A055/A101

3.1220

AUTHOR: Firago, B. A.

TITLE: Visual and photographic observations of faint artificial Earth satellites with the aid of the standard equipment of the Artificial Earth Satellite observation stations

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 15, abstract 5A127 ("Byul. st. opt. nablyudeniya iskusstv. sputnikov Zemli", 1960, no. 10, 3 - 7, English summary)

TEXT: For the visual and photographic observation of faint artificial Earth satellites (from Artificial Earth Satellite observation stations), it is suggested to use standard cameras and standard astronomical tubes AT-1 fixed thereon. At the moment of the opening of the camera shutter, followed by a sharp sound, the satellite is visually marked off on the tube graticule. The position of the satellite on the negative among the reference stars is then marked by photographing the main reference star. The negative and the chronograph tape are processed in the usual way. This method was checked on bright satellites

Card 1/2

Visual and photographic...

and on airplanes. A systematical "observer-delay" error was detected; this error, equal to $+0^{s}.063$, is explained physiologically by the difference between the times of the visual and auditory reflexes ($+0^{s}.069$). The following data are obtained from one visual and photographic observation made according to a determined program: coordinates α and δ, moment UT, angular velocity μ, position angle θ, stellar magnitude m, observation quality estimate in "numbers" b. The RMS error in position is 3'.0 and in time $0^{s}.07$. Several improvements suggested in the article will permit bringing the observational precision to 1' and $0^{s}.01$. Applied to appropriate apparatuses, the described method will permit the observation of faint artificial celestial bodies that none of the cameras existing to-day is able to photograph.

Author's summary

[Abstracter's note: Complete translation]

Card 2/2

LOGVINENKO, A.A.; PLUZHNIKOV, V.Kh.; PANOVA, G.V.; SYSHCHENKO, T.Ye.; FIRAGO, B.A.; SHCHEGOLEV, D.Ye.; NEVEL'SKIY, A.V., nauchnyy sotrudnik

Results of photographic observations of artificial earth satellites. Biul.sta.opt.nabl.isk.sput.Zem. no.11:20-28 '60. (MIRA 14:12)

1. Nachal'nik stantsii nablyudeniya iskusstvennykh sputnikov Zemli No.031 (for Logvinenko). 2. Nachal'nik stantsii nablyudeniy iskusstvennykh sputnikov Zemli No.60 (for Pluzhnikov). 3. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR (for Panova, Syshchenko, Firago, Shchegolev). 4. Astronomicheskaya observatoriya Ural'skogo gosudarstvennogo universiteta (for Nevel'skiy).
(Artificial satellites--Optical observations)
(Astronomical photography)

3,2200

25908

S/123/61/000/013/022/025
A052/A101

AUTHOR: Firago, B. A.

TITLE: Reading of standard time at photographic observations of the second artificial Earth's satellite (157 β) at Pulkovo

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 13, 1961, 9, abstract 13Zh65 ("Izv. Gl. astron. observ. at Pulkovo", 1960, 22, no. 1, 197-208, English summary)

TEXT: The result is reported of the investigation of the precision of equipment, in particular of the printing chronograph, used at observations of the second artificial Earth's satellite. The sources of errors are considered and the root-mean-square error of reading the relative time instant and its tying to the standard time, amounting to ± 0.002 sec, is derived. It is pointed out that the final root-mean-square error of the universal time in the standard time system, compared with the corresponding equatorial coordinates of the artificial Earth's satellite position, is ± 0.005 sec. Correction coefficients taking care for external disturbances, e.g. temperature fluctuations, are given.

B. Yeliseyev

[Abstracter's note: Complete translation]

Card 1/1

BREYDO, I.I.; FIRAGO, B.A.

Intensification of faint satellite tracks by subsequent illumination of the negative. Biul.sta.opt.nabl.isk.sput.Zem. no.25:3-5 '62. (MIRA 15:7)

1. Glavnaya astronomicheskaya (Pulkovskaya) observatoriya AN SSSR.
(Astronomical photography)

FIRAGO, B.A.

Visual and photographic observation of faint satellites and space rockets. Izv.GAO 23 no.1:169-178 '62. (MIRA 16:12)

FIRAGO, B.A.

Adaptation of NAFA-3S/25, NAFA-3S/50, and other cameras to satellite observations. Biul.sta.opt.nabl.isk.sput.Zem. no.25: 15-18 '62. (MIRA 15:7)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Artificial satellites—Optical observations) (Cameras)

PANOVA, G.V.; PIRAGO, B.A.; SHCHEGOLEV, D.Ye.

Synchronized observations of the American satellite "Echo -I"; preliminary results. Biul. sta. opt. nabl. isk. sput. Zem. no.30:3-5 '62. (MIRA 16:6)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.
(Artificial satellites—Tracking)

FIRAGO, B.A.

Ephemeris precalculation of the angular velocity of an earth satellite. Biul. sta. opt. nabl. isk. sput. Zem. no.32:3-7 '63. (MIRA 17:7)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.

MEDVEDEVA, L.I.; FIRAGO, B.A.

Calculation of the topocentric distances of artificial earth satellites. Biul. sta. opt. nabl. isk. sput. Zem. no.32:7-16 '63. (MIRA 17:7)

1. Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR.

FIRAGO, B.A.

Using doubled and tripled recording chronographs. Biul. sta. otp. nabl. isk. sput. Zem. no.33:14-16 '63.

Using a uniform time scale in controlling and determining the lagging of a recording chronograph. Ibid.:17-18

(MIRA 17:7)

1. Glavnaya Pulkovskaya astronomicheskaya observatoriya AN SSSR.

ACCESSION NR: AT4012208 S/2797/63/023/002/0167/0174

AUTHOR: Breydo, I. I.; Markelova A. A.; Firago, B. A.

TITLE: Increase in the sensitivity of photographic film by post-exposure for use in photographing artificial earth satellites.

SOURCE: Pulkovo. Astron. observ. Izvestiya, v. 23, no. 2(173), 1963, 167-174.

TOPIC TAGS: artificial earth satellite, satellite photography, photography, panchromatic film, post-exposure, film sensitivity, photographic image

ABSTRACT: Three highly sensitive panchromatic films were investigated in a study of the effectiveness of prolonged additional post-exposure following an initial exposure of about 0.01-0.05 second. The objective was to enhance the sensitivity of film used in photographing artificial earth satellites. The subcenters of the latent image formed during the brief initial exposure, that is, the particles of metallic silver too small for direct development, will increase to the critical size of latent image centers under the influence of the light of additional post-exposure. Additional uniform post-exposure of negatives by weak scattered light for 3 to 5 minutes yields an appreciable increase in the photographic effect. The effect is particularly great when the film is not developed to maximum γ.

Card 1/2

ACCESSION NR: AT4012208

However, even satellite observation film developed almost to γ max is enhanced in sensitivity by 60-80%. The corresponding increase in maximum stellar magnitude of the observed satellite of $0^m.5$-$0^m.6$ is in many cases of great importance. The density of the background caused by the additional post-exposure should not exceed 0.1, and the contrast coefficient γ remains virtually unchanged. Orig. art. has: 2 figures and 9 tables.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya, Pulkovo (Main Astronomical Observatory)

SUBMITTED: 00 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: AS NO REF SOV: 005 OTHER: 001

Card 2/2

ACCESSION NR: AR4021600 S/0269/64/000/002/0017/0018

SOURCE: RZh. Astronomiya, Abs. 2.51.145

AUTHOR: Firago, B. A.

TITLE: Application of astrometry and chronometry to artificial earth satellite observations

CITED SOURCE: Tr. 15-y Astrometr. konferentsii SSSR, 1960. M.-L., AN SSSR, 1963, 383-391

TOPIC TAGS: astrometry, chronometry, artificial satellite, artificial earth satellite, artificial satellite observation, photographic artificial satellite observation, standard time, time service, atomic standard, molecular standard

TRANSLATION: A method for photographic observations of artificial earth satellites and their reduction is described. At present the extreme mean square errors of position and time of observation of a satellite in the standard time system attain 1" and $0^s.005$. It is emphasized that the mean square error of standard time

Card 1/2

ACCESSION NR: AR4021600

is greater than the observational error. Proposals are made for improvement of operation of the time service, use of atomic or molecular standards for control, publication of second signal corrections immediately when available and organization of around-the-clock transmission of second time signals. Bibliography of 8 titles.

DATE ACQ: 09Mar64 SUB CODE: AS ENCL: 00

Card 2/2

L 25239-65 EEO-2/EWT(d)/FBD/FSP(h)/FSS-2/EWT(l)/FS(v)-3/EEC(k)-2/EWG(v)/EWA(d)/
T-2/T/EEC(c)-2/EED-2/EED(b)-3 Pn-4/Pa-4/Pe-5/Pg-4/Pi-4/Pk-4/Pl-4/Pq-4/Pac-4/
Pae-2 IJP(c) GW/CWW/WR

ACCESSION NR: AT5004154 S/3126/63/000/002/0010/0018

AUTHOR: Firago, B. A.

TITLE: Methods of astrometric processing of synchronous observations of artificial earth satellites

SOURCE: Nablyudeniya iskusstvennykh sputnikov Zemli, no. 2, 1963. Warsaw, PAN, 1963, 10-18

TOPIC TAGS: astrographic coordinates, photographic astronometry, synchronous time moment, universal standard time

ABSTRACT: A method for processing the first series of synchronous observations of the Echo-I satellite is considered. This satellite is used as a convenient extra terrestrial bench mark lifted high above the Earth's surface and seen simultaneously from different points of observation situated very far from each other. When such observations are carried out with standard cameras only a preliminary [up to 0.5 sec] synchronization of some expositions of a satellite is necessary. A series of regular expositions permits finding the position of the satellite on the negative corresponding to the chosen "synchronous" moment of time. Printing chrono-

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L 25239-65

ACCESSION NR: AT5004154

graphs with quartz generators of frequency as well as quartz clocks and radio-apparatus of astronomical services of time in Pulkovo, Nikolaev, Kharkov and Tashkent are used to determine universal standard time [TU_2] by the scale by which this synchronous moment is chosen excluding aberrational time. Astrographic coordinates of the synchronous position of the satellite are determined by well-known methods of photographic astrometry. The most complicated calculations were made by the "Ural-I" electronic computer. Topocentrical apparent equatorial coordinates [α,] of the equinox of the epoch of satellite tracking are obtained. These spherical coordinates of the satellite referring to the directions given by the middle axis of the Earth rotation are already suitable for the immediate geodetical use at this stage of reduction of synchronous observations. Orig. art. has: 19 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: AA, SV

NO REF SOV: 023 OTHER: 002

Card 2/2

L 27208-65 FSF(h)/ENT(1)/FS(v)-3/EEC(k)-2/ENA(d) Pae-2 GW

ACCESSION NR: AT5003540 S/2816/63/000/032/0007/0016

34
15
B+1

AUTHORS: Medvedeva, L. I.; Firago, B. A.

TITLE: Computing distances to artificial earth satellites

SOURCE: AN SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 32, 1963, 7-16

TOPIC TAGS: artificial satellite, satellite orbit

ABSTRACT: The authors propose a method for determining topocentric distance (d) of a satellite from available data. A table for d/R as it depends on r/R and z (or h) is given. The topocentric distance is an important factor in making many computations, and commonly it must be determined without knowing the orbital elements (because they are not yet known or are not available). It is therefore most convenient to determine the distance from data available at each station. If the period, angular velocity at culmination, and position of the satellite have been determined, the geocentric distance may be computed, and then the topocentric distance (d) may be obtained from $\frac{d}{R} = \sqrt{\left(\frac{r}{R}\right)^2 - \sin^2 z} - \cos z$, where r and R are the geocentric distances of the satellite and the observation station, and z is the

Card 1/2

L 27206-65

ACCESSION NR: AT5003540

geocentric zenith distance of the satellite. Another formula, not so frequently used, is $d = 0.074264\ \mu^{-1}\cos\sigma\sqrt{2r^{-1} - 19.272\ P^{-\frac{2}{3}}}$, where μ is the topocentric angular velocity in deg/sec, p is the period in minutes, and σ is the angle between the plane of the celestial sphere and the course of the satellite. The table contains values of d/R for the r/R interval from 1 to 2, because this gives perfectly reliable results for "near" satellites. Later on the table may need extending. A table for proportional parts is also furnished. Orig. art. has: 2 tables and 4 equations.

ASSOCIATION: Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR (Main (Pulkovo) Astronomical Observatory, AN SSSR)

SUBMITTED: 19Oct62 ENCL: 00 SUB CODE: SV, DC

NO REF SOV: 006 OTHER: 000

Card 2/2

EEO 2/EWT(d)/FSD/FSP(b)/FSS-2/EWT(1)/FS(v)-3/FRC(k)-2/EWA(c)/EWA(d)/

ACCESSION NR: AT5003591 S/2816/63/000/033/0014/0016

AUTHOR: Firago, B. A.

TITLE: Simultaneous use of two or three printing crystal chronographs

SOURCE: AN SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 33, 1963, 14-16

TOPIC TAGS: chronograph, time signal, satellite tracking, artificial satellite

ABSTRACT: To increase the accuracy of timing and to obtain a precise time control [illegible] tracking with a standard camera, two or three chronographs are used. [illegible] no special adaptation. The operation of a single chronograph was [illegible] by means of an eight-loop oscillograph and high-frequency oscillators, [illegible] of quartz clocks. Systematic [illegible] similar [illegible] chronographs. Delays of the [illegible] and [illegible] was found that paired chronographs [illegible] and conveniently [illegible] making observations, and analyses show that the delays are stable up to 0.5 millisecond. The mean square error as determined by ten readings did not exceed ±0.3 millisecond. Station 1039 began using two chronographs in all observa-

Card 1/2

L 29507-65

ACCESSION NR: AT5003591

tions in 1960, and since 1962 three have been used. It is thought that three represent the optimal number under existing methods of observing earth satellites. Orig. art. has: 2 tables.

ASSOCIATION: Glavnaya Pulkovskaya astronomicheskaya observatoriya AN SSSR (Main Pulkovo Astronomical Observatory, AN SSSR)

SUBMITTED: 2 Dec62 ENCL: 00 SUB CODE: IE, DC, SV

NO REF SOV: 03 OTHER: 000

Card 2/2

L 29506-65 EWT(1)/EWG(v) Pe-5/Pq-4/Pq-4/Pae-2/Pac-4 GW

ACCESSION NR: AT5003592 S/2816/63/000/033/0017/0018

AUTHOR: Firago, B. A.

TITLE: Control and determination of the delays of a printing crystal chronograph by means of a uniform time scale

SOURCE: AN SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 33, 1963, 17-18

TOPIC TAGS: chronograph, time signal/RP-7 relay

ABSTRACT: The author points out the necessity of knowing the difference of the delays of a chronograph when tracking satellites. The difference may be determined by a loop oscillograph. But when no oscillograph is available, the correction may be controlled and may even be measured by using a uniform time scale supplied by a chronometer or by any other transmitter of time signals. The time signals are recorded on the chronograph tape by a fast electromechanical or electronic relay. Being simple, the relay is more stable than the complex chronograph, which frequently requires regulating. The difference of the delays is normally 0 to 5 milliseconds, 3 being the average. For a marine chronograph and an RP-7 relay, when direct current flows through the relay, the middle contact is first

Card 1/2

L 29506-65

ACCESSION NR: AT5003592

opened and then closed at a fixed contact. The middle contact is transferred from one extreme position to the other during a certain interval ($x \geq 0$). The beginning and end of observation time must be used jointly, not the beginning or end alone. The difference of the delays plus x is equal to the difference between initial closing and final opening of the circuit. When x is zero, the difference in the delays is observed directly. It was found that at a current of 3 milliamperes, which may be sent through the contact chronometer, the relay maintains a value of x = 2.0 millisecond with very small error, but it is best to use reversed relay contacts, since the middle contact will move back to the original position in about 2 milliseconds, and this process is independent of current strength. Orig. art. has: 1 figure.

ASSOCIATION: Glavnaya Pulkovskaya astronomicheskaya observatoriya AN SSSR (Main Pulkov Astronomical Observatory, AN SSSR)

SUBMITTED: 09Dec62 ENCL: 00 SUB CODE: IE, PC

NO REF SOV: 002 OTHER: 000

Card 2/2

L 36512-65 EWP(m)/EEC(k)-2/EWG(v)/EWT(l)/FS(v)-3/WSF(h)/EEC(a)/EEC(j)/EEC(r)/EWA(d) Pe-5/Pg-4/Po-4/Pq-4/Pae-2 GM

ACCESSION NR: AT5003539 UR/2816/63/000/032/0003/0007

AUTHOR: Frago, B. A.

TITLE: Ephemeris calculation of the angular velocity of a satellite

SOURCE: AN SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 32, 1963, 3-7

TOPIC TAGS: celestial mechanics, artificial satellite, earth satellite orbit, orbit calculation, spacecraft trajectory

ABSTRACT: Assuming that the ephemeris for the position is known, a method is proposed for calculation of the topocentric angular velocity of a satellite based on its period of rotation and the geocentric radius-vector. The latter data can be found with the help of observations obtained earlier at a single station. Therefore, topocentric data on the satellite motion (μ, i or θ) can be obtained at any station on the basis of readily accessible information. There are 12 formulas and 1 table.

Card 1/2

L 36512-65

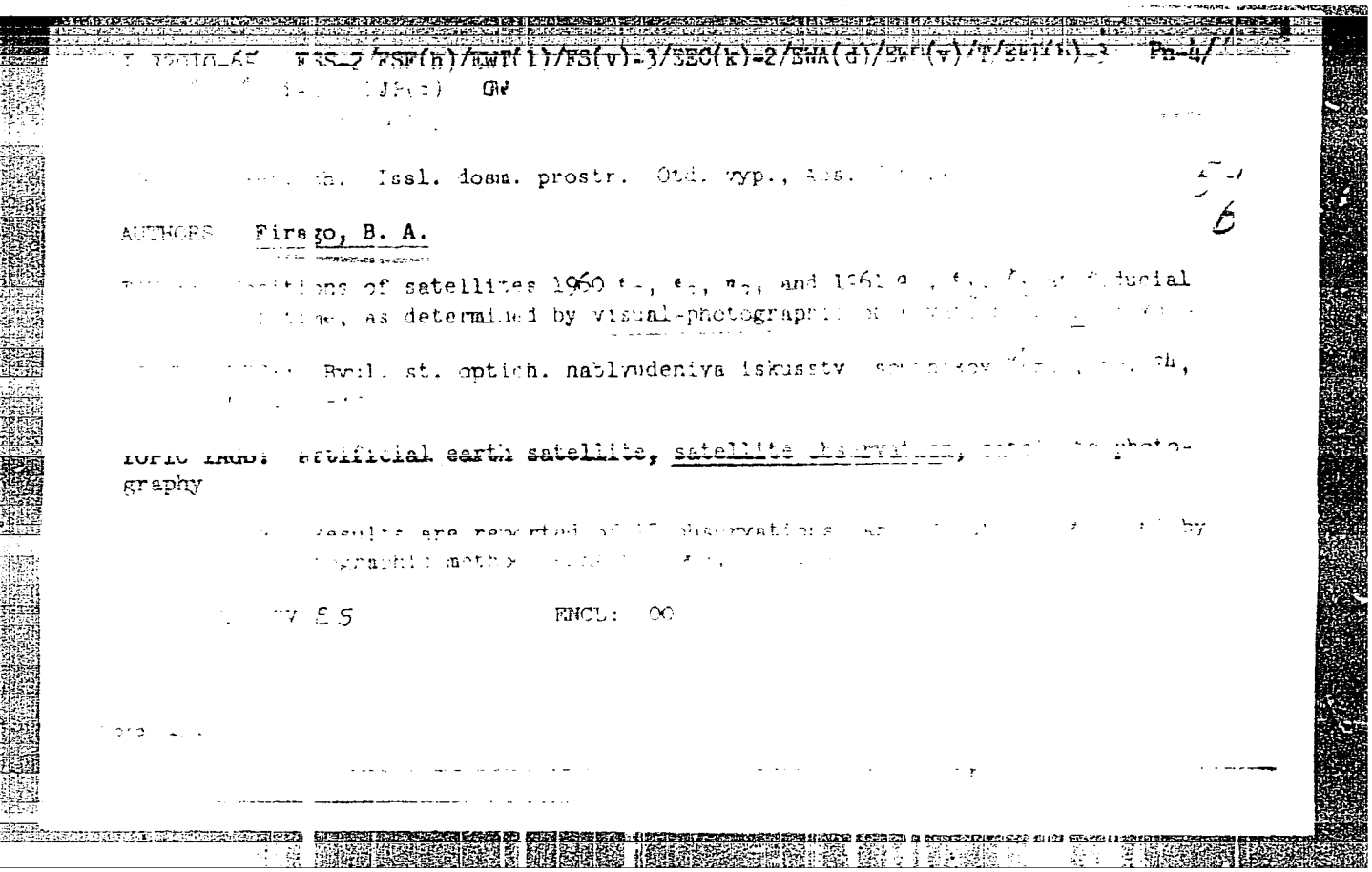
ACCESSION NR: AT5003539

ASSOCIATION: Glavnaya (Pulkovskaya) astronomicheskaya observatoriya AN SSSR (Pulkovo Main Astronomic Observatory, AN SSSR)

SUBMITTED: 01Sep62 ENCL: 00 SUB CODE: SV, AA

NR REF SOV: 004 OTHER: 000

Card 2/2



AUTHORS Firsov, B. A.

TOPIC TAGS: artificial earth satellite, satellite observation, photography

ENCL: 00

L 42405-65 EWT(1)/FS(v)-3/EEC(k)-2/EWG(v)/EWA(d) Po-4/Pe-5/Pq-4/Pae-4/Pi-4/
Pae-2 GS/GW
ACCESSION NR: AT5009183 UR/0000/63/000/000/0383/0391

B+1

AUTHOR: Firago, B.A.

TITLE: Astrometry and chronometry of earth satellites

SOURCE: Astrometricheskaya konferentsiya SSSR. 15th, Pulkovo, 1960. Trudy. Moscow, Izd-vo AN SSSR, 1963, 383-391

TOPIC TAGS: artificial earth satellite, astrometry, chronometry, universal time, artificial satellite tracking, time signal, artificial satellite coordinate, time service, atomic standard, molecular frequency standard

ABSTRACT: This paper discusses the principles, specifications and results of observations of artificial satellites with standard cameras at artificial earth satellite photographic tracking stations. The author describes the methods used at Soviet stations for determining the astrographic coordinates (α, δ), standard time (UT) and other data from the [illegible] observations. It is now possible to record the relative time of stations [illegible] radio time signals with an accuracy of $\pm 0^s.002$ (mean error). In addition to a [illegible] between the accuracy of determination of [illegible] and limited [illegible] ($\pm 0^s.005$), standard time has several deficiencies in [illegible] observations. [illegible] standard time should therefore be replaced. [illegible] formation requires

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L 42405-65

ACCESSION NR: AT5009183

...modified form of time signals supplied by a specially organized satellite time service which would transmit second signals and constantly control these signals. Operation should be 24 ...hours a day. Signals should be heard throughout the world or at least throughout the SSSR ...and neighboring countries. Long waves should be used in transmission to insure accuracy. ...Signals should have an optimal duration of $0^s.1$ with an error in ...[illegible] ...$0^s.05$. Quartz and atomic or molecular frequency standards ...[illegible] ...use of such standards would give a uniform scale of atomic time for a ...period of several months. All necessary signal corrections should be published simultaneously with observational results. Second signals should have a duration of $0^s.1$; signals ...denoting beginning of a minute $0^s.3$ or $0^s.6$; and signals denoting beginning of an hour — $0^s.9$. Use of atomic or molecular standards at observation stations, even while using the present time system, will increase the accuracy of satellite time observations several fold. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 06Apr63 ENCL: 00 SUB CODE: ES

NO REF SOV: 008 OTHER: 000

Card 2/2

FIRAGO, V. P., Engr. Cand. Tech. Sci.

Dissertation: "Surface Coordination Accuracy and a System for Calculation of the Adjusting Members of Devices." Moscow Order of Lenin Aviation Inst imeni Sergo Ordjhonikidze, 20 Jun 47.

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

BLINOV, F.T.; FIRAGO, V.P., kand.tekhn.nauk, red.; OGLOBLIN, A.N., dotsent; YUDIN, Ye.M., inzh.; BILINSKIY, M.Ya., red.; PISKAREVA, N.N., tekhn.red.

[Technology of machining airplane engine parts] Tekhnologiia mekhanicheskoi obrabotki detalei aviatsionnykh dvigatelei. Pod red. V.P.Firago. Moskva, Gos.izd-vo obor.promyshl., 1951. 531 p. (MIRA 13:10)

1. Leningradskiy Politekhnicheskiy institut im. M.I.Kalinina (for Ogloblin).
(Metal cutting) (Airplanes--Engines)

BLINOV, Fedor Trofimovich [deceased]; FIRAGO, Valentin Petrovich, kandidat tekhnicheskikh nauk; ROZENBLIT, Ya.M., inzhener, redaktor; BOGOMOLOVA, M.F., izdatel'skiy redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor

[Technology of the machining of aircraft engine parts] Tekhnologiia mekhanicheskoi obrabotki detalei aviatsionnykh dvigatelei. Izd. 2-oe, ispr. i dop. Pod red. V.P.Firago. Moskva, Gos. izd-vo obor. promyshl., 1956. 595 p. (MLRA 9:9)
(Airplanes--Engines) (Machinery industry)

PODZEY, Anatoliy Vladimirovich; SULIMA, Andrey Mikhaylovich; FIRAGO, Valentin Petrovich; TSUKANOV, Ivan Semenovich; KUINDZHI, A.A., inzhener, retsenzent; STANKEVICH, V.G., inzhener, redaktor; BELITSKAYA, A.M., redaktor; SHCHERBAKOV, P.V., tekhnicheskiy redaktor

[Technology of building aviation engines; the processing of principal parts and units] Tekhnologiia aviadvigatelestroeniia; obrabotka osnovnykh detalei i uzlov. Pod red. A.V. Podzeia. Moskva, Gos. izd-vo obor. promyshl., 1957. 415 p. (MLRA 10:5)
(Airplanes--Engines)

PHASE I BOOK EXPLOITATION 778

Firago, Valentin Petrovich, Candidate of Technical Sciences

Osnovy rascheta tochnosti obrabotki pri proyektirovanii stanochnykh prisposobleniy (Fundamentals of Calculating Machining Accuracy in Designing Machine Tool Fixtures) Moscow, Oborongiz, 1958. 79 p. (Series: Moscow. Aviatsionnyy institut imeni Sergo Ordzhonikidze. Trudy, vyp. 99) 5,650 copies printed.

Ed. of Publishing House: Bogomolova, M. F.; Tech. Ed.: Lebedeva, L. A.; Managing Ed.: Zaymovskaya, A. S., Engineer.

PURPOSE: The booklet is intended for personnel of machine-building plants and scientific research institutes, and also for teachers and students of technical schools.

COVERAGE: The booklet discusses the problems of locational accuracy in designing surfaces of machine-tool fixture elements. In the introductory part the difference between specified, actual and design accuracy in machining is shown.

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Fundamentals of Calculating Machining Accuracy in Designing Machine Tool Fixtures

and the possibility of applying the analytical and statistical methods developed by professors A.P. Sokolovskiy and A.B. Yakhin respectively for determining errors in machining of fixtures. There are 6 references, all Soviet.

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ZOROKHOVICH, Aleksandr Abramovich; KOLOSOV, Mikhail Aleksandrovich; FIRAGO, V.P., dotsent, kand.tekhn.nauk, retsenzent; ROZENBLIT, Ya.M., inzh., red.; MOROZOVA, P.B., izdat.red.; ROZHIN, V.P., tekhn.red.

[Technology of machining airplane parts] Tekhnologiia mekhanicheskoi obrabotki aviatsionnykh detalei. Moskva, Gos.izd-vo obor.promyshl., 1959. 287 p. (MIRA 12:10)
(Metal cutting) (Airplanes--Design and construction)

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Firago, Valentin Petrovich (Candidate of Technical Sciences)

Principles of designing manufacturing processes and fixtures. Machining methods (Osnovy* proyektirovaniya tekhnologicheskikh protsessov i prisposobleniy. Metody* obrabotki poverkhnostey) Moscow, Oborongiz, 1963. 531 p. illus., biblio. Errata slip inserted. 8000 copies printed. Textbook for aviation colleges and departments.

TOPIC TAGS: aircraft engine, aircraft engine manufacturing, engine manufacturing, engine part machining, fixture design, machining method, machining, precision machining, grinding, broaching, reaming, boring, honing, turning, milling, threading

PURPOSE AND COVERAGE: This textbook is intended for use in aviation schools of higher education. Since it comprises the general part of the course "The Technology of Airplane-Engine Manufacturing", its content may be useful to production personnel in various branches of precision and medium machine-building. Part I deals with basic principles of designing machining processes; part II,

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with designing machine-tool fixtures. Considerable attention is given to principles of designing fixtures used for precision machining. Problems of increasing efficiency and profitableness of fixtures by standardization are discussed. Part III reviews methods of machining part surfaces. The author thanks Docent G. P. Zhadin.

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FIRBAS, Oszkar, erdomernok (Sopron)

Ferenc Kiss, the "father of the Szeged forests." Term tud kozl 4 no. 12:559-561 D '60.

FIRBAS, Oszkar, adjunktus

Value of the descriptive works ordered by Joseph II as a forestry source reflected in the woods of the Forest Experiment Farm. Erdo 12 no.4:163-169 Ap '63.

1. University of Forestry and Timber Industry, Sopron.

FIRCHUK, R.P.

Vertical distribution and population density of the snow mouse (Microtus (Chionomys) nivalis Martins) in the Eastern Carpathians. Zool. zhur. 40 no. 2:294-295 F '61. (MIRA 14:2)

1. State Medical Institute of Stanislav.
(Chernogora Range—Field mice)

FIRCHUK, R.P.; PAVLOVICH, S.A.

Methodology for determining the phytoncide activity of plants.
Lab. delo no.10:632-633 '64. (MIRA 17:12)

1. Kafedra biologii (zaveduyushchiy - prof. F.N. Bassin)
Ivano-Frankovskogo meditsinskogo instituta.

FIRCHUK, R.P.

Role of hydrogen-ion concentration in the study of the phytoncidal effects of tissue juices. Antibiotiki 8 no.9:833-835 S '63.
(MIRA 17:11)

1. Kafedra biologii (zav. - prof. F.N. Bassin) Ivano-Frankovskogo meditsinskogo instituta.

FIRCHUK, R.P.

Phytoncidal properties of edible plants of the Carpathian Mountain region. Mikrobiol. zhur. 27 no.4:66-70 '65. (MIRA 18:8)

1. Ivano-Frankovskiy meditsinskiy institut.