[redacted], Ye.K.

Astronomy

"Absolute Electrophotometry of the Solar Corona at the Time of the Complete Solar Eclipse of 9 July 1945." Izvestiya Krymskoy Astrofizicheskoy Observatorii, 1, 1948

Report No. [redacted]-19569, BR 5059020

NIKONOV, V.B.; NIKONOVA, Ye.K.

Absolute electrophotometry of the solar corona during the total solar eclipse of July 9, 1945. Izv. Krym astrofiz. obser. 1 pt.1: 83-101 '47. (MIRA 10:8)

(Sun--Corona) (Photometry, Astronomical)

NIKONOV, V.B.

Nikonov, V.B. and Nikonova, E.K. "Experiment in photoelectric comparison of brightness of nocturnal skies in Simiens and Partizanovka," Izvestiya Kryusk. astrofiz. observatorii, Vol. III, 1948, p. 109-11

SO: U- 2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

NIKONOV, V. B. AND NIKONOVA, Ye. K.

Astronomy

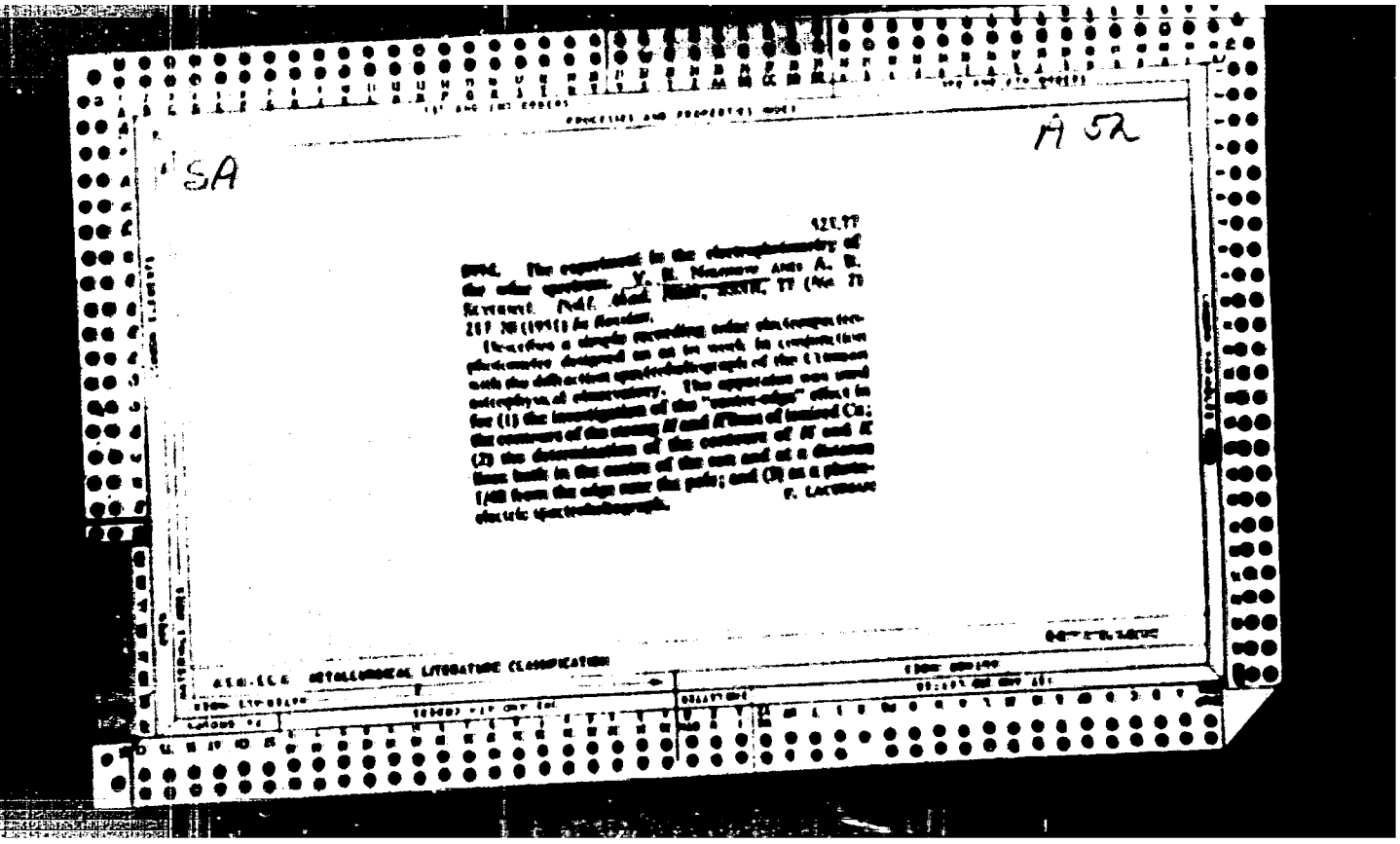
"Experiments with Photoelectrical Comparison of the Brightness of the Night Sky in Simeiz and Partizanovka," Izvestiya Krymskoy Astrofizicheskoy Observatorii, 1948

Report No. [redacted]-M-19569, 3R 52059020

NIKONOV, V. B., KRASOVSKIY, V. I. and KALINYAK, A. A.

Nablyudeniye oblasti galakticheskogo tsentra v infrakrasnykh luchakh (Observation of the Galactic Center Region in Infrared Rays). Akademiya Nauk SSSR. Doklady, 1949, v. 66, no. 1, p. 25-28, diagr., 6 refs.

AS262.S3663 v. 66



MIKOFOMOV, V.B.

Apr 52

USSR/Astronomy - Infrared Photography of Galaxy

"Infrared Radiation of the Milky Way," Ye.N. Pavlov, Phys. Inst, Leningrad State U

"Priroda" No 4, pp 107-109

Real nature and structure of Galaxy were explained in 1948 at Crimean Astrophys Obs by observations in infrared of A.A. Kalinyak, V.I. Krasovskiy and V.B. Nikofomov, using photosensitive cathodes. In 1950 at the same observatory, S.F. Rodionov and I. G. Frishman used photocells to photograph in infrared the Galaxy and found this radiation to be 2-10% of the background flow.

215T1

[redacted]

Stars, Variable

Stellar electrophotometer and the Crimean Astrophysical Observatory and methods for computing the diminution of light in the earth's atmosphere during photoelectric observations of variable stars. Izv. Krym. astrofiz. obser. 7, 1952.

Monthly List of Russian Accessions, Library of Congress
June 1953. UNCL.

NIKONOV, V. B., NIKONOVA, M. N.

Stars, Variable

Photoelectric observations of a variable star of the Cephei type, IW Vulpeculae.
Izv. Krym. astrofiz. obser. 9, 1952.

Monthly List of Russian Accessions, Library of Congress
June 1953. UNCL.

Stellar Astronomy, Stellar Catalogs (3987)

Byull. AN Gruz. SSR, Abastumanskaya Astrof. Observatoriya, No 14, 1953, pp 1-233
Nikonov, V. B.

Accurate color equivalents are deduced for 852 stars in the galactic zone of latitude 20°, limited in the region of galactic center by declination -24° and in the region of anticenter by longitude 160°. The atmospheric effect was eliminated, but not light absorption by interstellar media.

Referativnyy Zhurnal -- Astronomiya i Geodeziya, No 6, 1954 (W-30976)

NIKONOV, V. B.

262T32

USSR/Astronomy - Bibliography Jul/Aug 53

"Index to Astronomical Literature Published in the USSR During March, April 1953," Yu. G. Perel'

Astr Zhur, Vol 30, No 4, pp 475-478

Lists 60 articles on astronomy which appeared during Mar, Apr 53 in 15 books and symposia, 1 ephemeris, 6 institute organs (e.g., "Trudy"), 17 periodicals, and 5 abstracts of dissertations. For example, one author's abstract of a dissertation, the only one mentioned for the degree of Dr Phys-Math Sci, is: An Attempt to Construct a Fundamental Catalogue of Electrical Chromatic Equivalents of

262T32

Stars of the Spectral Types B8 and B9," by V. B. Nikonov, Main Astron Observatory of Acad Sci USSR (expts were completed at Abastuman Astrophys Observatory and Crimean Astrophys Observatory), Leningrad, 21 pp, 100 copies.

NIKONOV, V.B.

Using multicolor electrocolorimetry in studying selective absorption of interstellar matter. Izv.Krym.astrofiz.obser. 12: 134-147 '54. (MIRA 13:4)
(Interstellar matter--Spectra)

Nikonov, V.B.

USSR/Astronomy - Instruments

Card 1/1 Pub. 43 - 39/97

Authors : Dobronravin, P. P., and Nikonov, V. B.

Title : Instrument for recording the energy distribution in spectra of stars

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 268, Mar-Apr 1954

Abstract : Brief description is given of a device for recording energy distributions in spectra of stars. The instrument employs Soviet made photo-multipliers and is intended for operation in a 500 mm menisctus telescope. The device records the ratio of the photocurrent produced by the light of a star at a given wave length and the photocurrent produced by a large part of the spectrum. The light oscillations caused by the flickering and vibration of the image on the slit are completely eliminated by the new recorder. This also includes the chromatic flickering of stars at greater zenith spaces.

Institution : Academy of Sciences USSR, The Crimean Astrophysic Observatory

Submitted : .....

DOBROMRAVIN, P.P.; NIKONOV, V.B.

Compensating stellar electrospectrophotometer. Izv.Krym. astrofiz.obser. 13:32-45 '55. (MIRA 13:4)
(Spectrophotometer)

NIKONOV, V.B.

Works of the Crimean Astrophysical Observatory on stellar astronomy. Izv.Krym.astrofiz.obser. 16:216-219 '56.
(MIRA 13:4)

(Stars--Observations)

NIKONOV, V.B.; NEKRASOVA, S.V.; POLOSUKHINA, N.S.; RACHKOVSKIY, D.N.; CHUVAYEV, K.K.

Color-luminosity diagram for stars in the vicinity of the sun. Izv.Krym.astrofiz.obser. 17:42-88 '57. (MIRA 13:4)

(Stars)

3(1)

AUTHORS: Butslov, M. M., Zavoyskiy, Ye. K., SOV/20-121-5-13/50
Corresponding Member, Academy of Sciences, USSR, Kalinyak, A. A., Nikonov, V. B., Prokof'yeva, V. V., Smolkin, G. Ye.

TITLE: The Use of Multistage Electron-Optical Light Amplifiers in Astrophysics (O primenenii mnogokaskadnykh elektronno-opticheskikh usiliteley sveta v astrofizike)

PERIODICAL: Doklady Akademii nauk SSSR, Vol 121, Nr 5, pp 815 - 818 (USSR) 1958

ABSTRACT: This paper investigates some problems connected with the application of electron-optical light amplifiers in astrophysics. The authors estimate the increase in efficiency of the utilization of the photon flux with respect to the usual photographic method. Under the investigated conditions, and in the case of equal dimensions of the pictures, the efficiency of the electron-optical method is by ~ 4.10^5 times higher than in ordinary photography. An increase in scale on the photocathode of the light amplifier reduces the increase in sensitivity of the electron-optical method compared with a usual photographic plate by 160 times. An estimation of the sensitivity

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of the light amplifiers gives a value of the order of 1000. The use of an electron-optical amplifier usually cannot increase the penetration range of the telescope. But the reduction of the times of exposure by hundreds of times of its amount due to the high sensitivity of the light amplifier essentially changes the possibilities of the astrophysical investigation. The short times of exposure permit the investigation of rapidly varying processes of very faintly visible objects and a considerable increase of the utilization coefficient of the astrophysical instruments. The reduction of the times of exposure is very important for astrospectroscopy. The above-discussed considerations are confirmed by the results obtained by experiments carried out by the authors in the Krymskaya astrofizicheskaya observatoriya AN SSSR (Crimean Astrophysical Observatory AS USSR). The proper noises of the light amplifier may be neglected in comparison with the background of the sky. According to the experimental values, the use of the light amplifier permitted a reduction of the times of exposure approximately to a thousandth part of their former amount

The Use of Multistage Electron-Optical Light Amplifiers in Astrophysics SOV/20-121-5-13/50

which satisfactorily agrees with the above-given estimate. A figure shows the photographs of 2 extragalactic nebulae which were taken by means of a light amplifier. There are 4 figures, 1 table, and 6 references, 5 of which are Soviet.

ASSOCIATION: Krymskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean Astrophysical Observatory AS USSR) Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR (Astronomical Main Observatory, AS USSR)

SUBMITTED: April 14, 1958

Card 3/3

30268
S/035/61/000/010/001/034
A001/A101

3,1510 (1114, 1129, 1166)

AUTHORS: Dimov, N.A., Nikonov, V.B.

TITLE: Photoelectrical determination of equivalent widths of H γ in early stars

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 10, 1961, 22, abstract 10A167 ("Izv. Krymsk. astrofiz. observ.", 1960, v. 22, 176-188, Engl. summary)

TEXT: The authors discuss the possibility of direct photoelectrical determination of equivalent widths of spectral lines by the "differential storing" method. In this method, light fluxes are measured from the portion of spectrum which includes the line being studied, as well as those from two portions of continuous spectrum to both sides of the line. The measurements of the both light fluxes are conducted by means of a single photomultiplier and alternate every 0.5 sec. Photocurrents from the line and continuous spectrum are integrated independently. The method described was applied to determination of equivalent widths of H γ in spectra of 22 stars of spectral classes O9 - A0. Observations established the possibility of organizing the large-scale photoelectrical determina-

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S/035/62/000/010/016/128
A001/A101

AUTHORS: Nekrasova, S. V., Nikonov, V. B., Polosukhina, N. S., Rybka, Ye.

TITLE: Photoelectric magnitudes and colors of reference photometric stars in Kapteyn areas. I. Some problems in methods of compiling fundamental photometric catalogues

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 30, abstract 10A244 ("Izv. Krymsk. astrofiz. obzerv.", 1962, v. 27, 228 - 240)

TEXT: A catalogue of photoelectric magnitudes and colors of reference photometric stars in Kapteyn's areas is necessary to reduce zero-points of scales of stellar magnitudes to a single system, as well as in allowance for atmospheric extinction. The authors set forth the task of observation of all reference photometric stars in 139 Kapteyn's areas ($\delta > -15^{\circ}$). In the future, observations should be extended to the entire southern half of the sky. Two methods are briefly described (Ye. Rybka and V. B. Nikonov) for compiling such a catalogue. Both of the methods are applied to the same observational data obtained in Crimea by means of an A3T-7 (AZT-7) meniscus telescope. In more

Card 1/2.

detail these methods were described earlier. Observations of 14 reference stars in 7 northmost Kapteyn's areas are utilized (results are tabulated), as well as of 17 stars of spectral classes B0-M2 from Johnson's list. Methods of observations and processing are described. It turned out that both of the methods yield errors of the same order (0m.01), however Nikonov's method is more economical in time consumption and makes it possible to control more reliably the constancy of the photometric system. It was decided to use the latter method for the further work on the catalogue (individual observations are directly extrapolated beyond the atmosphere). It is established that instantaneous values of the gradient of extinction factor versus stellar color relation should be used in compiling catalogues of stars with a wide range of colors. There are 14 refernces.

B. Fesenko

[Abstracter's note: Complete translation]

Card 2/2

37397

S/033/62/039/002/011/014
E032/E314

3.1260

AUTHORS: Butslov, M.M., Kopylov, I.M., Nikonov, V.B., Severnyy, A.B. and Chuvayev, K.K.

TITLE: Experiments in electron-optical photography of galaxies in hydrogen light using the 2.6 m reflector of the Crimean Astrophysical Observatory

PERIODICAL: Astronomicheskiy zhurnal, t. 39, no. 2, 1962, 315 - 322 + 3 plates

TEXT: Detailed studies of extragalactic nebulae require the use of large telescopes. As regards detecting apparatus, the use of ordinary photographic techniques in conjunction with narrow-band filters necessitates long exposures and is therefore inconvenient in practice. The authors have investigated therefore the possibilities of image-converters as a means of avoiding these disadvantages. An image-converter was set up in the direct focus of the 2.6 m reflector of the Crimean Astrophysical Observatory. The immediate object was to investigate the hydrogen emission in a number of galaxies. Four light colour filters were introduced in front of the converter and

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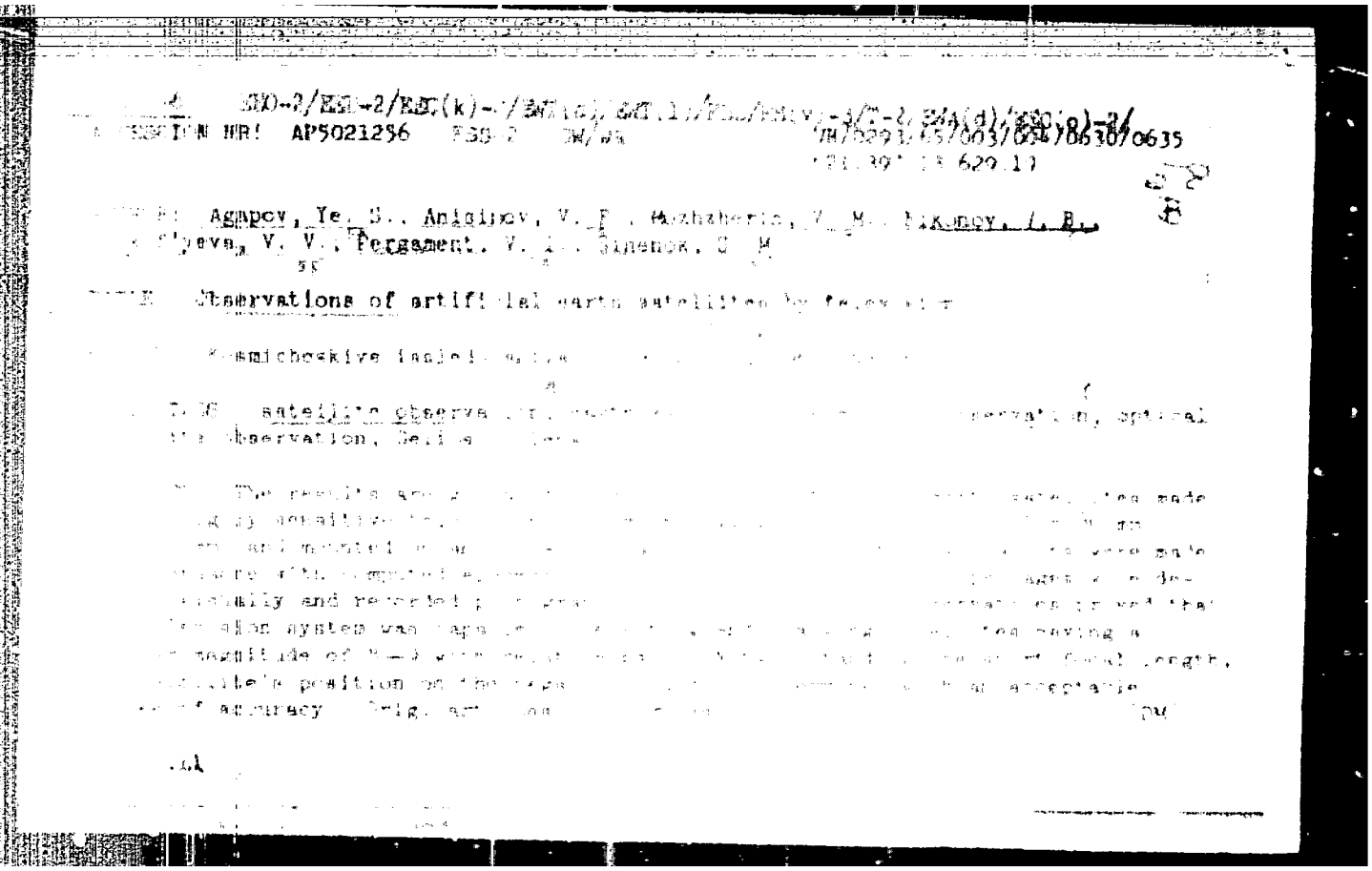
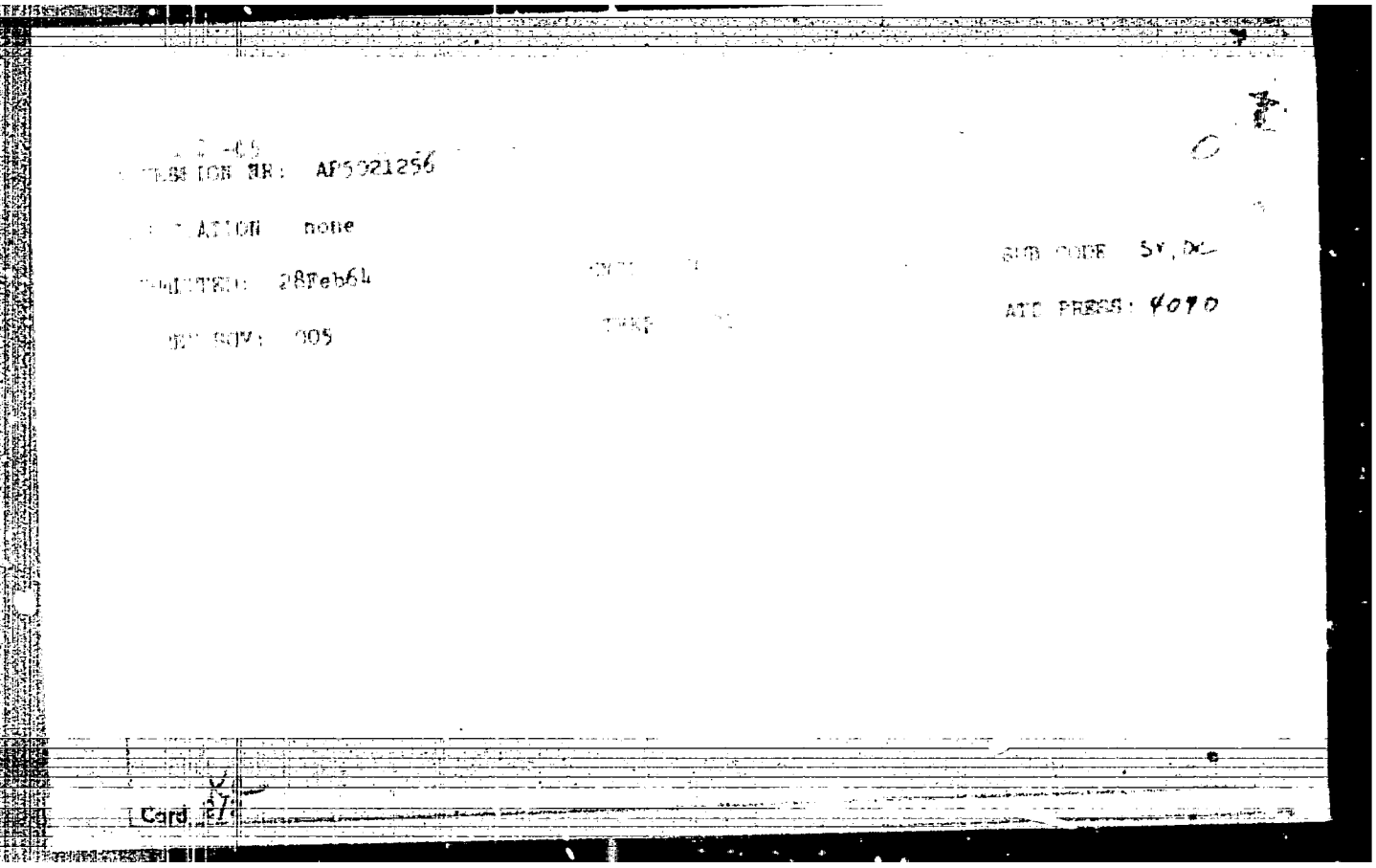
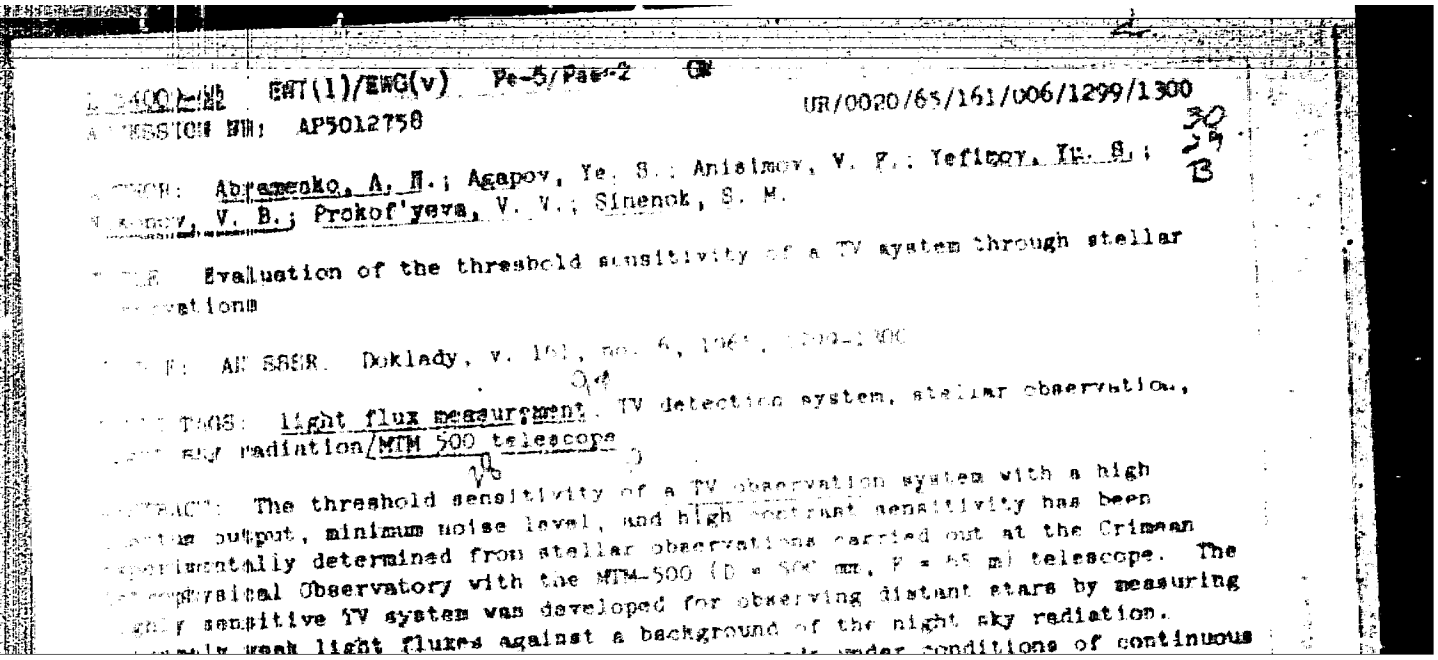
the screen of the latter was photographed by a motion-picture camera. Altogether 58 galaxies were photographed in H_α and other light. Photographs of 10 of these are reproduced and their features are described (NGC 604, 1569, 4214, 4449, 4490, 4736, 5194, 5457, 6822 and 6946). Many unknown clouds of hydrogen-emission were detected in the galaxies. In many cases there is no correspondence between hot-star clusters and hydrogen clouds. The hydrogen component shows greater concentration in the equatorial planes than the stellar component. In some galaxies the nuclei consist of isolated condensations. The dimensions of the nuclei in H_α light are in some cases appreciably larger than in other light, although in a number of cases the reverse situation obtains. In several galaxies, streams or ejections from the nucleus, which are visible only in H_α light, were detected.

AGAPOV, Ye.S.; ANISIMOV, V.F.; NIKONOV, V.B.; PROKOF'YEVA, V.V.; SINENOK, S.M.

Experimental application of television technique for observations of stars. Izv. Krym. astrofiz. obser. 30:3-18 '63.
(MIRA 17:1)







EWT(1)/EWG(v) Pe-5/Pae-2 GW

ACCESSION NR: AP5012758 UR/0020/65/161/006/1299/1300

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13

AUTHOR: Abramenko, A. N.; Agapov, Ye. S.; Anisimov, V. F.; Yefimov, Yu. S.; Kozyrev, V. B.; Prokof'yeva, V. V.; Sinenok, S. M.

TITLE: Evaluation of the threshold sensitivity of a TV system through stellar observations

SOURCE: AN SSSR. Doklady, v. 161, no. 6, 1965, 1299-1300

TOPIC TAGS: light flux measurement, TV detection system, stellar observation, sky radiation, MTM 500 telescope

ABSTRACT: The threshold sensitivity of a TV observation system with a high system output, minimum noise level, and high contrast sensitivity has been experimentally determined from stellar observations carried out at the Crimean Astrophysical Observatory with the MTM-500 (D = 500 mm, F = 65 m) telescope. The highly sensitive TV system was developed for observing distant stars by measuring extremely weak light fluxes against a background of the night sky radiation. [illegible] under conditions of continuous

data readout and storage on an image orthicon target. The

Card 1/3

ACCESSION NR: AP5012758

...ly in Fig. 1 of the Enclosure, which shows that the experimentally ...mined threshold sensitivity of the TV system is close to the calculated. It ...concluded that the use of such a highly sensitive TV system together with a ...m-size telescope will make it possible to record radiation from 20^m to 21^m ... with exposures ranging from several seconds to one minute. This approaches ...theoretical limit of detecting extremely weak light fluxes. Orig. art. has: ...graph and 1 table. [JR]

...ATION: Krymskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean ...physical Observatory, Academy of Sciences SSSR)

SUBMITTED: 24Nov64 ENCL: 01 SUB CODE: AA

NO REF SOV: 004 OTHER: 000 ATD PRESS: 4091

Card 2/3

NIKONOV, V. F.

Nikonov, V. F. "Problems of mathematical training in the 'technicums'." Min Education RSFSR. Moscow Oblast Pedagogical Inst. Moscow, 1956. (Dissertation for the Degree of Candidate in Pedagogical Science)

So: Knizhnaya letopis', No. 27, 1956. Moscow. Pages 94-109; 111.

NIKONOV, V. F.

The first N. A. Minkevich prize was given to the following teams: Candidate of Technical Sciences A. D. Assenov, Engineers N. I. Tereshchin, V. F. Nikonov, D. I. Kostenko, S. G. Marinchev, I. S. Yurkov, N. N. Inshakova, N. N. Yanchuk, A. A. Bulatnikov and G. Ye. Litvin (Automobile Works imeni Likhachev) for their paper "Investigation and Introduction of the Process of Nitrocementation by Direct Isothermal Hardening in an Alkali Inside Muffleless Equipment", their design of a muffleless furnace heated by vertical radiation tubes is of interest.

Results of the 1958 Competition for Obtaining imeni D. K. Chernov and imeni N. A. Minkevich Prizes, Metallovedeniye i termicheskaya obrabotka metallov, 1959, No. 6, pp 62-64

GRINBERG, V.L.; GRUZDOV, P.Ya.; NIKONOV, V.F.; YORLINSKIY, A.G.

Using 40 KhGTR steel for the half-axles of automobile driving axles. Metalloved. i term. obr. met. no.6:15-19 Je '63. (MIRA 16:6)

(Automobiles—Axles)
(Steel alloys—Testing)

NIKONOV, V.F.

Some evidence of petroleum-bearing potential of the West Siberian Lowland. Neft.khoz.34 no.8:44-49 Ag '56. (MLRA 9:10)
(Siberia, Western--Petroleum geology)

3(0) SOV/20-124-2-43/71

AUTHOR: Nikonov, V. P.

TITLE: Authigenic Iron, Sulfur, Organic Carbon, and Bitumins in the Mesozoic Sediments of the Eastern Ural Region (Autigennoye zhelezo, sera, organicheskiy uglerod i bitumy v osadkakh mezozoya Vostochnogo Priural'ya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 2, pp 392 - 394 (USSR)

ABSTRACT: As is known, the organic substance is oxidized by authigenic oxide iron and sulfates. This oxidation may take place to a considerable extent within short periods (Refs 1,2). The process mentioned in the course of which oxidation iron and sulfate-sulfur are reduced is widespread (Refs 3,4). The authigenic iron is precipitated from the solution as oxidation iron (Refs 5,6). Sulfur is carried away from the regions of denudation and accumulates first in the sediments as SO_4^{2-} unless it migrates as a component of the organic substance and is embedded. Part of the organic substance is decomposed by redox processes. This takes place the more

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quickly the thicker the original mass of the oxidizer is. For this reason there exists a certain interdependence between the stages of accumulation of authigenic iron, sulfur and the organic substance. The content of authigenic iron increases along the cross section of the Mesozoic from the Upper Jurassic to the Cenomanian, it then rapidly decreases and later on increases again. Due to this fact 2 periods of accumulation of authigenic iron are expressed in the denudations (Fig 1). The distribution of C_{org} is also cyclic and inversely proportional to the iron concentrations (Ref 7). Sulfur, as one of the elements which are the most capable of migration (Refs 11,12) was washed away and accumulated during the great transgressions (Jurassic-Valanginian, Albian, Turonian-Oligocenic) in the sediments, i.e.at times when iron was little mobile. There is a high sulfur content in all loamy strata (0.4-0.9%). The concentration of Abitumina decreases in the Jurassic until the Cenomanian, while the iron content increases. In rocks from the Turonian to the Oligocenic which contain less iron but more sulfur,

the concentration of bitumen is strongly reduced. This took place in connection with an accumulation of large quantities of sulfate while C_{org} is not less than in older sediments. The rocks of the Jurassic-Valanginian rich in C_{org} and bitumen, however, contain much sulfur, i.e. even more than the organic substance itself. Sulfates are practically lacking. In the sediments of the Turonian-Oligocenic sulfur is mainly of mineral origin (about 0.2% of pure sulfur). The content of sulfate sulfur and that of bitumen are inversely proportional to each other. The iron, sulfur, C_{org}, and bituminous content on the whole increases towards the central part of the Khanty-Mansiysk basin; the maximum amounts of these components are found towards the western edge of the basin (Fig 2). The strongest concentrations of authigenic iron are found in loamy sediments at greatest depths, while they are bound to the edge in sandy deposits. There are 2 figures and 12 Soviet references.

Authigenic Iron, Sulfur, Organic Carbon, and Bitumins SOV/20-124-2-43/71
in the Mesozoic Sediments of the Eastern Ural Region

ASSOCIATION: Tyumenskoye territorial'noye geologicheskoye upravleniye
(Tyumen'Territorial Geological Administration)

PRESENTED: September 20, 1958, by S. I. Mironov, Academician

SUBMITTED: September 19, 1958

Card 4/4

NIKOLOV, V.F.

Distribution of organic carbon, bitumens, and heavy hydrocarbons throughout the profile of Meso-Cenozoic deposits in the eastern part of the trans-Ural region with regard to the occurrence of petroleum and gas. Dokl. AN SSSR 134 no.3:654-657 S '60. (MIRA 13:9)

1. Tyumenskaya kompleksnaya geologorazvedochnaya ekspeditsiya. Predstavleno akad. N.M. Strakhovym.
(Siberia, Western--Petroleum geology)

BOYARSKIKH, G.K.; NIKONOV, V.F.; PROKOPENKO, V.I.; RUVNINA, L.V.; ROMANOV, F.I.; YASTREBOVA, T.A.; SVENCHKOV, G.P., nauchnyy red.; NEVEL'SKIY, V.I., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Key wells of the U.S.S.R.;Berezovo key well (Tyumen' Province)] Berezovskaia opornaia skvazhina (Tiumenskaia oblast'). Leningrad Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, Leningr. otd-ie. 1962. 120 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.195) (MIRA 15:12)

(Berezovo region (Tyumen' Province)—Geology)

NIKONOV, V.F.

Significance of the bitumen content in organic matter for oil prospecting. Trudy SNIIGGiMS no.26:145-150 '62. (MIRA 16:3)
(Bitumen) (Organic matter)

NIKOSOV, V.F.

Composition of gases in gas deposits as dependent on the depth of occurrence. Dokl. AN SSSR 147 no.3:710-711 N '62.
(MIRA 15:12)

1. Tyumenskoye territorial'noye geologicheskoye upravleniye.
Predstavleno akademikom N.M. Strakhovym.
(Gas, Natural—Geology)

NIKONOV, V.F.

Distribution of heavy hydrocarbons as an oil and gas prospecting indicator. Geol. nefti i gaza 7 no.7:25-29 Jl '63. (MIRA 16:7)

1. NV NIIGG.

(Methane)

NIKONOV, V.F.

Composition of the crudes of the northern Ob'valley.
Geol. nefti i gaza 8 no. 1:20-23 Ja '64. (MIRA 17:5)

1. Tyumenskoye territorial'noye geologicheskoye upravleniye.

NIKONOV, V.F.

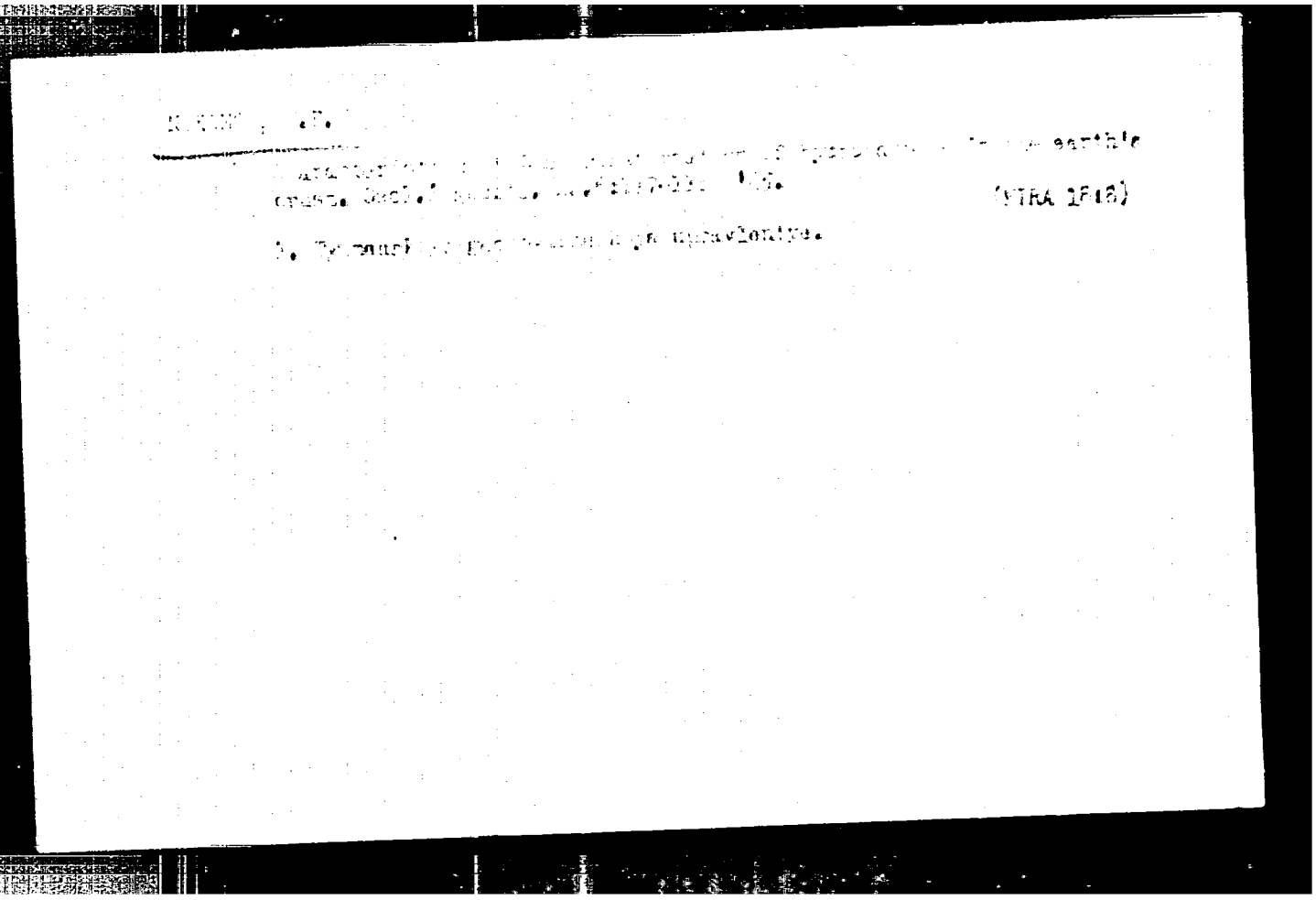
Searches in the zonal pools in the latitudinal Ob' Valley based on a study of the West Surgut oil field. Neftegaz.geol. i geofiz. no.1:14-16 '65. (MIRA 18:5)

1. Tyumenskoye territorial'noye geologicheskoye upravleniye.

NIKONOV, V.F.

Gases in the oil fields of Tyumen' Province. Neftegaz. geol. i geof. no.5:10-12 '65. (MIRA 18:7)

1. Tyumenskoye territorial'noye geologicheskoye upravleniye.



SOLODIKHIN, Aleksandr Grigor'yevich; NIKONOV, V.F., retsenzent; MEL', G.Ya., inzh., red.

[Technical and economic principles of the heat treatxent of metals] Tekhnicheskie i ekonomicheskie osnovy termicheskoi obrabotki metallov. Moskva, Mashinostroenie, 1965. 450 p. (MIRA 18:11)

NIKONOV, V.F.

Variation of gas composition within gas fields. Dokl. AN SSSR 165 no.4:927-929 D '65.

(MIRA 18:12)

1. Tyumenskoye territorial'noye geologicheskoye upravleniye.
Submitted July 3, 1965.

L 15213-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(h) JD

ACC NR: AP6002912 SOURCE CODE: UR/0286/65/000/024/0074/0074

INVENTOR: Shepelyakovskiy, K. N.; Stroganov, K. V.; Shklyarov, I. N.; Orlov, I. V.; Nikonov, V. F.; Assonov, A. D.

ORG: none

TITLE: Steel for surface-hardened parts. Class 40, No. 177083

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 74

TOPIC TAGS: steel, surface hardened steel, manganese containing steel, silicon containing steel, chromium containing steel, shallow hardenable steel

ABSTRACT: This Author Certificate introduces a steel for surface-hardened parts containing 0.4—1.2% carbon and alloyed with manganese, silicon, and chromium. To obtain steel with a specified hardenability, one of three alloying elements is added in a specified amount and the content of the other two is limited. For example, in steel containing 0.3—1.4% manganese, the chromium and silicon contents are limited to 0.15% and 0.17%, respectively. Steel with 0.3—1.4% silicon should contain 0.15% chromium and 0.20% manganese, and steel with 0.3—1.8% chromium should contain 0.20% manganese and 0.17—0.27% silicon. [AZ]

SUB CODE: 11/ SUBM DATE: 29Dec60/ ATD PRESS: 4190

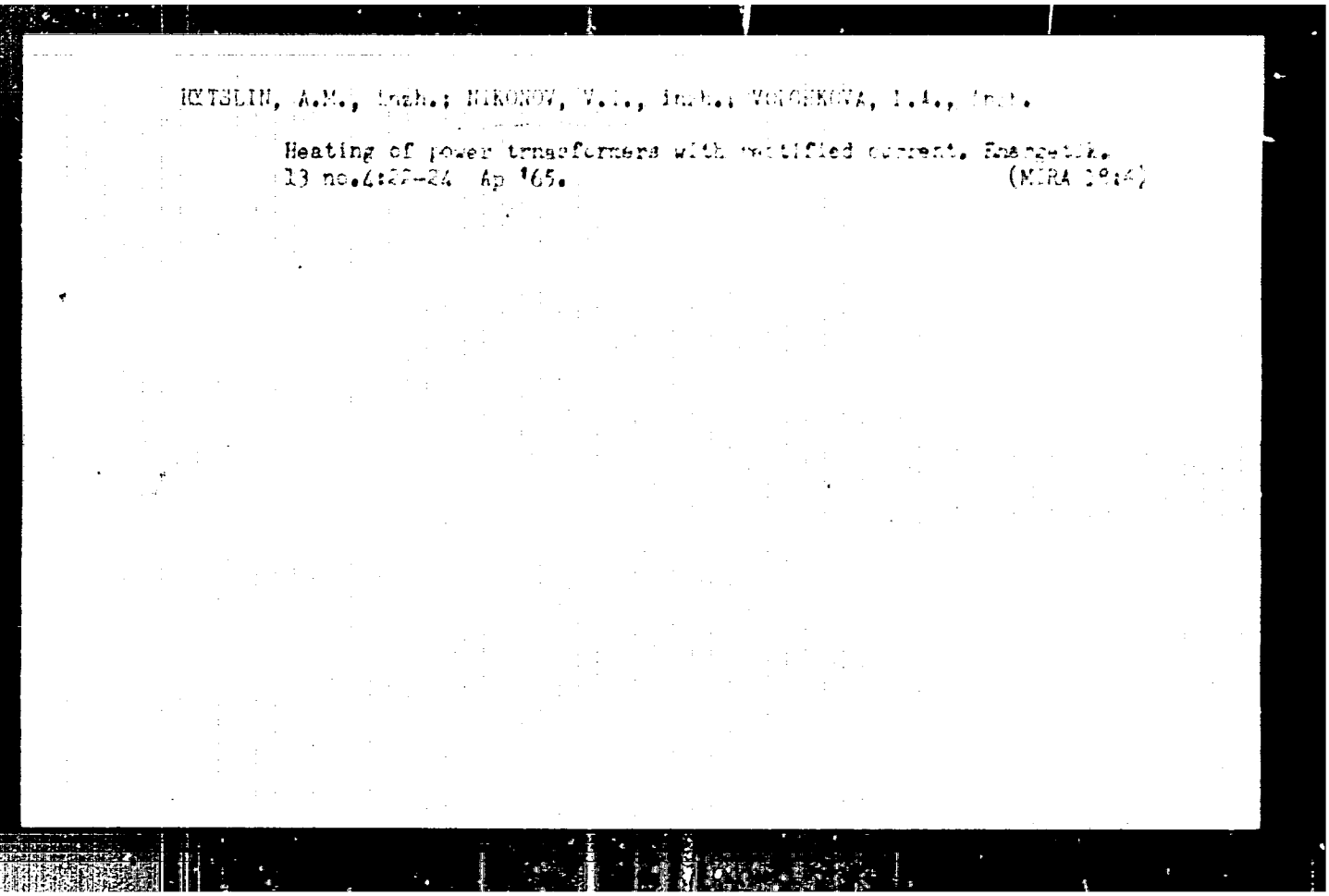
Card 1/1

ZAYKOV, S.T.; KRAVTSOV, P.Ya.; NIKIFOROV, B.V.; KOVAL', V.Ye.; ZHIGULIN, V.I.; RUBINSKIY, P.S.; LIFSHITS, S.I.; YEVSTAF'YEV, Ye.I.; NIKONOV, V.F.; VOZLINSKIY, A.G.

Using oxygen-blown converter steel in automobile manufacture. Met. i gornorud. prom. no.4:26-31 Jl-Ag '64. (MIRA 18:7)

NIKONOV, V.G.; PETROVA, G.P.

Use of the precipitation in agar reaction for the detection of the anthrax antigen in animal organs. Vest.-med. zhur. no. 1: 53-54 Ja '66 (MIRA 19:1)



KUTSLIN, A.M., inzh.; NIKONOV, V.I., inzh.; VOLOSHKOVA, I.I., inzh.

Heating of power transformers with rectified current. Energetik.
13 no.4:22-24 Ap '65. (MIRA 18:4)

NIKONOV, V.I.

Production of fodder yeast at the Kotlass sulfite alcohol plant. Gidroliz. i lesokhim. prom. 18 no.3:24 '65. (MIRA 18:5)

AIKL'SON, S.V.; NIKONOV, V.I.

Effect of dilution on the dehydrogenation of isopentane in the presence of iodine. Khim. i tekh. topl. i masel 10 no.3: 11-13 Mr '65. (MIRA 18:11)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina.

NIKONOV, V. L.

NIKONOV, V. L.: "Principles of Constructing a System of Forest Parks in the Suburban Forest-Park Zone of the City of Leningrad." Min Higher Education USSR. Leningrad Order of Lenin Forestry Engineering Academy imeni S. M. Kirov. Leningrad, 1956. (Dissertation for the Degree of Candidate in Agricultural Science)

So: Knizhnaya Letopis', No. 19, 1956.

ARAPOV, A.D.; NIKONOV, V.N.

Homoplasty of arteries in an infected wound; experimental observations. Voen. med. zhur. no.2:28-30 F '57 (MIRA 12:7)
(ARTERIES, experimental,
homoplasty of arteries in infected wds. (Rus))
(WOUNDS AND INJURIES, experimental,
same)

ANDREYEVA, Z.F., kand.khimicheskikh nauk; NIKONOV, V.N., ispolnyayushchiy obyazannosti starshego nauchnogo sotrudnika

Trihydroxyglutaric acid and its salts as a buffer in separating lanthanides by means of ion exchange chromatography. Izv. TSKHA no.3:196-205 '62. (MIRA 15:9)
(Glutaric acid)
(Chromatographic analysis) (Rare earth metals)

NIKONOV, V.N.; SAKOVICH, A.A.

Electric current converter with silicon rectifier for use in electrometallurgical enterprises. Elektrichestvo no.12:55-59 D '62. (MIRA 15:12)

1. Vsesoyuznyy elektrotekhnicheskiy institut imeni Lenina.
(Electric current rectifiers)

NIKONOV, V.N. (GGU, Gor'kiy)

"The Investigation of Oscillation Fluctuation of a Klystron Oscillator."

Considered random amplitude and phase modulation of klystron oscillations, caused by random processes connected with the electron flow. Experimental measurements of oscillation parameter fluctuations showed a coincidence with the theory first developed by I. L. Bernshteyn.

report presented at the All-Union Conference on Statistical Radio Physics, Gor'kiy, 13-18 October 1958. (Izv. vyssh uchev zaved-Radiotekh., vol. 2, No. 1, pp 121-127) COMPLETE card under SIFOROV, V. I.)

80129
S/141/59/002/06/010/024
E192/E382

9,4220

AUTHOR: Nikonov, V.N.

TITLE: Investigation of the Oscillation Fluctuations in a Klystron Generator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 6, pp 915 - 926 (USSR)

ABSTRACT: First, the problem is investigated analytically. Under the assumption that the resonator of the klystron can be represented by an L, C and R equivalent circuit, the dynamic equation of the system is:

$$L\frac{di}{dt} = v - Ri \; ; \qquad (1)$$

$$C\frac{dv}{dt} = -i + I_o\left[\frac{1}{1 + (\tau_o/2U_a)dv_1/dt_1} - 1\right] \qquad (1a)$$

where v is the alternating voltage across the capacitor and
i is the oscillation current in the equivalent circuit.

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Investigation of the Oscillation Fluctuations in a Klystron Generator

The second component in Eq (1a) represents the current induced by the electron beam. I_o is the cathode current, τ_o is the average electron transit time (from the resonator to the reflector and back) and U_a is the voltage applied to the resonator. In order to investigate the oscillation fluctuations it is assumed that these are due to the shot noise and the flicker effect in the electron beam; the thermal noise is neglected. If the shot- and flicker-effect directly induced currents are denoted by $f_1(t)$ and $f_2(t)$ and the components due to the reflected beam are denoted by $f_1'(t)$ and $f_2'(t)$, the dynamic equations of the system can be written as Eqs (2) and (2a). Employing polar coordinates r and ϑ (defined by the last equation on p 916), Eqs (2) and (2a) can be rewritten as Eqs (3) and (3a), where Φ and Ψ are expressed by Eqs (3б). Expressions for the amplitude and

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Investigation of the Oscillation Fluctuations in a Klystron Generator

phase fluctuations are therefore given by Eqs (4) and (4a). These can also be expressed as Eqs (5) and (5a). The solution of these shows that the spectral densities of the amplitude and frequency fluctuations are given by Eqs (6) and (6a), respectively. If the generator is isochronous, the spectral densities of the amplitudes and frequency fluctuations are given by Eqs (7) and (7a). These can further be transformed into Eqs (8) and (8a). The effect of the flicker noise alone on the amplitude and frequency fluctuations is described by Eqs (9). The problem was also investigated experimentally; the equipment employed in the measurements was similar to that described in Ref 2. The results of the experiments are illustrated in Figures 3, 4 and 5 and in two tables on pp 924 and 925. Figure 3 shows the frequency dependence of the spectral density of the frequency fluctuation for a klystron operating in various modes. The spectral density of the amplitude fluctuations as a function of frequency is illustrated in Figure 4. It is found that the experimental results are in good agreement with the theory. For the normal operating modes the

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measured spectral line width is 0.1 to 0.5 c/s; the spectrum band of the amplitude fluctuations varies between 20 and 50 Mc/s and the spectral density from 10^{-16} to 10^{-15} c/s.
There are 5 figures, 2 tables and 8 references, 1 of which is English and 7 are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific-research Radiophysics Institute of Gor'kiy University)

SUBMITTED: May 17, 1959

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S/141/60/003/006/024/025
E192/E382

9,4220

AUTHOR: Nikonov, V.N.

TITLE: Concerning a Method of Measuring the Amplitude Fluctuations of an Oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol. 3, No. 6, pp. 1129-1130

TEXT: Recent work by Häggblom (Ref. 1) described a method of measuring the spectral density $w_\alpha(\Omega)$ of the amplitude fluctuations of a klystron oscillator in the low-frequency region. A block diagram of this equipment is illustrated in Fig. 1. The investigated oscillator 1 is frequency-modulated by the oscillator 7 ; the modulated output of the oscillator is applied to a crystal detector 2 where the doubled modulation frequency is separated. A signal is then detected again by means of a vacuum diode 4 and its spectrum is analysed by means of a spectral analyser 5 . The calibration of the instrument is performed by means of an oscillator 8 which produces a calibration signal at the input of the analyser.

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Concerning a Method ....

The above method of measurement is discussed in some detail and it is shown that, in his experiments, Häggblom (Ref. 1) measured the spectral density of the amplitude fluctuations of the klystron oscillator over the frequency range from 30.001 to 30.1 Mc/s instead of the frequency range 0.001 to 0.1 Mc/s (as was assumed by Häggblom).
There are 1 figure and 3 references: 2 Soviet and 1 non-Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: April 29, 1960

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25949 S/141/61/004/001/009/022
E192/E382

9.3260

AUTHORS: Malakhov, A.N. and Nikonov, V.N.

TITLE: Correlation of the Amplitude and Frequency Fluctuations in Oscillators

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika, 1961, Vol. 4, No. 1, pp. 104 - 112

TEXT: It is assumed that the signal produced by the oscillator is expressed by:

$$x(t) = A_0[1 + \alpha(t)]\cos\left[\omega_0 t + \int^t \nu(\xi)d\xi\right] \qquad (1)$$

where $\alpha(t)$ and $\nu(t)$ are relative fluctuations of amplitude and frequency which are in the form of stationary random processes such that

$$|\alpha| \ll 1, \quad |\nu| \ll \omega_0, \quad \bar{\alpha} = \bar{\nu} = 0$$

where the line above the symbols represents statistical

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averaging. In order to determine the spectral density of the power fluctuation $W_x(\omega)$, it is necessary to determine the correlation function $\Phi_x(\tau)$ which, in turn, is dependent on the correlation functions of the amplitude fluctuations $\Phi_\alpha(\tau)$, frequency fluctuations $\Phi_\nu(\tau)$ and cross correlation $\Phi_{\alpha\nu}(\tau)$. These functions have been determined for some special cases (Ref. 1 - S.M. Rytov - ZhETF, Vol. 29, 304, 315, 1955). On the other hand, in this work an attempt is made to find $\Phi_\alpha(\tau)$, $\Phi_\nu(\tau)$ and $\Phi_{\alpha\nu}(\tau)$ for a large range of oscillators. It is assumed that the oscillator signal is governed by the following differential equation (Ref. 2 - A.N. Malakhov - Izv. vyssh. uch. zav. - Radiofizika, Vol. 3, 241, 1960):

$$\sum_{k=0}^{n} a_k \frac{d^k x}{dt^k} = F\left(x, \ldots, \frac{d^n x}{dt^n}, \ldots\right) + E(t). \qquad (2)$$

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where E(t) represents the noise. The fluctuations $\dot{v}(t)$ and $\alpha(t)$ are expressed by the following equations (Ref. 2):

$$\dot{v} + pv = (-a_{\parallel}\dot{E}_{\parallel} + a_{\perp}\dot{E}_{\perp} + b_{\perp}E_{\parallel} + b_{\parallel}E_{\perp})/\delta A_o \quad (3)$$

$$\dot{\alpha} + p\alpha = (a_{\parallel}E_{\perp} + a_{\perp}E_{\parallel})/\delta A_o \quad (4)$$

Eq. (3) can also be written in a more convenient form:

$$v = p_1\alpha + (a_{\perp}E_{\perp} - a_{\parallel}E_{\parallel})/\delta A_o \quad (5)$$

where $p_1 = (a_{\parallel}b_{\parallel} + a_{\perp}b_{\perp})/\delta$. The noise can be expressed by

$$E(t) = E_{\parallel}(t)\cos(\omega_o t) - E_{\perp}(t)\sin(\omega_o t) \quad (6)$$

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where $E_{\parallel}(t)$ and $E_{\perp}(t)$ are slowly changing functions of time. It is shown that these components can be expressed by:

$$E_{\parallel}(t) = E(t)\cos(\omega_0 t) - (1/\omega_0)\dot{E}(t)\sin(\omega_0 t); \quad (8).$$
$$E_{\perp}(t) = -E(t)\sin(\omega_0 t) - (1/\omega_0)\dot{E}(t)\cos(\omega_0 t).$$

The correlation function of the noise is given by:

$$\Phi_E(\tau) = \int_0^{\infty} W_E(\omega)\cos(\omega\tau)\,d\omega. \quad (9)$$

which can be approximately be expressed by:

$$\Phi_E(\tau) = A^0(\tau)\cos(\omega_0\tau) - A^1(\tau)\sin(\omega_0\tau). \quad (10)$$

where A^0 and A^1 are slowly changing functions which are defined by:

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$$A''(\tau) = \int_{-\infty}^{+\infty} \tilde{W}_E(\Omega)\cos(\Omega\tau)d\Omega = \int_{-\infty}^{+\infty} \tilde{W}'_E(\Omega)\cos(\Omega\tau)d\Omega;$$

$$A'(\tau) = \int_{-\infty}^{+\infty} \tilde{W}_E(\Omega)\sin(\Omega\tau)d\Omega = \int_{-\infty}^{+\infty} \tilde{W}'_E(\Omega)\sin(\Omega\tau)d\Omega. \qquad (11)$$

By solving Eq. (4) with respect to $\alpha(t)$ it is found that:

$$\alpha(t) = \int_0^{\infty} f(t-\xi)e^{-p\xi}d\xi \qquad (14)$$

where $f(t) = (a_{\parallel}E_{\perp} + a_{\perp}E_{\parallel})/6A_0$. The final expression for the amplitude correlation function, derived on the basis of Eq. (14), is in the form:

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$$\Phi_a(\tau) = \frac{1}{p\delta A_o^2} \int_0^\infty \frac{A^o(\tau + y) + A^o(\tau - y)}{2} e^{-py} dy \qquad (17)$$

From this it is easy to find the spectral density of the amplitude fluctuations; this is expressed by:

$$W_a(\Omega) = 2\tilde{W}_E^o(\Omega)/\delta A_o^2(p^2 + \Omega^2) \qquad (18)$$

Similarly, it is shown that the correlation function for the frequency fluctuations is given by:

$$\Phi_\nu(\tau) = \frac{A^o(\tau)}{2A_o^2} + \frac{p_1^2}{2A_o^2 p} \int_0^\infty \frac{A^o(\tau + y) + A^o(\tau - y)}{2} e^{-py} dy + \frac{2p_1}{2A_o^2} \int_0^\infty \frac{A^1(\tau + y) - A^1(\tau - y)}{2} e^{-py} dy. \qquad (20)$$

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while the cross-correlation function for the fluctuations is:

$$\Phi_{AF}(\tau) = \frac{1}{4A_0^2}\left[p_1 \int_0^{\infty} \frac{A^*(\tau+y)+A^*(\tau-y)}{2} e^{-py}\,dy + \right. \qquad (22)$$

$$\left. + \int_0^{\infty} A^*(\tau+y)\, e^{-py}\,dy \right].$$

The above expressions are used to analyse some special cases:
1) $W_E(\Omega) = W_0$;
2) the derivative of $W_E(\omega)$ in the vicinity of $\omega = \omega_0$ is not equal to zero, and
3) the noise is such that its spectrum in the vicinity of ω_0 has a width comparable with p or less than p. From the above it is concluded that for the existence of cross correlation between the amplitude and frequency fluctuations of an oscillator it is necessary and sufficient that one of the following conditions be fulfilled:

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a) simultaneously, $b_{\parallel} \neq 0$ and $b_{\perp} \neq 0$ is the case when an oscillator is nonisochronous;
b) simultaneously, $a_{\parallel} \neq 0$ and $a_{\perp} \neq 0$, which occurs when the lefthand-side portion of Eq. (2) contains even as well as odd derivatives, and
c) the spectrum of the noise in the vicinity of ω_o is asymmetrical with respect to ω_o. It is clear that in all actual oscillators at least the third condition is fulfilled. It is therefore necessary to take into account the cross-correlation between the frequency and amplitude fluctuations in determining the spectral line $W_x(\omega)$ of the oscillator.

There are 1 figure and 8 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at Gor'kiy University)

SUBMITTED: February 28, 1960

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33822

S/141/61/004/006/009/017
E192/E382

9.3260 (1067, 1139, 1159)

AUTHORS: Malakhov, A.N., Nikonov, V.N. and Razina, T.D.

TITLE: Some methods and results of measurements of amplitude- and frequency-fluctuations in oscillators

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v. 4, no. 6, 1961, 1052 - 1064

TEXT: Two methods of measurement of the spectral density of frequency fluctuations are known (Ref. 2: D. Middleton - Trans. IRE, ED-1, 56, 1954; Ref. 3: I.L. Bershteyn, Izv. AN SSSR, ser.fiz., 14, 145, 1950). The methods are discussed and evaluated and one of them is employed to measure the parameters of an experimental oscillator. In general, the measurement of the fluctuation spectra in an oscillator is based on the system illustrated in Fig. 1, which consists of: 1 - a discriminator; 2 - detector and 3 - analyser. The quasi-chromatic signal applied to the input of the discriminator is in the form:

$$x(t) = A_0 \left[1 + \alpha(t)\right] \cos\left(\omega_0 t + \int \nu(t)dt\right) \qquad (1.1)$$

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Some methods and results of ....

where $\alpha(t)$ and $\nu(t)$ are stationary random processes having a cross-correlation function $\Phi_{\alpha\nu}(\tau) = \overline{\alpha(t)\nu(t+\tau)}$, such that $\bar{\alpha} = 0$, $\bar{\nu} = 0$, $\overline{\alpha^2} \ll 1$ and $\overline{\nu^2} \ll \omega_o^2$. One of the methods of measurement is based on a discriminator containing a tuned circuit; the second method employs a delay line in the discriminator. The basic function of the discriminator consists of converting the frequency modulation of the input signal into amplitude-modulation of the output signal. The voltage at the input of the detector is therefore in the form

$$y(t) = B_o\left[1 + \beta(t)\right]\cos\left(\omega_o t + \int \nu_1(t)dt\right) \qquad (1.2)$$

The relative amplitude fluctuations $\beta(t)$ in the signal $y(t)$ are linearly dependent on $\alpha(t)$ and $\nu(t)$, so that the general expression for the spectral density of the fluctuations $\beta(t)$ can be expressed as:

Some methods and results of ....

$$W_\beta(\Omega, n) = K_\alpha(\Omega, n)\, W_\alpha(\Omega) + K_\nu(\Omega, n) W_\nu(\Omega) + \\ + K^0_{\alpha\nu}(\Omega, n) W^0_{\alpha\nu}(\Omega) + K^1_{\alpha\nu}(\Omega, n) W^1_{\alpha\nu}(\Omega) \qquad (1.3)$$

where $W_x(\Omega)$ is the spectral density of the signal $x(t)$ at the frequency Ω, n is a certain parameter dependent on the setting of the discriminator, $K(\Omega, n)$ are frequency characteristics of the discriminator and $W^0_{\alpha\nu}(\Omega) W^1_{\alpha\gamma}(\Omega)$ are mixed spectral densities. The detector is followed by a filter which only passes a frequency lower than ω_o. The output signal of the filter contains a mean component $\bar{z}$ and fluctuations $\Delta z(t)$, which are proportional to $\beta(t)$. If it is assumed that the detector does not introduce any frequency distortion, the spectral density of the useful signal $\Delta z(t)$ at the output of the filter is:

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$$W_{\Delta\varepsilon}(\Omega, n) = \bar{\varepsilon}^2 \ell^2 W_{\beta}(\Omega, n) \qquad (1.4)$$

which is applied to the spectrum analyser. The symbol ℓ in Eq. (1.4) is a multiplier, determined by the type of detector. For a linear detector $\ell = 1$ and for a square detector $\ell = 2$. If a tuned circuit is used in the discriminator, the quantity $\beta(t)$ can be expressed by (Ref. 5: G.S. Gorelik, G A Yelkin - Radiotekhnika i elektronika, 2, 28, 1957):

$$\beta + 2\delta\beta + \lambda^2\beta = \lambda^2\alpha + \delta\alpha - \eta\nu \qquad (2.1)$$

This equation is employed to determine the amplitude, frequency and frequency-amplitude fluctuations over $\beta(t)$. In the case of a discriminator based on a delay line, the quantities $\beta(t)$, $\alpha(t)$ and $\nu(t)$ are functionally related as follows (Ref. 3 and Ref. 6: V.S. Troitskiy - Radiotekhnika i elektronika, 1, 818, 1956):

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$$\beta(t)=\frac{1}{1+k^2+2k\cos\psi_o}\left\{\alpha(t)+k^2\alpha(t+\tau_o)+k\left[\alpha(t)+\alpha(t+\tau_o)\right]\cos\psi_o - k\sin\psi_o\,\Delta\varphi\right\} \quad (3.1)\,.$$

Again, the expressions for the spectral density of $\beta(t)$ are derived on the basis of Eq. (3.1). The sensitivity of the measurement equipment of either type depends on the internal noise of the equipment. The noise is primarily produced by the detector and by the analyser. The detector noise consists of flicker and shot noise. The minimum detectable amplitude-spectral density and frequency-fluctuation density are determined by the equipment noise and it is shown that these quantities can be expressed by:

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Some methods and results of ....

$$W_a^{\text{мин}}(\Omega) = \frac{10^{-7} - 10^{-10}}{\Omega} \qquad (4.8)$$

$$W_v^{\text{мин}}(\Omega) = \frac{1}{K_v(\Omega, n)} \frac{10^{-7} - 10^{-10}}{\Omega} \qquad (4.9)$$

By analysing these formulae, it is found that the sensitivity of the two methods is identical if the equivalent quality factor of the tuned circuit is given by:

$$Q_K = Q_{\nu} = nQ_{\Pi} = \operatorname{ctg} \psi_0 \omega_0 \tilde{\tau}_0 \qquad (4.12)$$

The tuned-circuit method was employed to investigate the fluctuations in an oscillator operating at 100 kc/s and an oscillator of 1.25 Mc/s. Some of the results are illustrated

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in Fig. 5, where W_β is plotted as a function of n . The experiments showed that the relative width of the spectral line of the first oscillator was 10^{-6} when an oxide-cathode tube was employed and 10^{-7} when the oscillator was based on a tungsten cathode; The corresponding figures were 5×10^{-7} and 10^{-7} for the oscillator operating at 1.25 Mc/s. It is concluded, therefore, that a substantial portion of the spectral line width in the oscillator is due to the flicker noise of the tubes; this fluctuation component can be eliminated by employing tubes with tungsten cathodes. The authors thank I.L. Bershteyn for making useful criticism. There are 6 figures, 1 table and 14 references: 12 Soviet-bloc and 2 non-Soviet-bloc. The English-language references mentioned are: Ref. 1: D. Middleton, Quart. Appl. Math., 9, 337; 10, 35, 1952; Ref. 2: D. Middleton - Trans. IRE, ED-1, 56, 1954.

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33222

S/141/61/004/006/009/017
Some methods and results of E192/E382

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: February 8, 1961

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3921.6

S/141/62/005/002/008/025
E192/E382

9.4210

AUTHOR: Nikonov, V.N.

TITLE: Steady-state single-frequency oscillation regime of a magnetron oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v. 5, no. 2, 1962, 260 - 269

TEXT: A theoretical "model" corresponding to a single-frequency operation of a magnetron oscillator operating continuously is constructed. This system is illustrated in Fig. 1, where the idealized "spokes" of the space charge are indicated. A cylindrical system of coordinates is used and it is shown that the single-frequency operation can be described by the following system of simplified equations:

$$\frac{dx}{dt} = \omega_o y - \frac{\omega_o}{Q_3} x \qquad (11)$$

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Steady-state single-frequency...

$$\frac{dy}{dt} = -\omega_o x + \frac{1}{C_э}\int_V j\mathcal{E}_{\sim} dv \qquad (11a)$$

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where $z_o i_{\pi} = x$ and

y is the voltage on the equivalent capacitance $C_э$ of the resonator,

Q is the equivalent quality factor of the resonator,

z_o is the wave impedance of the equivalent resonator circuit,

i_{π} is the current density for the antiphase oscillation mode.

The equations can be transformed into polar coordinates, in which case they can be written as:

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Steady-state single-frequency...

$$\frac{dU}{dt} = -\frac{\omega_o}{2Q_z} U + \frac{1}{2-C_s} \int_0^{2\pi} I_H(U\cos\vartheta, U\sin\vartheta)\cos\vartheta\, d\vartheta = \Psi(U) \quad (12)$$

$$\frac{d\vartheta}{dt} = \omega_o - \frac{1}{2\pi C_s U} \int_0^{2\pi} I_H(U\cos\vartheta, U\sin\vartheta)\sin\vartheta\, d\vartheta = \omega_o + \Phi(U) = \omega_1 \quad (12a)$$

where $y = U\cos\vartheta$ and $x = U\sin\vartheta$ and the functions $\Psi(U)$ and $\Phi(U)$ are dependent on the first harmonic of the induced current I_H. The induced current is calculated on the basis of determining the electron trajectories in the magnetron under the assumption that the interaction of the HF field with the space charge results in the appearance of the spokes. By determining $\Phi(U)$ it is

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easy to find the steady-state amplitude U_1 , the power generated and the frequency ω_1 of the magnetron. The dependence of the magnetron current I_o on the oscillation amplitude is determined and the so-called limit-cycle factor p is evaluated. This factor is defined as $p = [\partial \Psi(U)/\partial U]_{U=U_1} > 0$ and it indicates the stability of the steady-state amplitude of the oscillations. The results of the analysis are compared with the experimental data and it is concluded that: a) the magnetron in the single-frequency regime can be adequately described by an oscillatory system with one degree of freedom, which is described by

$$\frac{d^2 i_\pi}{dt^2} + \omega_\pi^2 i_\pi = -\frac{\omega_\pi}{Q_\pi}\frac{di_\pi}{dt} + \omega_\pi^2 \int_V jE_\pi(r)\,dv \qquad (5);$$

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b) the steady-state value of the current I_o is proportional to the square of the oscillation amplitude; c) the magnetron current and the induced currents depend primarily on the changes of the space charge in the spokes; d) when determining the parameter p , it is necessary to take into account the radial motion of the electrons. The analysis is by no means exact or complete but it is useful in describing some of the important aspects of the magnetron operation. There are 2 figures.

4

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: July 10, 1961

39247
S/141/62/005/002/009/025
E192/E382

9.4210

AUTHOR: Nikonov, V.N.

TITLE: Amplitude and frequency fluctuations of a magnetron oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v. 5, no. 2, 1962, 270 - 286

TEXT: The equations derived in the preceding article in this issue of the journal, pp. 260 - 269, are employed to investigate the fluctuations of the amplitude and phase in a single-frequency magnetron. The fluctuation sources are the thermal fluctuations in the equivalent resonant circuit of the oscillator and the shot noise of the electron beam. The thermal fluctuations are taken into account by:

$$\frac{dx}{dt} = \omega_0 y - \frac{\omega_0 x}{Q_y} + \omega_0 \zeta_1(t) \qquad (2)$$

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where $\zeta_1(t)$ is the e.m.f. developed in the equivalent resonant circuit by the resistance R_2. On the other hand, the shot noise is taken into account by:

$$\frac{dy}{dt} = -\omega_0 x + \frac{1}{C_2} I_H(y, x) + \frac{1}{C_2} \zeta_H'(t, x, y) \qquad (2a)$$

where ζ_H' is the random component of the induced current due to the shot effect in the electron beam; I_H in Eq. (2a) denotes the induced current. Eqs. (2) and (2a) are expressed in polar coordinates and are then employed to derive the equations for the random components of the amplitude fluctuation $a(t)$ and phase fluctuation $\varphi(t)$. The resulting equations can be solved by first determining the random components of the induced current. It is then possible to evaluate the correlation functions and spectral densities for the amplitude and frequency

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Amplitude and ....

fluctuations. The cross correlation functions for amplitude and frequency fluctuations are also determined. The fluctuations were also measured experimentally by means of the delay-line method on magnetrons operating at 3.2 cm. By comparing the experimental results with the theory it is found that the theory gives an adequate description of the amplitude-and frequency-fluctuation phenomena in the magnetron. The intensity of the amplitude fluctuations B decreases inversely proportionately to the quantity $I_0\beta^2(I_0)$, where $\beta = pQ/e_0$. The strength of the frequency fluctuations is a minimum for the operating conditions corresponding to ω_3 ranging from 0 to -10^0. The amplitude and frequency fluctuations are always cross-correlated, the cross-correlation function consisting of even and odd terms. There are 5 figures.

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Card 3/4

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: July 10, 1961

Card 4/4

ACCESSION NR: AP5014498 UR/0141/65/008/002/0219/0228

AUTHOR: Kamenskaya, S. A.; Kislyakov, A. G.; Krotikov, V. D.; Naumov, A. I.; Nikolayev, V. N.; Portir'yev, V. A.; Plechkov, V. M.; Strezhneva, K. M.; Troitskiy, V. S.; Fedoseyev, L. I.; Lukyako, L. V.; Sorokina, E. P.

TITLE: Observation of the radio eclipse of the moon at millimeter wavelengths

SOURCE: IVUZ. Radiofizika, v. 8, no. 2, 1965, 219-228

TOPIC TAGS: radioastronomy, lunar eclipse, brightness temperature, lunar surface material

ABSTRACT: The radio emission from the moon was measured during the eclipses of 7 July and 30 December 1963, by a procedure in which the antenna was periodically [illegible] with a standard [illegible] the emission of a section of the sky of fixed altitude and a mountain slope having a temperature close to that of the surrounding air. The work was done [illegible] mountains in Armenia [illegible] Primarily [illegible] December. Several refinements were introduced to correct for the variation of the height of the moon during the time of the eclipse. The maximum relative drop of effective temperature was ~ 17%, ~ 8%, 8 ± 2%, 5 ± 2%, and 3 ± 2% at wave-

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ACCESSION NR: AP5014498

wavelengths 1.2, 2.1, 4.0, 7.5, and 16 mm in the eclipse of 7 July and 22.5 ± 2.5%, ± 5%, and 8 ± 2% at wavelengths 1.2, 4.0, and 6.0 mm in the eclipse of 30 December. The best agreement between the observation data and the theoretically predicted course of the radio brightness temperature during the eclipse, for a homogeneous model of the moon, is obtained if $\gamma/b = (6 \pm 1.5$ and $1.0) \times 10^4$. $\gamma = (k\rho c)^{1/2}$ (k--thermal conductivity, ρ--density, c--specific heat, b--tangent of dielectric loss angle of the lunar material). This value of γ/b agrees with previously obtained value measured by a different method. We thank the Director of the Institute of Physics, Armenian Academy of Sciences, A. I. Alikhanyan for the opportunity of performing the work on the high-mountain base of the Institute and for help. Orig. art. has: [02] 2 figures and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Scientific Research Institute at the Gor'kiy University)

SUBMITTED: 00	ENCL: 00	SUB CODE: AA, EC	
NO REF SOV: 006	OTHER: 004	ATD PRESS: 4029	

Card 2/2

NIKONOV, V.P.; SMOKTIY, L.Ya.

Reduction of sulfates and selenites of alkaline earth metals by hydrogen. Zhur. neorg. khim. 5 no.8:1899-1900 Ag '60.
(MIRA 13:9)

(Alkaline earth sulfates) (Alkaline earth selenites)

3.5150

S/169/62/000/003/063/098
D228/D301

AUTHOR: Nikonov, V. V.

TITLE: Astronomic methods of studying the nocturnal and the diurnal transparency of the atmosphere (Theses)

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1962, 29, abstract 3B235 (V sb. Aktinometriya i atmosfern. optika, L., Gidrometeoizdat, 1961, 150)

TEXT: Instantaneous values of the nocturnal and the diurnal transparancy of the atmosphere for a certain moment of time can be obtained, if the true values of the monochromatic brilliance of stars -- $m(\lambda, 0)$ -- and their apparent brilliance -- $m(\lambda, z, t)$ -- for a certain moment of time in a certain volume of air are known. Effective procedures for determining $m(\lambda, 0)$ exist, A method of observing the apparent brightness of stars -- $m(\lambda, z, t)$ -- is suggested. This has been developed in astrophysics in connexion with the problem of observing the weakest stars. [Abstracter's note: Complete translation.]

Card 1/1

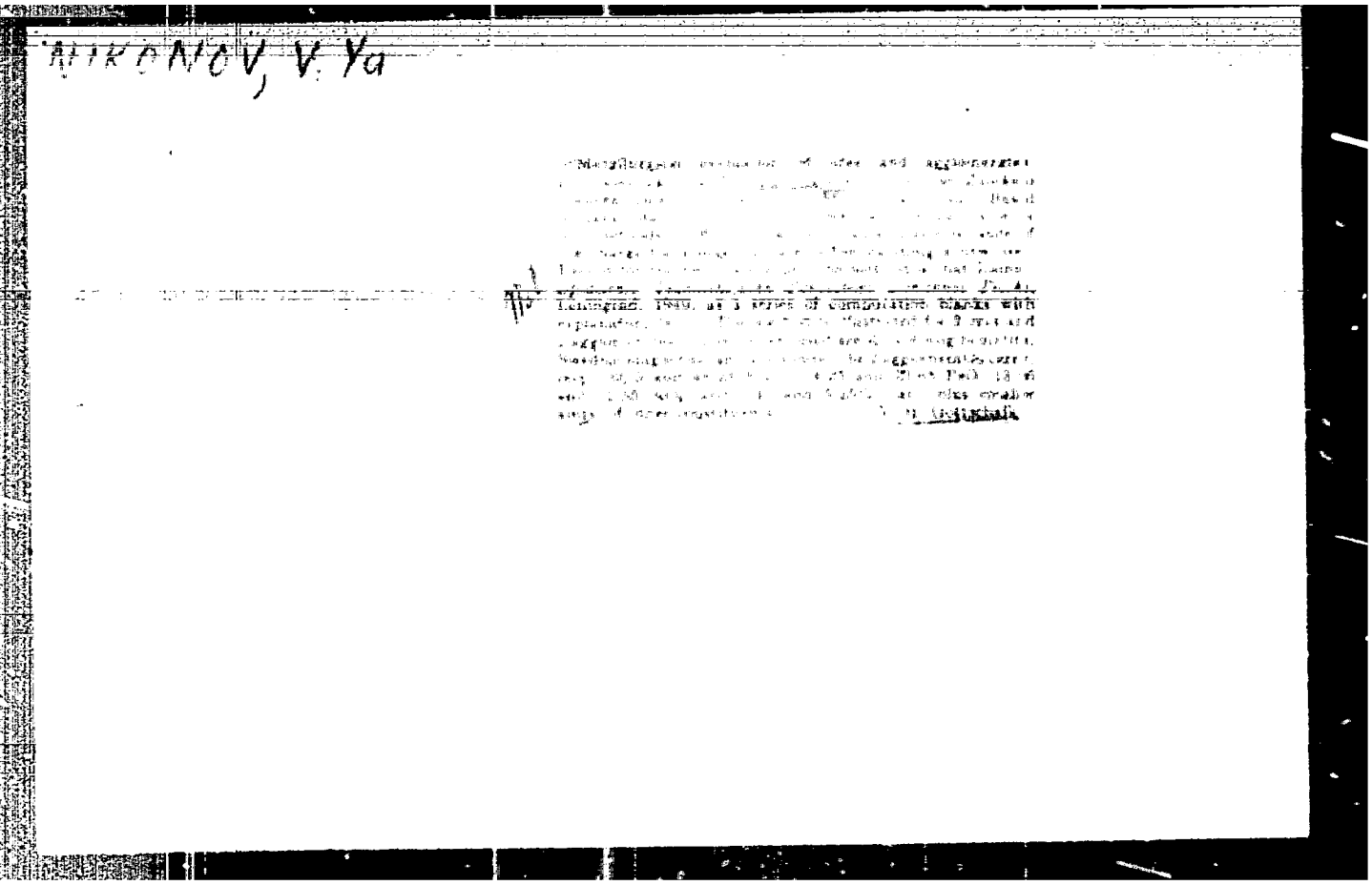
NEMIROVSKIY, A.S.; NIKONOV, V.V.

Statistical method for establishing intervals between tests. Izm. tekh. no.9:49-51 S '65. (MIRA 18:10)

NIKONOV, V. Ya. (Engr)

NIKONOV, V. Ya. (Engr) -- "Use of Pyritic Slag in Ferrous Metallurgy for Blast Furnace Smelting." Sic 17 Jan 52, Moscow Inst of Steel imeni I. V. Stalin. (Dissertation for the Degree of Candidate in Technical Sciences).

SO: Vechernaya Moskva, January-December 1952



137-58-4-6817

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4 p 72 (USSR)

AUTHOR: Nikonov, V. Ya.

TITLE: Hydrometallurgical Treatment of Pyrite Cinders (Gidrometallurgicheskaya pererabotka piritnykh ogarkov)

PERIODICAL: Sb. tr. Mosk. vech. metallurg. in-ta, 1957, Nr 2, pp 53-58

ABSTRACT: The degree of extraction of Cu and Zn from pyrite cinders by leaching by water or 3% H_2SO_4 may be significantly increased by preliminary sulfating roasting of the pyrites at 550-650°. 620° being the optimum temperature. A flow sheet for the process, tested on the laboratory scale, is offered.

Ye. Z.

1. Pyrites--Copper--Extraction 2. Pyrites--Zinc--Extraction

Card 1/1

NIKONOV, Ye.; MARGALIK, P.

Analysis of operating expenses of procurement organizations.
Mak.-elev.prom. 20 no.8:7-10 Ag '54. (MLRA 7:9)
(Grain trade--Accounting)

GORBUTOVICH, G.D.; MEKLER, Z.M.; NIKONOV, Ye.A.

Ridging drainage blocks of milled-peat fields. Torf.prom.33 no.2:11-12 '56. (MLRA 9:6)

1.Maniyevskaye torfopredpriyatiye.
(Peat industry)