30020
S/020/61/141/001/001/021

Stability in the case of a neutral ... C111/C222

There are 2 Soviet-bloc references.

PRESENTED: June 2, 1961, by M. V. Keldysh, Academician

SUBMITTED: May 23, 1961

Card 4/4

MOLCHANOV, A.M. (Moscow)

"On non-linear stability".

report presented at the 2nd All-Union Congress on Theoretical and Applied
Mechanics, Moscow, 29 Jan - 5 Feb 64.

L 37637-66   EWT(1)/EWP(m)/T   GW

ACC NR: AP6015603   SOURCE CODE: UR/0020/66/168/002/0284/0287

AUTHOR: Molchanov, A. M. 49

                                                                          B
ORG: none

TITLE: Resonances in multifrequency oscillations

SOURCE: AN SSSR. Doklady, v. 168, no. 2, 1966, 284-287

TOPIC TAGS: planetary orbit, planetary satellite, oscillation, parameter, vector

ABSTRACT: Multifrequency oscillations of the following form are studied:

$$\frac{dI}{dt} = \varepsilon F(I, \varphi, \varepsilon),$$

$$\frac{d\varphi}{dt} = \omega(I) + \varepsilon \Omega(I, \varphi, \varepsilon),$$

where ε is a small parameter; $I = (I_1, \ldots, I_k)$ are slow variables; and $\varphi = (\varphi_1, \ldots, \varphi_\ell)$ are fast (phase) variables. The concepts introduced are illustrated by the example of resonances in the solar system. In space I of slow variables, the overwhelming part of the points are points that do not lie on any of the resonance surfaces

$$(n, \omega) = n_1 \omega_1(I) + \ldots + n_\ell \omega_\ell(I) = 0 .$$

If the integral vectors $n_1, \ldots, n_s$ are linearly independent, then there exists an

Card 1/2   UDC: 517.9+523.2+534.1

L 37637-66

ACC NR: AP6015603

O

integral biorthogonal system $a_1, \ldots, a_s; b_1, \ldots, b_s$ such that the vectors $n_1, \ldots, n_s$ are obtained from the vectors $a_1, \ldots, a_s$ by the integral triangular transformation

$$n_1 = T_{11}a_1,$$
$$n_2 = T_{21}a_1 + T_{22}a_2,$$
$$\cdots \cdots \cdots \cdots \cdots \cdots$$
$$n_s = T_{s1}a_1 + T_{s2}a_2 + \ldots + T_{ss}a_s.$$

Analysis of the resonances of the planets and their satellites leads to the following conclusions: 1) the rule of maximum resonance as applied to all satellite systems and to the planetary system is that the number of resonance relations is equal to one less than the number of phases; 2) systems with a small number of members are fairly homogeneous; 3) the system of Saturn and its satellites shows a clear tendency toward the creation of a heterogeneous structure. This paper was presented by Academician M. V. Keldysh on 26 August 1965. Orig. art. has: 8 formulas and 1 table.

SUB CODE: 03,12/ SUBM DATE: 26Aug65/ ORIG REF: 007

Card 2/2   vmb

1. MOLCHANOV, A.N.

2. USSR (600)

4. Social Sciences

7. Accounting on a commerćial basis in construction and bank control. Moskva,
   Gosfinizdat.1952

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

MOLCHANOV, Aleksandr Nikolayevich: DUKEL'SKIY, D., otv.red.;
PAVPEROV, V., red.izd-va; LEBEDEV, A., tekhn.red.

    [Bank control in construction] Bankovskii kontrol' v stroi-
tel'stve. Moskva, Gosfinizdat, 1960. 76 p.   (MIRA 13:10)
    (Banks and banking) (Construction industry--Finance)

MOLCHANOV, A.N., referent; MOLCHANOV, N.G.

Modelling of temperature distribution in a blast furnace hearth
(From; "Journal of Iron and Steel Institute" no. 1, 1955). Stal'
16 no.1:82-83 '56.   (MLRA 9:5)
        (Great Britain--Blast furnaces) (Heat--Transmission)

MOLCHANOV, A.N.

Flexure of plates reinforced by end stiffeners. Sudostroenie
28 no.8:11-14 Ag '62.   (MIRA 15:8)
                      (Hulls (Naval architecture))

LEONIDOV, N.K.; MOLCHANOV, A.N.

Determining the size of runners for pig iron and slag.
Stal' 24 no.1:18-21 Ja '64.   (MIRA 17:2)

1. Gosudarstvennyy soyuznyy institut po proyektirovaniyu
metallurgicheskikh zavodov.

MOLCHANOV, A.P.

Heavy infestation of ascarids in a child. Zdrav.Belor. 5
(MIRA 12:9)
no.7:63-64 Jl '59.

1. Iz kurenetskoy sel'skoy bol'nitsy (glavnyy vrach O.A.
Bolkovskaya) Molodechnenskoy oblasti.
(ASCARIDS AND ASCARIASIS)

MOLCHANOV, A. P.

USSR/Engineering - Fuel swirl caps

Card   1/1   :   Pub. 12 - 8/16

Authors   :   Malshkin, O. M.; Molchanov, A. P.; and Shchurov, S. A.

Title   :   Fuel swirl caps of a new design, for combustion chambers of the D-35 engine

Periodical   :   Avt. trakt. prom. 8, 24-25, Aug 1954

Abstract   :   A description is presented of a new type of fuel swirl cap designed by the Scientific Automotive Institute, and produced by the Lipetsk Tractor Factory. Diagrams depicting the above mentioned component are presented, together with tables giving technical specifications.

Institution :   ......   Sci. Automotive Inst.

Submitted   :   ......

MOLCHANOV, A. P.

MOLCHANOV, A. P.: "Transitory processes in certain systems of frequency discriminators." Min Higher Education USSR. Leningrad Electrical Engineering Inst imeni V. I. Ul'yanov (Lenin). Leningrad, 1956. (Dissertation for the Degree of Candidate in Technical Science).

Source: Knizhnaya letopis'   No. 28   1956   Moscow

MOLCHANOV, A.P.; FROLOV, G.L.

Narrow-band amplifiers with vibration galvanometers. Prib.
i tekh. eksp. no.1:89-90 Jl-Ag '56.   (MLRA 10:2)

(Amplifiers, Electron-tube)

53. D. A. BOGUSLAVTSEV, A. P. MILCHANOV, P. V. OLIANIUK, L. M. PONOMARENKO:
Investigation of antenna installations according to cosmic sources of
radioemission with finite dimensions (Leningrad Univ.)   P. 873
Abstract: The possibility is considered of using the sources of cosmic
radio emission to investigate the directivity patterns of antennas. The
possibility is shown of using solar and lunar radio emission (without taking
their dimensions into account) to measure parabolic antennas with a principal
beam width of 3.7° with less than 1% error. The values of principal
beamwidth broadening are found for antennas with narrower characteristics

RADIOTEKHNIKA I ELEKTRONIKA, Vol 1, Nr 6, 1956, p 873

MOLCHANOV, A. P., CHING FANG YUNG, KOROLKOV, D. V., WANG SHOU GUAN, MIRZABEKYAN, E. G. and SALOMONOVICH, A. E.

"Preliminary Results of Radioastronomical Observations of Annular Solar Eclipse, April 19, 1958"

paper presented at Symposium on Radio Astronomy, Paris, 30 Jul - 6 Aug 1958.

SOV/58-59-9-21044

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 9, p 234 (USSR)

AUTHORS: Molchanov, A.P., Gyunninen, E.M., Mel'nikov, A.V., Molchanov, Al.P.,
                Myasnikov, L.L., Rysakov, V.N., Skripov, F.I., Filippov, M.M.

TITLE: Results of the Observations of the Solar Eclipses of 1952 and 1954 at
                a Wavelength of 3.2 cm

PERIODICAL: V sb.: Polnyye solnechn. zatmeniya 25 fevr. 1952 g. i 30 iyunya 1954 g.
                Moscow, AN SSSR, 1958, pp 331 - 332

ABSTRACT: The authors give the results of the radio observations of the solar
                eclipses of 25 Feb. 1952 and 30 June 1954. The residual intensities
                of the sun's radio emission amount to $< 4\%$ and 0.98% respectively.

Card 1/1

moLchanov, A.P.

S/035/60/000/01/04/008

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 1, p. 49, # 386

AUTHOR: Molchanov, A. P.

TITLE: Distribution of Radio-Brightness over the Sun's Disk From Observations of Total Solar Eclipses at the 3.2-cm Wavelength.

PERIODICAL: V sb.: Polnyye solnechn. zatmeniya 25 fevr. 1952 i 30 iyunya 1954, Moscow, AN SSSR, 1958, pp. 333-335

TEXT: An attempt was made to obtain the distribution of radio-brightness over the Sun's disk on the basis of observations of several eclipses at the 3.2-cm wavelength. It is pointed out that observations of different years at longer wavelengths could not have been utilized, since the state of the corona changes considerably with time. The brightness distribution presented is similar to the distribution obtained by Alon, Arsak and Steynberg in Nancy by means of an interferometer. A possible error of the calculated radio-brightness distribution is estimated. There are 5 references.

                                                N. S. S.

Card 1/1   V/B

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 4, p 232 (USSR)

SOV/58-59-4-8976

AUTHORS: Veysig, G.S., Kushnir, V.F., Molchanov, A.P.

TITLE: Results of Observations of Shift of the Effective Center of Solar Radio Emission at a Wavelength of 3.2 cm

PERIODICAL: Solnechnyye Dannyye, 1958, Nr 1 - 2, pp 108 - 110

ABSTRACT: The authors submit curves showing the results of measurements of the shift of the effective center of solar radio emission at a wavelength of 3.2 cm for the period December 4, 1956 - July 30, 1957. The observations were carried out with the 4-m paraboloid (Main Astronomical Observatory). Measurement errors did not exceed $\pm$ 1'.

Card 1/1

69859

SOV/35-59-9-7128

C. 1540

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 42 (USSR)

AUTHORS: LuYan, Molchanov, A.P., Petrova, N.G., Skripcv, F.I.

TITLE: The Observation of an Annular Eclipse of the Sun on April 19, 1958, at the 4.5 cm Wavelength

PERIODICAL: Solnechnyye dannyye, 1958 (1959), Nr 8, pp 70 - 72

ABSTRACT: There is a citation of the photometric curve of the eclipse and the results of its analysis. The local source connected with the group of spots Nr 188 which were observed on the disk the day of the eclipse, produced an increase in the emission by approximately 14% in comparison with the emission from the quiet Sun. The area of the source, if one is to judge by the moments of its being covered by the eclipse and uncovered again, is near to the area of the visible group. The brightness temperature related to this area amounts to $\sim 1.9 \cdot 10^6$ degree K. Two possible explanations are put forward as to the origin of another local source discovered from the anomaly of the shape of the curve, and which is not related to the visible groups of spots. In one of the explanations the source is connected to an active region located at a height of $0.08\ R_0 < h < 0.25\ R_0$ (R_0 is

Card 1/2.

69859
SOV/35-59-9-7128

The Observation of an Annular Eclipse of the Sun on April 19, 1958, at the 4.5 cm Wavelength

the radius of the photosphere) above a group of spots occurring on the day of the eclipse behind the disk. In another explanation, suggested by N.S. Soboleva and V.N. Ikhsanova, the local source is connected with the Nr. 147 group of spots, existent in the preceding rotation of the Sun; in the place of this group on the day of the eclipse, an enhanced brightness of the coronal line at λ 5303 was observed. The processing of the section of the eclipse curve in the vicinity of the maximum phase has shown the presence of a bright limb contributing $\sim 6\%$ to the total amount of the radio emission. With the width of the limb being 0.06 R_o its brightness must exceed the mean radio brightness of the disk by 60%.

A.Ye. Salomonovich

Card 2/2

AUTHORS: Molchanov, A. P.,   Chen Fan-yun   SOV/30-58-9-14/51

TITLE: Annular Eclipse of the Sun (Kol'tseobraznoye zatmeniye
              solntsa) Joint Expedition of Soviet and Chinese Scientists
              (Sovmestnaya ekspeditsiya sovetskikh i kitayskikh uchenykh)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 9, pp. 66-69 (USSR)

ABSTRACT: The eclipse of the sun took place on April 19, 1958. 22 ex-
              perts from the Soviet Union and 31 from China took part in
              the observations. The expedition was led by A. P. Molchanov
              from the AS USSR and by Chen Fan-yun from the AS of the Chinese
              People's Republic (KNR). For securing the execution of the
              expedition's work a special committee was formed under
              U Yuy-syun, Vice-President of the AS of the Chinese People's
              Republic. In the USSR the organization of the expedition was
              directed by A. A. Mikhaylov, Chairman of the Astronomicheskiy
              sovet (Astronomical Council).

              Radioastronomical Observations (Radioastronomicheskiye
              nablyudeniya)

Card 1/3   The expedition was equipped with 7 radiotelescopes. The obser-

Annular Eclipse of the Sun. Joint Expedition of Soviet and   SOV/3o-58-9-14/51
Chinese Scientists

vations were carried out in a wide frequency range. The opera-
tion plan was elaborated under S. E. Khaykin, Chairman of the
Kommissiya po radioastronomii Astronomicheskogo soveta Akade-
mii nauk SSSR (Commission for Radioastronomy of the Astronomi-
cal Council of the AS USSR). Groups of collaborators of the
Glavnaya astronomicheskaya observatoriya (Main Astronomical
Observatory) under A. P. Molchanov, D. V. Korol'kov, of the
Fizicheskiy institut im. P. N. Lebedeva (Physics   Institute
imeni P. N. Lebedev) under A. Ye. Salomonovich and of the
Byurakanskaya observatoriya Akademii nauk Armyanskoy SSR
(Byurakan Observatory ?' of the AS Armyanskaya SSR) under
E. G. Mirzabekyan participated in the expedition. Nearly all
the equipment was of original design.For the disposition of
equipment for wave lengths of less than 3 cm the district of
the city of San'ya (isle of Khaynan') was chosen. The ob-
servations were successfully carried out in the wave range
of 0,8 to 5,1 cm by all types of equipment. It will not be
possible to estimate the final results until the analysis
of the measured values has been carried out. But it can al-
ready be concluded that there is a dazzling limbus on the sun.
The results of a provisional evaluation were discussed in a

Card 2/3

Annular Eclipse of the Sun. Joint Expedition of Soviet   SOV/30-58-9-14/r
and Chinese Scientists

seminar, which lasted for three days and was organized by
the AS of the Chinese People's Republic in Peking. The re-
sults of the observations were reported to the branches of
the AS in Guan'chzhou, Shanghai, Nanking and at a meeting of
the **Presidium**   of the Academy in Peking. Pre-
vious to the observation work, in Peking courses were held
   general problems of the astrophysics and radioastronomy
and practical training was given in the place of observation.
There are 2 figures.

Card 3/3

AUTHORS: Vyatkina, V. M., Ivanova, Z. A.,   SOV/108-13-10-7/13
                Molchanov, A. P.

TITLE: Phase Discriminator (Fazovyy diskriminator)

ABSTRACT: One of the principal requirements placed upon phase-
                      discriminators is stability of balancing. A
                circuit is investigated which according to assertions
                by the author, exhibits a high stability. Formulae for
                the computation of a high balancing stability phase-
                      discriminator are deduced. The discriminator
                characteristic and the stability of this circuit are
                compared with a bridge circuit with the same parameters.
                For this purpose the bridge circuit is investigated in a
                similar manner with a trapezoidal test signal. The phase
                discriminator is investigated experimentally, the results
                of this work being presented in this paper. There are
                11 figures and 3 references, 2 of which are Soviet.

83440
S/035/60/000/007/007/008
A001/A001

3.1720

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 7,
pp. 53-54, # 6276

AUTHOR: Molchanov, A.P.

TITLE: On the Possibility of Forecasting Appearances of Some Sunspots From
            Radioastronomical Observations (Preliminary Information)

PERIODICAL: Solnechnyye dannyye, 1959, No. 4, pp. 82-83

TEXT: The author holds it for possible to forecast the appearance of optical-
ly visible sunspots from the observations of the shifts of the effective center
of solar radio-frequency radiation. The given method is based on the results of
visual and radio-observations at a wavelength of $\lambda = 3.2$ cm, carried out by the
Glavnaya astronomicheskaya observatoriya AN SSSR (Main Astronomical Observatory
AS USSR) at Pulkovo since December 1956. The method of correlations obtained is
described in detail. Twenty forecasts for groups with the area $S_p \nmid 200$ were
made in the time from December 4, 1956, to March 23, 1957, during which the shifts
of the emission effective center exceeded considerably the errors of measurements.
The number of correct forecasts amounted to 75%, the number of the groups forecast

Card 1/2

83440
S/035/60/000/007/007/008
A001/A001

On the Possibility of Forecasting Appearances of Some Sunspots From Radio-
astronomical Observations (Preliminary Information)

to 95%. The forecasting of groups emerged with $S_p > 100$ yielded 95% correct
forecasts and 70% of the correctly predicted number of groups. The instants of
sunspot appearances were predicted, by approximate estimates, 1.5^d in advance,
not earlier. The author holds that regular forecasting of the appearance of
some sunspot groups is possible, provided the frequency of radio-observations
and their accuracy are increased. This will aid in estimating the area occupied
by radio-emitting formations or their altitude over the opaque, for a given wave-
length range, level of the solar atmosphere (from the magnitude of advance fore-
casting). It is also possible that the area of the group near the Sun's disk edge
will be determined more precisely from the magnitude of the shift of the emission
effective center.

T.V. Krat

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

3,1720 (1041, 1126, 1127)
6,9417

20979
S/058/61/000/004/034/042
A001/A101

AUTHOR: Molchanov, A.P.

TITLE: Increase of radio brightness at the solar disk edge at 3.2-cm wave-
               length

PERIODICAL: Referativnyy zhurnal. Fizika, no 4, 1961, 415-416, abstract 4Zh592
               ("Solnechnyye dannyye", 1960, no 3, 68 - 69)

TEXT: The author estimates radial distribution of relative brightness
temperature of the Sun I (η) at the wavelength λ = 3.2-cm from the magnitudes of
relative residues of fluxes F_{res}; the latter were measured during observations
of eclipses in various years at the instants of coincidences of the lunar and so-
lar centers: $I(\eta) = \Delta F_{res} / \Delta S_{res}$, where η is ratio of visible radii of the
Moon and the Sun, S_{res} is uncovered area of the radio disk; ΔF_{res} and ΔS_{res} are
differences of respective quantities at different $\Delta \eta$. The processing of obser-
vation data from eclipses of 1950, 1951, 1954 and 1958 leads to the value of radio
diameter equal to 1.035 R $\odot$. The presence of brightness increase at the solar
limb, obtained by this method, agrees with the data of interferometric observa-
tions (RZhFiz, 1964, no 3, 3013).   A.S.
[Abstracter's note: Complete translation.]

Card 1/1

23939
S/035/61/000/006/022/044
A001/A101

3,1720

AUTHORS: Wang Shou-kuan, Kuo Jou-hsun, Dravskikh, A.F., Kushnir, V.F., Mol-
chanov, A.P., Tavastsherna, K.N., Wu Huai-wei, Huang Wei-k'ung,
Ch'en Fang-yun, Yang Chien

TITLE: Observations of the annular eclipse of the Sun on April 19, 1958,
at the 3.2-cm wavelength

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 6, 1961, 44, ab-
stract 6A378 ("Solnechnyye dannyye", 1960, no. 4, 69-72)

TEXT: The results of observations of the eclipse at the 3.2-cm wavelength
are presented. During the eclipse the radio emission flux was measured, the posi-
tion of the radio emission effective center was determined, and deviation of radio
brightness distribution over the solar disk from circular symmetry was measured.
As a result of processing the observational data the following results were ob-
tained: residual flux at the instant of maximum phase amounted to 23% of the flux
from the quiet Sun; the flux from sunspot group no. 188 was equal to 6% of the
flux from a source located at the edge of the disk 4% (?). The brightness tempera-
ture of a sunspot group was 1.7×10^{6} K; effective temperature of the quiet Sun

Card 1/2

Observations of the annular eclipse

23939
S/C35/61/000/006/022/044
A001/A101

was 21×10^{3o}K. The source at the edge of the solar disk was identified, by measuring the shift of the radio emission effective center, with group no. 147 which was a source of strong radio emission during the preceding rotation of the Sun. Ellipticity turned out to be less than 1.1.

N. Scholeva

[Abstracter's note: Complete translation]

Card 2/2

20980

3,1720 (1641, 1126, 1127)   S/058/61/000/004/035/042
6.9417   A001/A101

AUTHOR: Molchanov, A.P.

TITLE: The spectrum of a local radio emission source on the Sun

PERIODICAL: Referativnyy zhurnal. Fizika, no 4, 1961, 416, abstract 4Zh593
             ("Solnechnyye dannyye", 1960, no 4, 72 - 75)

TEXT: The author discusses the results of measurements, at different
wavelengths, of the flux from a local source related to sunspot group No. 188,
which were conducted during the solar eclipse of April 19, 1958, by the joint
Soviet-Chinese expedition (RZhFiz, 1961, 1Zh520) and in Japan (RZhFiz, 1960, no 6,
15084). Using the obtained data of relative fluxes and considering the data on
the fluxes from the quiet Sun in the observation day, the author plots the abso-
lute spectrum of the local source having a peak at the wavelength of $\sim$6 cm. The
conclusion is drawn that the source observed can not be considered as thin one
also at λ = 3.2 cm, which agrees with the high value of the source effective tem-
perature ($\sim$1.7 x 10^{6}°K). Hence the conclusion is drawn on the possible directi-
vity of emission from sources already at λ = 3.2 cm. The spectrum obtained is com-
pared with that following from the Waldmeier model.   A.S.
[Abstracter's note: Complete translation.]

Card 1/1

20982

3.1720 (1041, 1126, 1127)
6.9417

AUTHORS: Molchanov, A.P., Dagkesamanskiy, R.D.

TITLE: Dependence of radio emission flux from local sources on their
              position on the solar disk

TEXT: The authors present the result of processing various observations
of the solar radio emission at the 50 - 3.2-cm wavelengths; these observations
were carried out in order to clear up the question, whether there is dependence
of relative fluxes from local sources $i(\theta) = F_u(\theta)/F_u(0)$ on the distance of the
source from the disk center. Various methods of processing were employed, among
which were the following: 1) correlation of the observed displacements of the
radio emission gravity center with instants of sunspot groups; 2) observations
of fluxes from individual sources by means of unilateral directional radiotele-
scopes; 3) measuring mean fluxes in days during which sunspot groups concentrat-
ed either in the central part of the disk or in its peripheral part. The presence

Card 1/2

20982

Dapendence of radio emission flux ...   S/058/61/000/004/037/042
                                                     A001/A101

of dependence i(θ) was proved for λ = 10 cm (on the basis of displacements of
radio emission gravity center and correlation diagrams for various rings on the
solar disk), as well as for λ = 3.2 cm. The dependence i(θ) for wavelengths 3.2,
8 and 15 cm proved to the approximately the same and close to cos θ, although in
the case of 3.2 cm the relation is somewhat less pronounced. There are 11
references.

                                                     A. S.

[Abstracter's note: Complete translation.]

Card 2/2

37945
S/035/62/000/005/040/098
A055/A101

3,1540

AUTHOR: Molchanov, A. P.

TITLE: On the mutual correspondence of the results of radio astronomical
            and optical observations of the chromosphere

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 43,
            abstract 5A332 ("Solnechnyye dannyye", 1960, (1961), no. 11, 64-66)

TEXT: The author estimates the density of hydrogen filaments, at which the
refraction index on the 0.8-cm wavelength becomes zero and the filament proves
to be a reflector. It is pointed out that the density $2 \cdot 10^{13}$ cm^{-3} is alto-
gether real, and that it is possible to obtain a good agreement between the radio
astronomical data and the optical ones. There are 9 references.

                                              N. S.

[Abstracter's note: Complete translation]

Card 1/1

85991

S/141/60/003/004/017/019

E032/E514

6.9417

AUTHOR: Molchanov, A. P.

TITLE: A Method for Measuring the Flux of Radio Emission Due to the Moon and the Sun

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol.3, No.4, pp.722-723

TEXT: Absolute measurements of the flux of radio emission due to the Moon and the Sun are complicated by calibration difficulties. The use of an absorbing surface to obtain a calibration point (Whitenhurst, Mitchell and Copeland, Ref.2) simplifies the measurements to some extent but it is still necessary to determine independently the equivalent solid angle of the main lobe of the receiving antenna Ω_a. Further simplification of the measurement of radio fluxes involves the introduction of two calibration points obtained with the aid of a plane mirror. This mirror should have angular dimensions Ω_0 equal to the dimensions of the measured source Ω_s, and alternately reflects into the antenna of the radio telescope to be calibrated, the radiation in the direction of the zenith (T_z) and the radiation from a black surface at the temperature of the surrounding air T_{air}. Under these conditions the

Card 1/5

S/141/60/003/004/017/019
E032/E514

A Method for Measuring the Flux of Radio Emission Due to the Moon
and the Sun

calibration of the radio telescope consists in measuring the
radiation in the direction of the zenith, i.e.

$$T_{al} = T_z \alpha + T_\ell + T_{atm} (1 - \alpha)$$

and then the radiation from the black body

$$T_{a2} = T_{air} \beta\alpha + T_\ell + T_{atm} (1 - \alpha)$$

In these expressions T_{a1} is the temperature of the antenna,
T_ℓ is the temperature of the radiation entering through the side
lobes of the antenna, T_{atm} is the temperature of the radiation due
to the Earth's surface, α is a coefficient which accounts for the
dimensions of the main lobe of the receiving antenna and diffraction
effects at the mirror, and β is a coefficient describing the
"quality" of the black body. During the calibration, the receiving
antenna is fixed and after rotation of the mirror one has

$$T_{a2} - T_{al} = \alpha (T_{air}\beta - T_z) = k(d_2 - d_1) \qquad (1)$$

Card 2/5

85991

S/141/60/003/004/017/019
E032/E514

A Method for Measuring the Flux of Radio Emission Due to the Moon
and the Sun

where d_i is the deflection of the pointer of the recording instru-
ment and k is a constant for the particular radio telescope. The
process of measurement consists of two stages, namely, (I) the
determination of the temperature of the antenna with the telescope
pointed at the source, in which case

$$T_{a3} = T_s \alpha^* \gamma + T_\ell^* + T_{atm}^*$$

where γ is a coefficient describing the absorption in the Earth's
atmosphere, and (2) the determination of the temperature of the
antenna in the absence of the source, in which case

$$T_{a4} = T_\ell^* + T_{atm}^*.$$

Since the position of the antenna during the actual measurement
differs from its position during the calibration process, the
quantities which are liable to change due to this effect are
indicated by an asterisk. From the above equations one finds that

Card 3/5

85991

S/141/60/003/004/017/019
E032/E514

A Method for Measuring the Flux of Radio Emission Due to the Moon
and the Sun

$$T_s \gamma = \left[(d_3 - d_4)/(d_2 - d_1) \right] (\alpha/\alpha^*)(T_{air}^{\beta} - T_z) \qquad (3)$$

In the centimetre range this formula can be simplified to read

$$T_s \gamma \approx \left[(d_3 - d_4)/d_2 - d_1) \right] (\alpha/\alpha^*)(T_{air}^{\beta}) \qquad (5)$$

If the above formula is used to determine the radio flux due to the
Moon, the solid angles of the source and the mirror should be chosen
to be equal and the mirror should be located so that α/α^* is close
to unity. If this is not possible α/α^* can be determined empirically,
using the above method of calibration, for a number of distances
between the antenna and the mirror, and assuming that α/α^* tends
asymptotically to unity. The low temperatures of the antenna in
such measurements can be accurately determined with the aid of
molecular amplifiers, which are already being used in radio astronomy
(Giordmaine et al., Ref.3). Calibration carried out in accordance
with the above method can easily be repeated under different

Card 4/5

85991
S/141/60/003/004/017/019
E032/E514

A Method for Measuring the Flux of Radio Emission Due to the Moon
and the Sun

conditions. Acknowledgments are expressed to S. E. Khaykin and
V. S. Troitskiy for valuable discussions.   There are 5 references:
3 Soviet and 2 English.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR
               (Main Astronomical Observatory AS USSR)

SUBMITTED: April 4, 1960

Card 5/5

S/058/61/000/002/012/018
A001/A001

3,1720

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 2, p. 404, # 2Zh506

AUTHOR: Molchanov, A.P.

TITLE: Observations of Displacements of the Gravity Center of Solar Radio
               Emission at the Main Astronomical Observatory

PERIODICAL: "Izv. Gl. astron. observ. v Pulkove", 1960, Vol. 21, No. 5, pp.
               114 - 127 (Engl summary)

√B

TEXT: The author considers the method of observing solar radio emission
using the swinging of the antenna diagram. He derives quantitative relations as-
sociating observational results with the source distribution over the Sun and the
location of gravity center of its radio emission. Preliminary results of observa-
tions of ellipticity in solar radio emission are presented, as well as associa-
tions of displacements of the radio emission gravity center with instants of the
sunspots. The author describes observations of emission sources during an annular
eclipse and makes an attempt of forecasting the rising of sunspots on the basis of
observations of displacements of the radio emission gravity center.
Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

MOLCHANOV, Andrey Pavlovich; LUK'YANOV, A.A., tekhn. red.

[Course on radio and electric engineering] Kurs elektrotekhniki i
radiotekhniki. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961.
504 p.   (MIRA 14:6)
          (Electric engineering)   (Radio)

37943
S/035/62/000/005/038/098
A055/A101

3.1720

AUTHORS: Molchanov, A. P., Kaydanovskiy, N. L., Peterova, N. G.

TITLE: Observations of local sources of solar radio emission with the aid
              of the great radio telescope of the GAO (Main Astronomical Observa-
              tory), on the 2.3-cm wavelength

PERIODICAL: Referativnyy zhurnal, Astronomiye i Geodeziya, no. 5, 1962, 42,
              abstract 5A327 ("Solnechnyye dannyye", 1961, no. 3, 68-69)

TEXT: The authors reproduce the preliminary results of the processing of
15 recordings of solar radio emission on the 2.3 cm wavelength, obtained with the
aid of the great radio telescope of the Main Astronomical Observatory, the Academy
of Sciences of the USSR (width of the main lobe of the diagram 1!8). The
dimensions of the observed sources do not exceed the distance between the outer
edges of the nuclei of the remotest spots in the corresponding group. The height
of the sources over the photosphere was (0.06 ± 0.02) R$\odot$ for the source linked
with the group no. 594, and did not exceed 0.07 R$\odot$ for the groups nos. 596, 597.
The flux of the radio emission from the sources did not vary considerably when
the sources moved from the edge of the solar disk towards its center.
                                                      I. Gosachinskiy
[Abstracter's note: Complete translation]

Card 1/1

S/035/62/000/006/010/C64
A001/A101

AUTHORS: Molchanov, A. P.. Korol'kov, D. V.

TITLE: Radioastronomical observations of the solar eclipse of February 15,
             1961, carried out by the Main Astronomical Observatory

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 6, 1962, 43,
             abstract 6A335 ("Solnechnyye dannyye", 1961, no. 4, 62-64)

TEXT: The authors describe the program and the main results of radio-
astronomical observations of the solar eclipse of February 15, 1961. Observations
were carried out with seven telescopes of 2-4 m in diameter at wavelengths 2 - 21
cm, as well as with the Pulkovo great radiotelescope at wavelengths 3 and 8 cm.
The following data were recorded during the eclipse: total flux, circularly-
polarized flux, displacement of the gravity center of solar radio emission, and
ellipticity of its disk. One of the main results of observations is determina-
tion of angular dimensions of a local source related to sunspots (group No. 41)
in the wide range of wavelengths. There are 7 references.
                                                      N. Soboleva

[Abstracter's note: Complete translation]

Card 1/1

S/169/62/000/007/131/149
D228/D307

AUTHORS: Molchanov, A. P. and Petrova, N. G.

TITLE: Results of observations of the solar eclipse of 15
                February 1961 on the wave 4.5 cm

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 8-9, ab-
                stract 7G55 (Solnechnyye dannyye, no. 12, 1961 (1962),
                55-57)

/‾Abstracter's note: Complete translation._7

Card 1/1

33211

S/141/61/004/005/017/021
E032/E114

3, 1700

AUTHORS: Molchanov, A. P., and Gremyachenskiy, S.S.

TITLE: On the use of radiation pattern scanning in some radio astronomical observations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.5, 1961, 972-975

TEXT: The scanning of the directional diagram of the antenna of a radio telescope provides additional information about the source of radiation and is currently used in radio astronomical observations. The present authors report some quantitative relationships which are necessary for the efficient use of the method. Thus, the power of the received signal is expanded into a Fourier series and formulae are derived for the expansion coefficients. Results are then re-expressed in a graphical form which is convenient for practical applications. There are 4 figures and 1 Soviet-bloc reference.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR (Main Astronomical Observatory, AS USSR)

Card 1/1

SUBMITTED: December 31, 1960.

MOLCHANOV, A.P.

Effect of a voltage with stepwise varying phase and frequency
on a tuned amplifier. Radiotekhnika 16 no.4:22-26 Ap '61.
                                                    (MIRA 14:9)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva
radiotekhniki i elektrosvyazi im. A.S. Popova.
                    (Amplifiers (Electronics))

30816
S/033/61/038/005/004/015
E133/E435

3,1700

AUTHOR: Molchanov, A.P.

TITLE: The spectrum of local sources of radio emission

PERIODICAL: Astronomicheskiy zhurnal, v.38, no.5, 1961, 849-854

TEXT: At the present time, reliable absolute measures of the
spectra of solar radio sources are not available. The author has
therefore set out to investigate the ratio of the absolute spectrum
to the spectrum of the undisturbed component of the solar
radiation (denoted by $F_{\mu}(\lambda) / F_o(\lambda)$). He uses the observations of
the solar eclipse of April 19, 1958. Russo-Chinese observations
were made at 0.8, 2, 3.2, 4.5 and 5.2 cm (Ref.1:A.P.Molchanov and
his team, Paris Symp. Radio Astr., Stanford univ. press, 1959;
Ref.2: G.B.Gel'freykh and his team, Solnechnyye dannyye, no.5, 1958;
Ref.3: N.A.Amenitskiy and his team, Solnechnyye dannyye, no.7, 1958;
Ref.4: Lu Yan and his team, Solnechnyye dannyye, no.8, 1958;
Ref.5: Pang Shou-Kuan and his team, Solnechnyye dannyye, no.4, 1960)
and Japanese observations were made at 3.2, 8, 15 and 30 cm
(Ref.6: H.Tanaka, T.Kakinuma, Rep. Ionosphere Res. Japan, 12, 273,
1958). The sunspot group No.188 was observed as it was covered
by the Moon. A maximum of the ratio F_{μ}/F_o was observed in the
Card 1/3

The spectrum of local sources ...

region 5 - 6 cm.   Assuming that the radiation is thermal, this maximum can be ascribed to a diminution in transparency of the source. $F_M(\lambda)$ may depend on the distance of the source from the centre of the solar disc.   This dependence is known for $\lambda = 10$ cm (Ref.9: M.Waldmeier, Z. Astrophys., v.32, 116, 1953; Ref.10: M.B.Vanquois, C.R., v.240, 1862, 1955).   A correction for this effect can be derived from routine measurements of the solar radiation flux (Ref.11: I. G. I. data on atmospherics, whistlers and solar radioemissions, Tokyo, 1959).   The dependence on radius does not change much for λ in the range 3 - 15 cm.   Using the data given in Ref.6 (as quoted above) and Ref.12 (A.Ye.Salomonovich and his team, Solnechnyye dannyye, no.9, 83, 1959), Ref.13 (K.M.Strezhneva and his team, Solnechnyye dannyye, no.7, 71, 1958), Ref.14: (J.N.Piddington, Astron. J., v.119, 531, 1954), Ref.15: (B.N.Whitenhurst, F.H.Mitchell, Proc. I.R.E., v.44, 1879, 1956) and Ref.16 (C.W.Allen, Monthly Notices Roy. Astron. Soc., v.117, 174, 1957) for the spectrum of the quiet Sun, it was found that $F_M(\lambda) \neq$ constant.   The relative spectrum was also derived from the measurement of the displacement of the effective centre for solar radio emission (see Ref.18: A.P.Molchanov, Izv. Gl. astron. observ.

Card 2/3

30816
S/033/61/038/005/004/015
The spectrum of local sources ...   EI33/E435

v Pulkove, no.164, 1959). From the observations at 2 and 3.2 cm, it was found that the absolute spectrum did not depend greatly on the wavelength for $\lambda < 3$ cm. A similar result has been obtained in Ref.19 (V.V.Vitkevich, L.I.Matveyenko, Izv. VUZ, Radiofizika, 3, no.3, 351, 1960). The author concludes that, in the range 3 cm $< \lambda < 5$ cm, the radio flux decreases rapidly, but that for $\lambda < 3$ cm the rate of decrease is less. Such a spectrum can only be explained in terms of thermal radiation in a magnetic field. It is estimated that $H > 760$ gauss. The author thanks S.E.Khaykin for his assistance. There are 3 figures and 20 references: 11 Soviet-bloc and 9 non-Soviet-bloc. The four most recent references to English language publications are as follows: Ref.6: as quoted in text; Ref.8: K.Akabane, Annals Tokyo Astron. Observ. Sec. series, VI, no.2, 57, 1958; Ref.11: as quoted in text; Ref.16: as quoted in text.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR (Main Astronomical Observatory AS USSR)

SUBMITTED: July 28, 1960

Card 3/3

MOLCHANOV, A.P., inzh.; NIKULIN, K.K., arkhitekt; SHAMRIKOV, N.I.,
inzh.

    Building a new shop for the Sinarskaya pipe plant. Prom.
stroi. 39 no.8:9-12 '61.   (MIRA 14:9)
                (Sinarskaya--Construction industry)

S/214/62/000/002/001/002
I046/I246

AUTHOR: Molchanov, A. P.

TITLE: Spectra and magnetic fields of local sources observed on the sun during the February 15, 1961 eclipse

PERIODICAL: Solnechnyye dannyye, no. 2, 1962, 53–58

TEXT: Spectra of the radio-frequency emissions were obtained at the GAO AN SSSR (Main Astronomical Observatory of the AS USSR) for the flocullus at the center of the solar disc and for spot groups no. 41 and no. 46 (classification of "Solnechnyye dannyye"). The slowly varying component of the solar radio emission is mainly of thermal origin. Working formulas for the magnetic field at the source and for the "measure of emission" expressed in terms of the spectral quantities show that the concentration of electrons in spots is quite sufficient ($N_e \cong 10^{10}/cm^3$) to produce optical effects. If said effects are not observed, the assumption concerning the thermal origin of radio emission will have to modified for groups of sun spots, taking "bremsstrahlung" and magnetic radiation into account. There is 1 figure and 2 tables.

Card 1/1

33539
S/043/62/000/001/009/009
D299/D303

24.3100 (also 1051, 1163)

AUTHORS: Barsukov, Yu.I., Mandrikov, V.I., Molchanov, A.P., and
               Nagnibeda, V.G.

TITLE: Artificial radiation-source for radiotelescope
               calibration

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya matematiki,
               mekhaniki i astronomii, no. 17, 1, 1962, 166 – 167

TEXT: An artificial radiation-source is described, used by the De-
partment of Astrophysics of Leningrad State University. This "arti-
ficial sun" is characterized by high brightness temperature, almost
equal at all its points, and, when placed in the wave field of the
radiotelescope antenna, it has angular dimensions equal to the di-
mensions of the sun. As radiation source, plasma in gas-discharge
tubes was used. The electron temperature of the plasma attains 10^4 –
10^5 $^{\circ}$K, and the size of the tubes is fairly large. In using only
the radiation from the middle part of the tubes, it is possible to
obtain a source with evenly-distributed brightness. The artificial

Card 1/3

Artificial radiation-source for ...

33539
S/043/62/000/001/009/009
D299/D303

sun incorporated 20 ordinary gas-discharge tubes (of day-light) ДC-30 (DS-30). The tubes were placed in one row, whereby the radiating region formed a rectangle (0.8 x 0.5 m). The source was placed in the wave field of the radiotelescope antenna, at a distance at which its solid angle equalled the solid angle of the sun. The signal from the artificial source was compared, by means of ordinary telescopes, with the signal from the sun, at 2.0, 3.6 and 4.5 cm - waves. It was found that the artificial radiation-flow was 0.15 to 0.20 of the solar radiation. Hence the radiation temperature of the tubes was about 2000 - 4000°K. By putting a screen behind the tubes, the radiation flow was increased by 1.5 times approximately. In the experiments already carried out, the tubes were supplied by altern. current; a d.c. supply would somewhat increase the radiation flow. Hence the use of a screen and direct current, would lead to an effective temperature of up to 4000 - 8000°K approximately. The effective temperature could be further increased by ensuring adequate optical thickness of the irradiating region (by adding tube rows, for example). The artificial sun can be calibrated by means of an absolute black body. It was found (by experiment) that some special

Card 2/3

33539
S/043/62/000/001/009/009
D299/D303

Artificial radiation-source for ...

types of resins are absolute black bodies in the cm-range, having a reflection coefficient below 0.5 %. Another method of calibration consists in using a funnel -- directed towards the zenith -- which is alternately covered by the black body and by the artificial sun. There is 1 Soviet-bloc reference.

SUBMITTED: August 6, 1961

Card 3/3

MOLCHANOV, A.P., inzh.; TITAKOV, A.I., inzh.

Monitor tops over pipe-drawing shops. Prom. stroi. 40 no.3:
16-19 '62.   (MIRA 15:3)
                          (Pipe mills) (Roofs)

MOLCHANOV, A.P., inzh.; NIKULIN, K.P., arkhitektor; TITAKOV, A.I., inzh.

A new type of building for tube-drawing production. Prom. stroi. 40 no.7:16-19 '62. (MIRA 15:7)
(Factories—Design and construction)   (Metalwork)

MOLCHANOV, A.P., inzh.; NIKULIN, K.K., arkhitektor; TITAKOV, A.I., inzh.

Designs for prefabricated buildings of pipe drawing mills.
Sbor. trud. NII po stroi. ASiA [Sverd.] no.8:17-28 '63.
(MIRA 16:10)

MOLCHANOV, A.P., kand.fiz.-matem.nauk; TAVASTSHERNA, K.N., kand.fiz.-matem.-
nauk

Preliminary results of radio observations of the annular eclipse
of the sun. Vest. AN SSSR 33 no.3:98-10p Mr '63.   (MIRA 16:3)
(Eclipses, Solar--1962)

3

L 24525-65   FBD/EWT(l)/EWG(v)/FCC/EWA(d)/EEC-4/EEC(t)_   Po-4/Pe-5/Pq-4/Pae-2/Pt-10/_
Pi-4   SSD(a)/AFWL/SSD(b)/SSD/BSD/RAEM(a)/AFETR/ESD(t)   GW/WS   5/
ACCESSION NR AM4040598   BOOK EXPLOITATION

Vyazanitsyn, V. P.; Gnevyshev, M. N.; Dobrovol'skiy, O. V.; Krat, V. A.; Markov,
A. V.; Molchanov, A. P.; Sobolev, V. N.; Sharonov, V. V.

A course in astrophysics and stellar astronomy. V. 3 (Kurs astrofiziki i zvezdnoy
astronomii. t. 3), Moscow, Izd-vo "Nauka", 1964, 375 p. illus., biblio.,
indices. 2,150 copies printed.

TOPIC TAGS: astrophysics, stellar astronomy

TABLE OF CONTENTS [abridged]:

Card 1/2

L. 24525-65
ACCESSION NR AM4040598

Ch. VIII. Solar service — 164
Ch. IX. Solar radio emission — 176
Part 2. Planet system   12
Ch. X. Moon — 226
Ch. XI. Physics of the planets — 250
Ch. XII. Description of the nature of separate planets — 282
Ch. XIII. Physical properties of small planets — 309
Ch. XIV. Comets, meteors, and zodiacal light — 316
Index of names — 369   12
Subject index — 373

SUB CODE: AA   SUBMITTED: 18Feb64   NR REF SOV: 135

OTHER: 107

Card 2/2

MOLCHANOV, A.P.

Slowly varying component of solar radio emission and its
investigation in the microwave range. Uch. Zap. LGU
no.323:107-124 '64.
(MIRA 17:12)

MOLCHANOV, A.P.; VYATKINA, V.M.

Antenna system for the radio astronomical solar service. Izv.
GAO 23 no.3:162-168 '64.

(MIRA 17:11)

MOLCHANOV, A.P.

Application of the antenna diagram scanning to the observation
of radio emission of the sun. Izv. GAO 23 no.3:215-232 '64.
(MIRA 17:11)

MOLCHANOV, A.P.

Some results of radio-astronomical observations of solar eclipses.
Izv. GAO 24 no.1:38-56 '64.   (MIRA 18:3)

L 12976-65   FBD/EWT(1)/ENG(v)/EEC-4/EEC(t)   Pe-5/Pq-4/Pae-2/Pi-4   GW/WB
                                                 S/0020/64/158/002/0302/0304

ACCESSION NR: AP4045624

AUTHOR: Molchanov, A. P.

TITLE: Determination of the position of regions with rapid changes of the characteristics of the solar atmosphere by radioastronomical observation data

SOURCE: AN SSSR, Doklady*, v. 158, no. 2, 1964, 302-304

TOPIC TAGS: solar radio radius, photospheric radius, second contact, third contact, characteristic radio radius, solar filament

ABSTRACT: The solar radio radius is determined by the time differences between the measured second and third contacts by radioastronomical and optical observations. The ratio of the radio solar radius to the photospheric radius was found to be 1.0085±0.0025 and 1.0068±0.0005 on the 0.86-cm wavelength, and 1.0030±0.004 on the 3.2-cm wavelength. Observations in 1963 showed that the ratios of radii obtained on the wavelengths of 2, 3.2, 4.5 and 10 cm were approximately equal. This result indicates the existence of a characteristic radio radius which is independent of the wavelength. It is caused by cool, dense filaments in layers of the solar atmosphere in which a change of wavelength does not influence the

Card 1/2

L 12976-65
ACCESSION NR: AP4045624

length of the radio radius. Outside these layers the transparency of the solar
atmospheric matter is weakened and the radio radius increases with increased
wavelength. Orig. art. has: 1 figure.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im. A. A. Zhdanova
(Leningrad State University)

SUBMITTED: 27May64   ATD PRESS: 3102   ENCL: 00

SUB CODE: AA   NO REF SOV: 006   OTHER: 005

Card 2/2

L 20596-66   EWT(d)/EWP(1)   IJP(c)   BB/GG

ACC NR: AT6009450   SOURCE CODE: UR/0000/65/000/000/0289/0297

AUTHOR: Molchanov, A. P.; Labutin, V. K.

ORG: Scientific Council on the Complex Problem of Cybernetics AN SSSR (Nauchnyy sovet po kompleksnoy probleme Kibernetika AN SSSR)

TITLE: On the frequency selectivity peaking mechanism of the hearing organ

SOURCE: AN SSSR. Nauchnyy sovet po kobpleksnoy probleme Kibernetika. Bionika (Bionics). Moscow, Izd-vo Nauka, 1965, 289-297

TOPIC TAGS: audition, frequency selection, bioinstrumentation, autonomic nervous system, logic circuit, electronic circuit, dendrite

ABSTRACT: An electronic model simulating frequency selectivity of the ear has been developed by the authors. The model is based on Huggins and Lindlicker's hypothesis (1951) which states that excitation of neuron endings of the ear is proportional to the amplitude distortion of the tympanic membrane, and further processing of signals of the primary neurons is reduced to calculating the derivative from the envelope of amplitude distortions along coordinate X, representing the distance along the membrane from the base of the cochlea. It is assumed that

Card 1/3

L 20596-66

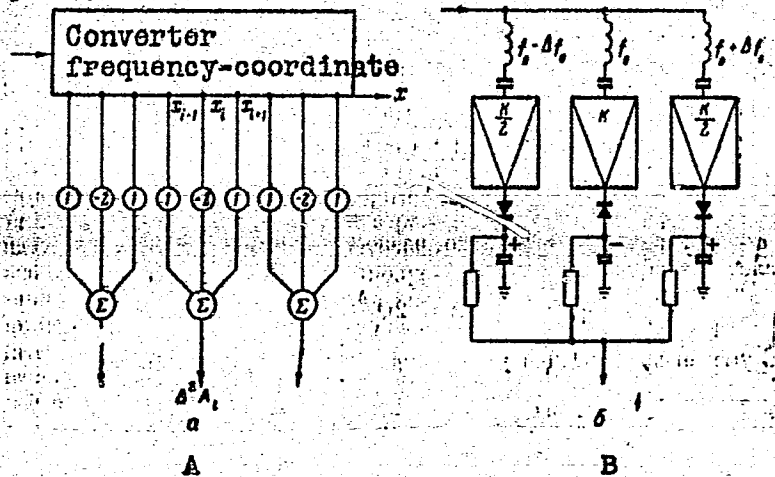ACC NR: AT6009450

Converter
frequency-coordinate

Fig. 3. Structure of a logic apparatus for obtaining a
second derivative (A) and a diagram of an experimental
model simulating selectivity peaking of the basic part
of the membrane (B)

Card 2/3

L 20596-66

ACC NR: AT6009450

differentiation is realized by nerve ending differences. The tympanic membrane is considered a converter that converts a frequency coordinate into a space coordinate. In figure 3a the lines (channels) leading from the converter represent spiral ganglia neuron dendrites; nerve excitation from a set of three dendrites converges on each neuron. The transmission coefficient of the middle channel is two times higher than those of the two adjoining channels and its output sign is opposite (see Fig 3b). The model represents a three channel amplifier with one oscillatory circuit in each channel. A diode detector is connected to each channel output. Detectors with high inertial properties are used to avoid suppression of weak signals by strong signals. A terminal stage based on a cathode follower with pentodes is used to reduce output impedance. Despite the presence of nonlinear elements, the three channel circuit system ensures increased frequency selectivity in the model simulating the tympanic membrane of the ear. Orig. art. has: 9 figures and 8 formulas.

[06]

SUB CODE: 06/ SUBM DATE: 26oct65/ ORIG REF: 001/ OTH REF: 001
ATD PRESS: 4225

Card 3/3 BK

6 c

L 30012-65   FBD/EWT(1)/EWG(v)/EEC-4/EEC(t)   Po-5/Pq-4/Pae-2/Pi-4   GW/WS
ACCESSION NR: AP5005782   S/0043/65/000/001/0102/0109

AUTHOR: Abbasov, A. R.; Grebinskiy, A. S.; Durasova, M. S.; Ivanov, V. A.;
Ignat'yeva, L. M.; Molchanov, A. P.; Myasnikov, V. L.; Pankratov, Ye. I.;
Sukhanov, A. G.; Yudin, O. I.; Yasnov, L. V.

TITLE: Radioastronomic observations on the centimeter wave of the solar eclipse
on 21 July 1963

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i
astronomii, no. 1, 1965, 102-109

TOPIC TAGS: solar eclipse, solar atmosphere, residual radiation, terrestrial at-
mosphere, radio emission, sunspot

ABSTRACT: An expedition went to Simushir Island to observe the time of the second
and third radio contacts of the solar eclipse of 21 July 1963 for detecting the
height of rapid changes in the solar atmosphere during the period of weak solar ac-
tivity and for measuring the residual radiation flux during the period of total
cover of the Sun. The detection of local sources of radio emission from the Sun during
the total eclipse and measurements of the Earth's own atmospheric radiation were also
included in the expedition's task. The solar disk was covered with two groups of

Card 1/2

O

L 30012-65
ACCESSION NR: AP5005782

sunspots, of which one persisted only two days including the day of the eclipse.
The refraction, absorption, and proper radiation of the Earth's atmosphere in-
fluenced observation data. The absorption and atmospheric radiation were specially
measured before and after the eclipse. Strong fluctuations of the solar radio emis-
sion between the first and second contacts were recorded on 3.2- and 10-cm wave-
lengths. The amplitude of fluctuations diminished with the increase of solar height
and did not depend on wavelength. A difference was observed between the optical
and radio contact times. The residual radio emission corrected for absorption in
the terrestrial atmosphere is given in a table in the original article. An emission
of local sources has been recorded on 4-, 5-, and 10-cm waves. The local source
was identified with the spot group which lasted only two days. The height of the
local source was determined to be in a space span from 7000 to 20,000 km above
the solar surface. Orig. art. has: 3 figures, 7 tables, and 4 formulas.   [EG]

ASSOCIATION: none

SUBMITTED: 24Jan64   ENCL: 00   SUB CODE: AA, ES

                               OTHER: 002   ATD PRESS: 3196

NO REF SOV: 004

Card 2/2

L 08372-67   EWT(1)   GW/WS-2

ACC NR: AR6028148

SOURCE CODE: UR/0058/66/000/005/H063/H063

AUTHOR: Apushkinskiy, G. P.; Molchanov, A. P.

TITLE: Radioastronomic observations of the solar eclipse of 30 May 1965 at wavelengths 1.27 and 3.27 cm

SOURCE: Ref. zh. Fizika, Abs. 5Zh451

REF. SOURCE: Solnechnyye dannyye, no. 7, 1965, 61-65

TOPIC TAGS: solar eclipse, radio astronomy, antenna directivity, antenna temperature

ABSTRACT: Results are presented of observations of the total solar eclipse of 30 May 1965 on the Manuae Island ($\phi = -19°15'43''$, $\lambda = -158°57'43''$) at wavelengths 1.27 and 3.27 cm. The ratio of the lunar radius to the solar radius was 1.048. The widths of the lobes of the directivity pattern were 1.2° and 0.8° at 3.27 and 1.27 cm respectively. The effective antenna temperature for the unobscured sun was 1500 and 750K; the width of the recording track was 25 and 5K respectively at these wavelengths. The time constant for recording was approximately 1 second. The ratio radius determined from the observations was (1.010 ± 0.002) solar radii at 1.27 cm and (1.034 ± 0.003) solar radii at 3.27 cm. This has confirmed that at wavelengths shorter than 2 cm the radius decreases from 1.03 to 1.01 solar radius, and in the region of 1.27 cm it apparently is independent of the wavelength, and $r = 1.01$. The existence of

Card 1/2

L 08372-67

A/:C NR: AR6028148

O

two extended cold regions and of a narrow hot region, clearly pronounced at the 3.27 cm wavelength and less clearly at 1.27 cm, is noted. The residual flux from the sun during the total phase was 2.5% ± 1% and less than 0.3% at 3.27 and 1.27 cm, respectively. T. Antonova. [Translation of abstract]

SUB CODE: 03

Card 2/2   nat

ACC NR: AR6029495

SOURCE CODE: UR/0137/66/000/006/D034/D035

AUTHOR: Azarenko, B. S.; Al'shevskiy, L. Ye.; Yermolayev, N. F.; Molchanov, A. P.; Gavrilin, P. M.

TITLE: Study of the tube drawing process on a continuous drawing stand

SOURCE: Ref. zh. Metallurgiya, Abs. 6D238

REF SOURCE: Tr. Vses. n.-i. i proyektno-konstrukt. in-ta metallurg. mashinostr., sb. 15, 1965, 28-41

TOPIC TAGS: metal drawing, metal tube

TRANSLATION: A study was made on the continuous drawing of tube, as carried out on a newly constructed MVTU stand. The drawing capacity of the single-thread, continuous drawing stand at drawing speeds of 50 m/min was 2.8 times greater than that of an operating 7.5 tube chain stand in the Moscow Tube Plant (at speeds of 75 m/min, it was 4.2 times greater). The high productivity of the mill was due to the low friction (less than or equal to 10%) in the auxiliary operation, to the decrease of the metal consumption coefficient during the trimming of plugged up tube ends, and to the use of higher drawing speeds. The drawing speed was not limited by the strength of the tube and could be much higher than 75 m/min. The continuous process permits the elimination of tube annealing after welding, the jamming and cutting of tube ends, and pickl-

UDC: 621.774.001

Card 1/2

ACC NR: AR6029495

ing before a coating application; the processes of rinsing the inside of the tube and straightening after drawing were significantly improved. The continuous drawing mill could be made into an automatic continuously operating line for tube processing, including heat treatment and finishing. The economic advantages of operating the mill are very high productivity, and the elimination of a series of labor consuming preliminary and trimming operations, which decrease the metal output so much in operating chain mills. 8 figures, 5 tables. L. Kochenova.

SUB CODE: 11,13

Card 2/2

PEDANOV, V.V.; REBARBAR, V.M.; MOLCHANOV, A.S.

Continuously operating delay network using RC loops for
automatic sliver thickness control systems of drawing frames.
Izv.vys.ucheb.zav.; tekh.tekst.prom. no.5:130-137 '61.
(MIRA 14:11)

1. Moskovskiy tekstil'nyy institut.
   (Spinning machinery)   (Automatic control)

S/194/62/000/005/022/157
D256/D308

AUTHORS: Gagarskiy, A.P., Molchanov, A.S., and Zavilevich, M.L.

TITLE: Elements of the electrical circuit for automatic
              control of weight irregularities of ribbons

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
              no. 5, 1962, abstract 5-2-101 d (Nauchno-issled. tr.
              Tsentr. n.-i. in-t prom-sti lub. volokon, 1961, 15,
              42-54)

TEXT: A detailed description is given of the elements of an automa-
tic system devised for the weight irregularity control of ribbon on
the Л -1- Л (L-1-L) ribbon machine under development for the spinn-
ing industry at TsNIILV. The operation of the device is based on
changing the speed of the pulling rollers according to the thickness
of the ribbon entering the feeding rollers; consequently the regula-
tor is a servo system. The automatic control system consists of pick-
ups measuring the ribbon thickness, an integrating link, which adds
voltages to the pickup [Abstractor's note: Probably a misprint of
'from the pickups'] delay unit memorizing the signal arriving from
Card 1/2

Elements of the electrical circuit ...   S/194/62/000/005/022/157
D256/D308

the integrator for a period during which the ribbon passes from the point of measurement to the point of extension, an amplifier link, a control motor (rotating the pulling rollers), a feedback coupling link comprising a tacho-generator driven by the control motor. An inductive pickup is used for continuous measuring of the ribbon thickness, consisting of a W-shape transformer core with two secondary windings connected in opposite phase. The delay unit includes a phase shifting arrangement, the phase-shift being proportional to the time of delay. It consists of four R-C links with cathode-followers in between. For the amplification of the signals a DC amplifier with strong negative feedback is employed. The driving motor ПН -5 (PN-5) is used, the velocity pickup is a tachogenerator type ЭТ -7/110 (ET-7/110). Technical specification and detailed calculations of the elements are presented. 13 figures. [Abstractor's note: Complete translation].

Card 2/2

MOLCHANOV, A.S.

GRDINA, Yu.V., doktor tekhnicheskikh nauk, GAYDAROV, Yu.V., kandidat tekh-
nicheskikh nauk: MOLCHANOV, A.S.

Fastening rails on reinforced concrete crane beams. Stroi.prom.34
no.12:23-24 D '56.   (MIRA 10:2)

1. Glavnyy inzhener otdela kapital'nogo stroitel'stva (for Molcha-
nov).
          (Cranes, derricks, etc.)   (Girders)

KHAVKIN, V.P.; MOLCHANOV, A.S.

Transmission functions of the drafter. Report No.2. Izv. vys. ucheb, zav. tekh. tekst. prom. no.6:136-144 '63 (MIRA I&:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut legkogo i tekstil'nogo mashinostroyeniya i Moskovskiy tekstil'nyy institut.

MOLCHANOV, A.S.,zasluzhennyy vrach RSFSR (Moskva)

Ninth All-Union Conference of Therapeutists. Terap.arkh. 30
no.2:73-81 F '58.   (MIRA 11:4)
          (LIVER—DISEASES)

MOLCHANOV, A.S., zasluzhennyy vrach RSFSR.

Minutes of sessions of the Moscow Society of Therapeutists.
Terap.arkh. 30 no.6:96-98 Je '58   (MIRA 11:7)
            (THERAPEUTICS)

MOLCHANOV, A.S., zaslyzhenyy vrach RSFSR (Moskva)

Tenth All-Union Conference of Therapeutists. Terap.arkh. 3o
no.10:83-92 0 '58   (MIRA 11:11)
          (THERAPEUTIC --CONGRESSES)

MOLCHANOV, A.S., zasluzhennyy vrach RSFSR (Moskva)

> First All-Russian Congress of Therapeutists. Terap.arkh. 31 no.4:
> 79-94 Ap '59.   (MIRA 14:5)
>   (THERAPEUTICS—CONGRESSES)

GAGARSKIY, A.P., mladshiy nauchnyy sotrudnik; MOLCHANOV, A.S., mladshiy
       nauchnyy sotrudnik; ZAVILEVICH, M.L.

     Elements of the electric circuit for the automatic control of the
     nonuniformity of the sliver weight. Nauch.-issl.trudy TSNIILV
     15:42-54 '61.   (MIRA 18:4)

     1. Rukovoditel' laboratorii avtomatiki TSentral'nogo nauchno-
     issledovatel'skogo instituta promyshlennosti lubyanykh volokon
     (for Zavilevich).

MOLCHANOV, A.S.; VINTER, Yu.M.; KEY, D.Zh.

Design and construction of the automatic drafting regulators for flax drawing frames. Izv. vys. uchob. zav.; tekh. tekst. prom. no.3:141-147 '62.
(MIRA 17:10)

1. Moskovskiy tekstil'nyy institut i TSentral'nyy nauchno-issledovatel'skiy institut lubyanykh volokon.

MOLCHANOV, A.S.

    Evaluating the quality of controlled drafting mechanisms. Izv.vys.
    ucheb.zav.; tekh.tekst.prom. no.3:118-125 '63.   (MIRA 16:9)

    1. Moskovskiy tekstil'nyy institut.
                    (Spinning machinery)

KHAVKIN, V.P.; MOLCHANOV, A.S., starshiy nauchnyy sotrudnik

Practical method for determining the frequency characteristics of
drafters. Tekst. prom. 24 no.7:46-51 Jl '64.   (MIRA 17:10)

1. Zaveduyushchiy laboratoriyey Vsesoyuznogo nauchno-issledovatel'-
skogo instituta legkogo i tekstil'nogo mashinostroyeniya institut
promyshlennykh lubyanykh volokon (TsNIILV) (for Molchanov).

MOLCHANOV, A.S.; KHAVKIN, V.P.

Transmission functions of the drafter during the local breaking
of fibers. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.3:120-124 '65.
(MIRA 18:8)

1. Moskovskiy tekstil'nyy institut i Vsesoyuznyy nauchno-issledo-
vatel'skiy institut legkogo i tekstil'nogo mashinostroyeniya.

KHAVKIN, V.P.; MOLCHANOV, A.S.

Dynamics of the drafting process in the nonlocal fiber splitting.
Izv. vys. ucheb. zav.; tekh. teks. prom. no.6:99-104 '65.
(MIRA 19:1)

MOLCHANOV, A. V.

"The Technology of Complex and Mixed Fertilizers." N. Ye. Pestov, Nauvh Inst Udobr i Insektofung im Ya. Saomoylov, 1919-1939, pp 59-71 (1939) Khim Referat Zhur 1940, No 6, pp 8809 (Inst. Insect/Fung. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

MOLCHANOV, A. V.

"Mixing of Fertilizers," N. Ye. Pestov, Chemization Socialistic Agr. 1940, No 5, pp 59, Khim R ferat Zhur, 1940, No 10-11, pp 45 (SEE: Inst. Insect/Fungi in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

MOLCHANOV, A. V.

(See Brezobrazov, Yu. N.) "The Physical and Physical-chemical Properties of Fertilizers," N. Ye. Pestov, Nauch Inst Udobr i Insektofung in Ya. V. Samoylov, 1919-1939, pp 62-3, Khim Referat Zhur, 1940, No-, pp 89 (SEE: Inst. Insect/Fung. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

MOLCHANOV, A. V.

"The Angle of Flow or Rest of Fertilizers, either Freely Poured Out or under Pressure,"
N. Ye. Pestov, A. N. Mironova, Zhur Khim Prom XVIII, No 10, pp 19-22 (1941)
(Inst. Insect/Fung. in. Ya. V. Samoylov)

SO: U-237/49, 8 April 1949

Ca

10

Production of technical hexachlorocyclohexane. Yu. N. Bezrobrazov and A. V. Mokhanov. *Khim. Prom.* 1946, No. 10, 9-13.—Tech. hexachlorocyclohexane is defined as the cryst. product obtained by photochem. chlorination of benzene and contg. the several isomers as well as products of side-reactions incident to the process. Continuous production of hexachlorocyclohexane was tried on a lab. scale. C_6H_6 was fed through the top of a column while Cl was supplied through the bottom. The rate of feeding Cl was regulated so as to supply enough for reacting with C_6H_6, but to prevent its escape in the waste gases. H_2O circulated through a coil inside the column kept the temp. at 60-4°. Hexachlorocyclohexane was continuously removed through the bottom at a rate which insured its desired concn. in the drained liquid. The reacting mixt. was irradiated by a 1-kw. lamp. From this column the tapped liquid was diverted to a 2nd column where the benzene was caused to react with the Cl it contained in soln. but not yet reacted. From the 2nd column, the mixt. was directed to an evaporator where unreacted C_6H_6 was driven off in the presence of H_2O. The condensed C_6H_6-H_2O was cooled and sepd., and the C_6H_6 returned to the 1st column. After driving off C_6H_6, the remaining hexachlorocyclohexane of oily consistency was poured into cold H_2O where it was stirred until solidified. The product was filtered, washed to a neutral reaction, and dried at 30-40° 24 hrs. In these expts. approx. 6.85% Cl above the theoretical quantity required for $C_6H_6Cl_6$ was used. Of this approx. 1% is taken to be loss and the rest is charged to the formation of C_6Cl_6. In these expts. the efficiency based on Cl was 90.9 and based on C_6H_6 81.6%.   M. Hoseh

BEZOBRAZOV.,Yu.N.; MOLCHANOV,A.V.

Putting the experimental and production plant "Hexachlorane" into
operation. Khim.prom.no.2:56-57 F'47.   (MLRA 8:12)

1. Nauchnyy Institut po udobreniyem i insektofungisidam imeni Sa-
moylova
        (Chemical plants) (Benzene hexachloride)

MOLCHANOV, A.

"Automatic removal of dust from the dry filter of the DT-54 tractor."

MECHANISACE ZEMEDELSTVI, Praha, Czechoslovakia, Vol. 5, No. 20, October 1955.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.

Unclassified.

GAR, K.A.; MOLCHANOV, A.V.; BEZOBRAZOV, Yu.N.; DUBOVITSKIY, A.M.

Using the ash from Cottrell filters of electric power stations
as filler in preparing dusts. [Trudy] NIUIF no.156:73-89 '55.
(MLRA 9:10)

(Insecticides) (Ash (Technology))

MOLC HANOV A.V.

BEZOBRAZOV, Yuriy Nikolayevich; MOLCHANOV, Andrey Vasil'yevich; GAR, Konstantin Arkad'yevich; RATMANSKIY, N.S., red.; SHPAK, Ye.G., tekhn.red.

[Hexachloran, its characteristics, its manufacture, and uses] Geksakhloran, ego svoistva, poluchenie i primenenie. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1958. 315 p. (MIRA 11:5) (Benzene hexachloride)

06215
SOV/64-59-6-7/28

5(1)
AUTHORS: Molchanov, A. I., Bezobrazov, Yu. N., Abramyan, Ye. P.

TITLE: Enrichment of Hexachlorane by Means of Repeated Application
             of the Mother Liquor

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 6, pp 467 - 490 (USSR)

ABSTRACT: The most widely applied and most economical methods for the
             separation of the γ-isomer of hexachlorane (= commercial hexa-
             chloro cyclohexane), which is an active insecticide, are ex-
             traction methods. They have, however, the disadvantage of
             yielding a product containing a maximum of 70% of the isomer
             only and a by-product of inferior quality. These shortcomings
             can be eliminated by using the mother liquor which remains
             after the filtration of the main product instead of the pure
             solvent. The mother liquor dissolves the γ-isomer and the
             readily soluble components of hexachlorane, whereas the
             difficultly soluble components can be filtered off. After the
             mother liquor has been used 4-5 times as extraction agent it
             is evaporated, and a product is obtained which (as the above
             mentioned filtration residue) contains only little γ-isomer and
             is processed, or used for the production of δ-isomer (Ref 6).
             A scheme (Fig 1) of the separation of hexachlorane into the main
             product (with about 95% of γ-isomer), the filtration residue,

    Card 1/2