

ЯРОСЛАВСКИЙ, А. П.

ЯРОСЛАВСКИЙ, А. П.

Role of cerebral cortex in manifestations of vestibular reflexes.
Vest. otolinar. 12:4, July-Aug. 50. p. 10-2

1. Of the LOR (Otorhinolaryngological) Clinic (Head--Honored
Worker in Science Prof. K. L. Khilov), Leningrad Sanitary-Hygienic
Medical Institute.

СМЛ 19, 5, Nov., 1950

YAROSLAVSKIY, A.P. (Vyborg)

Unusual foreign body of the pharynx. Vest.oto-rin. 18 no.5:128
S-O '56. (MIRA 9:11)
(PHARYNX—FOREIGN BODIES)

YAROSLAVSKIY, A. P.

Name: YAROSLAVSKIY, A. P.

Dissertation: Study of the effective action of certain drugs on the degree of manifestation of vestibulovegetative reflexes

Degree: Cand Med Sci

Defended at:
Affiliation: Min Health RSFSR, Leningrad Sanitation and Hygiene Medical Inst

Publication
~~Defense~~ Date, Place: 1956, Leningrad

Source: Knizhnaya Letopis', No 2, 1957

* * *

- E N D -

USJPRS/DC
DUPONT 7-4240

YAROSLAVSKIY, A.P., Cand Med Sci -- (diss) " Study of effectiveness of ^{the} action of certain pharmacological preparations ^{up} on the degree of pronouncement of the vestibulovegetative reflexes." Len 1958 12 pp. (Min of Health RSFSR. Len Sanitary Hygienic Med Inst) 100 copies (KL, 39-58, 112)

YAROSLAVSKIY, A.P. (Vyborg)

The influence of autonomic poisons on the intensity of autonomic vestibular reflexes [with summary in English]. Vest.oto-rin. 20 no.5:32-36 S-0 '58 (MIRA 11:12)

(EPHEDRINE, effects

on degree & characteristics of autonomic vestibular reflexes (Rus))

(RESERPINE, effects

same (Rus))

(VESTIBULAR APPARATUS, effect of drugs on

ephedrine & reserpine on degree & characteristics of autonomic vestibular reflexes (Rus))

YAROSLAVSKIY, A.P. (Vyborg)

Labyrinthine complications following intra-aural administration of cocaine solution. Vest.oto-rin 20 no.5:112 S-0 '58 (MIRA 11:12)

(LABYRINTH,

caused by intra-aural cocaine infusion (Rus))

(COCAINE, inj. eff.

labyrinthine lesions after intra-aural infusion (Rus))

YAROSLAVSKIY, A.P., ROZET, L.Ya. (Vyborg).

Free skin graft myringoplasty with the aid of Kolokoltsev's glue.
[with summary in English]. Vest.oto-rin. 20 no.6:36-38 N-D '58

(MIRA 11:12)

(EAR, MIDDLE, surg.

myringoplasty, free skin graft using Kolokoltsev's
glue (Rus))

(SKIN, TRANSPLANTATION,
same (Rus))

YAROSLAVSKIY, A.P., kand.med. nauk (g.Vyborg)

Penicillin treatment of paratonsillary abscesses. Zhur. ush.,
nos. 1 gorl. bol. 23 no.4:67 J1-Ag'63. (MIRA 16:10)
(TONSILS -- ABSCESS) (PENICILLIN)

YAROSLAVSKIY, G.T.

The OML-12 and IML-7 machines for cleaning and insulating
large-diameter pipes. Biul.tekh.-ekon.inform. no.7:
62-65 '60. (MIRA 13:7)
(Pipe--Cleaning) (Pipe--Corrosion)

YAROSLAVSKIY, L. I. and LEV, A. Yu.

"Criteria for Evaluating Tone-Telegraphy Systems," Vest. Svyazi, No.4, 1954

Translation M-644, 26 Jul 55

Assistant Professor, Odessa Electrical Engineering ~~Inst~~ Communication Inst.

YAROSLAVSKIY, L.I.; YAKHINSON, B.I.

Establishment of frequency at the output of an ideal
narrow-band filter with phase-frequency modulation.
Radiotekhnika 15 no.7:44-50 J1 '60. (MIRA 13:7)

1. Deystvitel'nyye chleny nauchno-tekhnicheskogo Obshchestva
radiotekhniki i elektrosvyazi im. A.S.Popova.
(Electric filters)

BOSYY, Nikolay Dmitriyevich, kand. tekhn. nauk. Primal uchastiye
BYKHOVSKIY, Ya.L., kand. tekhn. nauk; YAROSLAVSKIY, L.I.,
kand. tekhn. nauk; TKACHENKO, L.N., inzh., red.izd-va;
BEREZOVYY, V.N., tekhn. red.

[Communication channels] Kanaly sviazi. Kiev, Gostekhiz-
dat USSR, 1963. 391 p. (MIRA 16:12)
(Information theory) (Telecommunication)

SVERDLOV, M.P.; YETRUKHIN, N.N.; YAROSLAVSKIY, L.I.; ZUBOVSKIY,
L.I.; GUROV, V.S.; TARAKANOVA, M.S., ctv. red.; BATRAKOVA,
T.A., red.

[New TT-17P and OTT-2S voice frequency telegraphy apparatus
using transistor devices] Novaya apparatura tonal'nogo te-
legrafirovaniia na poluprovodnikovyykh priborakh TT-17P i
OTT-2S; informatsionnyi sbornik. Moskva, Sviiaz', 1965. 125 p.
(MIRA 18:7)

ACC NR: AP7004659

SOURCE CODE: UR/0432/66/000/001/0051/0052

AUTHOR: Usov, I. S.; Yaroslavskiy, L. I. (Candidate of technical sciences)

ORG: none

TITLE: Device for measuring pulse noise and interruptions in telephone channels with variable integration time

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 1, 1966, 51-52

TOPIC TAGS: telephone equipment, electronic test equipment, noise analyzer, COMMUNICATION CHANNEL

ABSTRACT: A device for measuring pulse noise and short-term interruptions in telephone channels used for voice-frequency carrier telegraphy and data transmission in the 300—3400 cps frequency range is described. The portable device, developed in the Kiev branch of the Central Scientific Research Institute of Communications, is designed for general field use. It operates by generating pulses whose number is proportional to the integrated value of the input pulse noise or interruption. Some characteristics of the device are: input power range, $\geq 10^5$ $\geq 5 \cdot 10^5$ and $\geq 10^6$ $\geq 2 \cdot 10^6$ nw; range of short-term interruptions, 1.5—3.5 neper; integration time, 0.5—5 msec; accuracy of the integration time, 5%; input impedance, 600 ohm or more than 7 kohm; maximum counting speed, 2000 cps; power consumption, 30 w; input voltage, 110/127/220 v ($\pm 15\%$) at 50 cps; operating temperature, 5—40C; size,

Card 1/2

UDC: 621.391.17

ACC NR: AP7004659

360 x 135 x 480 mm; and weight, 9 kg. The device was successfully tested on local and long distance telephone lines. Orig. art. has: 2 figures. [IV]

SUB CODE: 17/ SUBM DATE: none/

Card 2/2

ACC NR: AP7002669

SOURCE CODE: UR/0109/67/012/001/0113/0114

AUTHOR: Yaroslavskiy, L. P.

ORG: none

TITLE: Distribution of combined phase of a sum of angle-modulated sinusoidal signal and narrow Gaussian noise

SOURCE: Radiotekhnika i elektronika, v. 12, no. 1, 1967, 113-114

TOPIC TAGS: signal reception, signal noise separation

ABSTRACT: J. Salz and S. Stein's general formulas for distribution of combined phase of a sum of arbitrary-modulated signal and narrow-band noise (IEEE Trans., 1964, IT-10, 4, 273) are too complicated for practical use. The present short note proves that if the signal is only angle-modulated (no AM), simpler formulas can be deduced from S. O. Rice's results (BSTJ, 1948, 27, 1, 109). The distribution and mean frequency error formulas are derived. Orig. art. has: 13 formulas.

SUB CODE: 09 / SUBM DATE: 29Apr66 / ORIG REF: 001 / OTH REF: 002

Card 1/1

UDC: 621.391.822:621.396.62

L 3004-66 EWT(d)/FSS-2

ACCESSION NR: AP5020887

UR/0106/65/000/008/0062/0068

621.397.1:621.391.164.7

38
8

AUTHOR: ^{04/55} Lebedev, D. S.; ^{04/55} Yaroslavskiy, L. P.

TITLE: Efficiency of some methods of facsimile transmission ^{8/11/55}

SOURCE: Elektrosvyaz', no. 8, 1965, 62-68

TOPIC TAGS: facsimile transmission

ABSTRACT: The AM, PCM with and without correcting codes, and bi-orthogonal-signal methods of facsimile transmission are considered. Assuming certain characteristics of the human eye (vision) and a constant-parameter channel, the minimum signal-to-noise ratio corresponding to still invisible distortion caused by additive normal white noise is evaluated. This table is reported:

Card 1/2

L 3004-66

ACCESSION NR: AP5020887

Method	A_{AM}^1	ΔF	C
	A_{AM}^1	ΔF_{AM}	C_{AM}
AM	1	1	1
7-digit PCM	2,7	7	3,5
8-digit PCM (Wagner)	4,5	8	3,2
Bi-orthogonal signals	6,2	64	6,5

Here: A_0 is the signal-to-noise average power ratio; $C = \Delta F \lg \left(1 + \frac{P_s}{P_n} \right)$,

P_s and P_n are the signal power and noise power, respectively. The table shows that the AM method requires a channel with the lowest traffic capacity (last column).

The energy efficiency of the bi-orthogonal method is found to be 0.0285 and that of the AM method, 0.0048. Orig. art. has: 13 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 05Nov64

ENCL: 00

SUB CODE: EC

NO REF SOV: 002

OTHER: 003

Card 2/2 *md*

POLYAKOV, V.G.; PEREVERZEV-ORLOV, V.S.; YAROSLAVSKIY, L.P.; LEVITIN, L.B.

Conference of young specialists of the Institute. Probl.
pered. inform. no.16:91-93 '64. (MIRA 17:12)

1. Institut problem peredachi informatsii AN SSSR.

L 18864-63

BDS

ACCESSION NR: AP3003714

S/0109/63/008/007/1139/1144

AUTHOR: Yaroslavskiy, L. P.

TITLE: Problem of synthesis of parametric systems 47

SOURCE: Radiotekhnika i elektronika, v. 8, no. 7, 1963, 1139-1144

TOPIC TAGS: parametric system

ABSTRACT: At variance with conventional formulations of the problem, the author tries to find the law of parameter variation and the system structure on the basis of a specified response $y(t)$ of the system to a disturbing force $f(t)$ that belongs to a specified class. An approximate solution is found for the problem of synthesizing a parametric system responsewise equivalent to a harmonic resonator; also, the problem of (re)tuning such a system by varying the pumping frequency is solved. The single-equation synthesis problem, however, does not always have a general solution based on the specified class of force. The results

Card 1/2

L 18864-63

ACCESSION NR: AP3003714

show that: (1) a definite combination of two parametric amplifiers may have the characteristics of the conventional resonant amplifier, and (2) to (re)tune the parametric system so that it would retain all of its characteristics within a frequency band, it is necessary to also (re)tune the corresponding nonregenerated system. "In conclusion, the author wishes to thank F. V. Bunkin, Yu. Ye. D'yakov, E. G. Mirzabek'yan, and S. M. Rytov for their attention, interest, and valuable comments made in discussing the present work." Orig. art. has: 25 formulas.

ASSOCIATION: none

SUBMITTED: 30Jun62

DATE ACQ: 02Aug63

ENCL: 00

SUB CODE: CO, GE

NO REF SOV: 004

OTHER: 003

Card 2/2

USSR/Electronics - Telegraphy

FD-532

Card 1/1 : Pub. 90-8/13

Author : Yaroslavskiy, L. I., and Lev, A. Yu., Active Members, VNORIE

Title : Frequency spectra of tone-frequency telegraph systems with amplitude and phase keying

Periodical : Radiotekhnika 9, 64-71, May/June 1954

Abstract : Article analyzes frequency of oscillations spectra amplitude- and phase-keyed by periodic telegraph signals. When the frequency of the carrier oscillation is near the keying frequency, additional oscillations (besides carrier, upper and lower sidebands) appear in the line spectrum. The amplitude and frequency of these oscillations depend on the ratio between keying and carrier frequency and on the phase angle of the carrier oscillation relative to the telegraph pulses. States the tone-frequency telegraph system with phase keying was suggested by A. A. Pistol'kors in 1931. Three references: 3 USSR.

Institution : All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORIE)

J. 04568-17 IWT(D)/TSS-2

ACC NR: AP6033681

SOURCE CODE: UR/0106/66/00/010/0026/0030

AUTHOR: Yaroslavskiy, L. I.; Vol'rbeyn, S. P.; Usov, I. S.

52
B

ORG: none

TITLE: A method for increasing the transmission speed of discrete information

SOURCE: Elektrosvyaz', no. 10, 1966, 26-30

TOPIC TAGS: binary code, data transmission, encoding theory

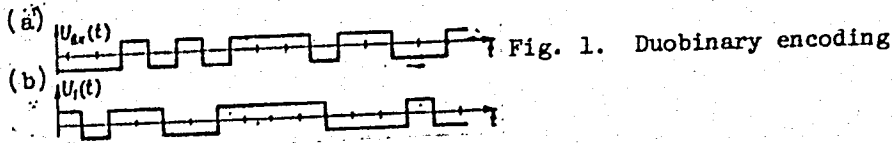
ABSTRACT: The authors review variations in the duobinary technique for improving the transmission of binary coded data. The technique treats a binary signal train to a second binary encoding, which permits higher information transmission rates and gives better resistance to transient noise effects. A direct form of duobinary coding is seen in Fig. 1, where (a) is the input binary signal. This signal is transformed such that its negative-going zero crossings yield (+1), but its positive-going zero crossings do not (0), resulting in the duobinary signal of (b). The 1963 papers of Lender and Bramhall on the subject are cited, and their findings on the advantages of duobinary coding are confirmed. The cited authors credit the increased transmission speed to the fact that the energy spectrum of the duobinary signal is only half that of the original; however, the present authors deny that this

Card 1/2

UDC: 621.394.14

7. 045: -67

ACC NR: AP6033681



can be the reason, since a case can be shown where a doubled speed is achieved even though the energy spectrum is unchanged. Another hypothetical example of duobinary coding is given which would increase transmission speed by 1 1/2 times. Orig. art. has: 6 formulas and 6 figures.

SUB CODE: 09/ SUBM DATE: 20Jul65/ OTH REF: 003/ ATD PRESS: 5100

Card 2/2 vmb

YAROSLAVSKIY, D.L.

659 Posobiye po proeyktirovaniyu kavalou suyazi po simmerrichnym - liniyam. Odessa, 1954. 20 sm. (M-vo suyazi SSSR. Odes. Elektortekhn. in-t suyazi. Kafedra dal'ney suyazi). B. ts. - Sosr. ukazany v kovtse teksra. Ch.1. Csobennosti proyektirovaniya kanolov suyazi po simmetrichnym kabel'nym liniyam. 32s s chert. 300 ekz. - (54-55371) 621.39.052.0012

SO: Knizhnaya Letopis, Vol 1, 1955

VILIKHER, M.M.; YAROSLAVSKIY, L.S. (Vinnitsa)

Clinical aspects and treatment of cholesteatomas and leptopachy-meningomyelitis. Vrach.delo no.4: 90-94 Ap'63. (MIRA 16:7)

1. Otdeleniye dlya bol'nykh meningitom (zav.-Ye.A.Paretskaya) Vinniskogo oblastnogo tuberkuleznogo dispansera i neyrokhirurgicheskoye otdeleniye (zav.-L.S.Yaroslavskiy) Vinnitskoy oblasti noy psikhonevrologicheskoy bol'nitsy; nauchnyy rukovoditel' raboty - zav. kafedroy nervnykh bolezney Vinnitskogo meditsinskogo instituta prof.P.M.Al'perovich.

YAROSLAVSKIY, M., podpolkovnik; LOGINOV, A., kapitan; VOROB'YEV, V., kapitan.

~~Radiation and chemical reconnaissance in a tank company. Tankist~~
no.4:35-36 Ap '58. (MIRA 11:5)
(Tank warfare) (Chemical warfare) (Radioactive fallout)

YAROSLAVSKIY, M.I.

KORNDORF, S.F.; BERNSHTEIN, A.S.; YAROSLAVSKIY, M.I.

[Radio measurements] Radioizmereniia. Moskva, Gos. energ. izd-vo, 1953.
464 p. (MLRA 7:6)

(Radio measurements)

KORNDORF, Sergey Ferdinandovich, BERNSTEYN, Arkadiy Sergeyevich;
YAROSLAVSKIY, Mikhail Iosifovich; RUBCHINSKIY, A.V., redaktor;
FRIDKIN, A.M., tekhnicheskii redaktor

[Radio measurements] Radiotekhnicheskie izmereniia. Izd. 2-oe, perer.
Moskva, Gos.energ. izd-vo, 1956. 399 p. (MLBA 10:1)
(Radio measurements)

24(6)

SOV/112-59-4-7892

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 4, p 211 (USSR)

AUTHOR: Yaroslavskiy, M. I.

TITLE: Investigations of Piezoelectric Resonators With Plates Made From Untwined Quartz Crystals

PERIODICAL: V sb.: P'yezooptich. kristallosyr'ye, Nr 1, M., 1956, pp 131-138

ABSTRACT: Information is given about a method of building-up the monocrystal range in quartz crystals by torsion. The outfit comprises a massive angle-iron frame on which a movable muffle furnace is mounted. Rods are provided; one of them is fixed, and the other can rotate and move along its axis in an aperture of special cantilevers. The movable rod carries two adjustable couplings (which serve to fix its position) and an ebony disk. A leather tape with a suspended weight is placed along the perimeter of the disk; the weight produces an appropriate torsional moment applied to the plate. The treatment temperature is 500-550°C. Four illustrations. Bibliography: 7 items.

O.K.R.

Card 1/1

YAROSLAVSKIY M. T. I.

144

YAROSLAVSKIY, M.I.

G

USSR / Electricity

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9660

Author : Yaroslavskiy, M.I.

Inst : Not given

Title : Piezoelectric Resonators With Crystals that have Structural Defects

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 2, 268-272

Abstract : Investigations were carried out on the parameters of quartz resonators with crystals of X-, AT-, and BT-cuts to prove whether it is possible to use in such resonators crystals with internal defects. The results obtained were compared with the parameters of the resonators with defectless crystals. It is shown that if bars of X cuts ($+5^{\circ}$ and -18.5°) or plates of the AT cut contain accumulations of gas-liquid or solid inclusions, not exceeding 0.2 -- 0.3 mm, does not affect the parameters of resonators with such crystals. On

Card : 1/2

USSR /Electricity

G

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9660

Abstract : the other hand, the presence of cracks or twins does not deteriorate the parameters considerably. The inclusions start influencing the parameters of high-frequency plates at a thickness less than 0.3 -- 0.4 mm. Resonators with plates that are twinned in accordance with the Doffinet law can have satisfactory equivalent and working parameters, but a considerably higher temperature coefficient of frequency. Resonators with plates that are contaminated by "azure needles" are not inferior in their parameters to resonators with defectless quartz.

Card = 2/2

YAROSLAVSKIY, M.I.; LYUTENBERG, R.M.; CHERNYSHOV, V.M.

~~Instrument for the analysis of the piezoelectric properties of~~
crystals. Zhur.tekh.fiz.26:439-441 P '56. (MIRA 9:6)
(Piezoelectricity--Measurement)

YAROSLAVSKIY, M.I., Cand Tech Sci--(diss) "Physical principles and
methods of increasing the stability of quartz resonators." Mos, 1958.
8 pp (Acad Sci USSR. Inst of Crystallography), 150 copies (KL,30-58, 129)

-103-

SOV/70-3-6-24/25

AUTHORS: Yaroslavskiy, M.I., Pozdnyakov, P.G. and Vasin, I.G.

TITLE: On the Form of the Oscillations of Doubly-convex Quartz Lenses of the AT Cut (O forme kolebaniy dvoyakovypuklykh kvartsevykh linz srezha AT)

PERIODICAL: Kristallografii, 1958, Vol 3, Nr 6, pp 7634 +1 plate (USSR)

ABSTRACT: A quartz lens cut from an AT-cut slice of quartz was used as a piezo-electric resonator. The radius of curvature was 250 mm (each face), the axial thickness 8.7 mm and the square of side 82.5 mm was further trimmed by a circle of diameter 89 mm. The fundamental frequency was 212.6 kc/s and excitation was by electrodes applied simply to the curved surfaces. The lens was supported by four wires soldered to the edge at points 45° away from the X and Z' axes. Dust figures (Chladny figures) formed in lycopodium powder were examined. There was always a nodal line perpendicular to the X-axis and as a first approximation oscillations were pure shear waves propagated along the X-axis (electric axis). It is deduced that the supporting wires should be fastened at two points at opposite ends of the nodal line lying along the Z'-axis. "Outline" oscillations at 53.8 kc/s can also

Card1/2

SOV/φ0-3-6-24/25

On the Form of the Oscillations of Doubly-convex Quartz Lenses of the At Cut

be easily excited. Here the nodal lines form a right-angled cross along the X- and Z'-axes. Oscillators operating in such a mode may have considerable (unstated) advantages. Acknowledgments to Ye.D. Novgorodov, I.S. Zheludev and A.I. Tiranov. There are 4 figures and 1 Soviet references.

SUBMITTED: July 23, 1958

Card 2/2

USCOMM-DC-60.609

YAROSLAVSKIY, M. I.

AUTHORS: Vasin, I. G., Pozdnyakov, P. G.,
Yaroslavskiy, M. I.

20-119-3-22/65

TITLE: A Precision Quartz Resonator of High Quality and Small
Temperature Dependence of Frequency (Pretsizionnyy kvartsevyy
rezonator s vysokoy dobrotnost'yu i maloy temperaturnoy
zavisimost'yu chastoty)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 3,
pp. 481-483 (USSR)

ABSTRACT: In the USSR in recent years resonators with very high Q
(until $17 \cdot 10^6$) were developed, the quartz element of which
consisted of a biconvex polished nonmetallized lens in a
holder with air interspace (refs. 5-8). These resonators,
however, have only a very low mechanical stability. A further
particularity of these resonators in the quite high equivalent
active resistance R_q (at least 100 ohm). This complicates
their application in such generators, which are installed
in a circuit with low-frequency bridge. In the precision
quartz resonator, which was developed by the authors, a bi-
convex lens with AT-cut was used. For the increase of the
resistance of the resonator against external mechanical

Card 1/3

A Precision Quartz Resonator of High Quality and Small
Temperature Dependence of Frequency

20-119-3-22/65

influences the crystal was fixed by wire strings (which in two points were soldered on to the front faces of the lens). The electric voltage was conducted to electrodes, which directly were applied upon the surface of the quartz element. The wire strings simultaneously served as lead-in wires. The gold electrode was applied by sublimation in vacuum upon a chromium base, which was applied in the same way. Such a construction made possible a reduction of the equivalent active resistance of the resonator to from 2 to 6 ohm. By means of several experiments the following was found: Very high electric parameters can be obtained, if lenses with 31.5 mm diameter and with 150 mm radius of curvature are used. In this case no limitation to circular lenses is necessary. By application of square lenses valuable quartz material can be saved and by a correct choice of the parameters a constancy of the parameters of the resonator in a given temperature interval can be obtained. In most resonators of the here described type no polished, but only cut crystals were used. Already with such a treatment resonators with a factor of merit of at least $2 \cdot 10^6$ were obtained and in some cases values of $(5 \text{ to } 6) \cdot 10^6$ were reached. By polishing the

Card 2/3

A Precision Quartz Resonator of High Quality and Small
Temperature Dependence of Frequency

20-119-3-22/65

quartz elements values of $(7 \text{ to } 9) \cdot 10^6$ were reached. The lowest temperature coefficients of the frequency were obtained in resonators with quartz elements, which have a certain here given shape and here given dimensions, whereby the cut angles are $YX1/35^{\circ}03'$ to $YX1/35^{\circ}04'$. The typical temperature frequency characteristics of the resonators of the here described type are illustrated by a diagram. The thus constructed resonators were encased in helium filled glass flasks (~ 5 torr). The concrete values of the parameters of some resonators are composed in a table. A more exact investigation of the aging of the resonators still lies ahead. There are 3 figures, 1 table, and 7 references, 4 of which are Soviet.

PRESENTED: November 15, 1957, by A. V. Shubnikov, Member, Academy of Sciences, USSR

SUBMITTED: November 5, 1957

AVAILABLE: Library of Congress
Card 3/3

84324

912180

S/070/60/005/005/0127017
E132/E360

AUTHORS: Lhramov, L.V. and Yaroslavskiy, M.I.

TITLE: The Frequency Coefficients of Quartz Bars for Bending Oscillations

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 5, pp. 807 - 808

TEXT: A rectangular quartz bar, nearly square in the XZ' cross-section and elongated in the Y' direction, undergoes bending oscillation in the XY' plane. It is excited by applying the voltage between pairs of electrodes parallel to the Y'Z' and XY' planes. It has a small temperature coefficient given by:

$$\Delta f/f = - c(T_0 - T)^2 \cdot 10^{-6} \quad (1)$$

where $c = (0.02 - 0.045) \times 10^{-6}$. The frequency is given by :

$$f = k \frac{a_x}{a_y} \quad (2)$$

Card 1/3

84124

S/070/60/005/005/012/017
E132/E360The Frequency Coefficients of Quartz Bars for Bending
Oscillations

where a_x and a_y are the dimensions along the X and Y axes, and
 k is the frequency coefficient.

Published work has been almost exclusively concerned with the
cut at $+5^\circ X(XYt/+5^\circ)$. The values of k given vary between
5740 and 5790 kc/s.mm. The value of k has been found
experimentally by the present authors for values of a_x/a_y up
to 0.20 and tilts of $-2^\circ x$ to $+14^\circ x$. The change in Young's
modulus with angle and with a_x/a_y is also plotted. This was
calculated from a formula given by Mason (J. Acoust. Soc. Amer.
Vol. 6, 246-9, 1935):

$$f = \frac{m^2 a_x}{4 \sqrt{3} \pi a_y^2} \sqrt{\frac{Y}{\rho}} = \frac{(2n+1)^2 \pi^2}{4} \cdot \frac{a_x}{4 \sqrt{3} \pi a_y^2} \sqrt{\frac{Y}{\rho}}$$

Card 2/3

84124

S/070/60/005/005/012/017
E152/E360

The Frequency Coefficients of Quartz Bars for Bending Oscillations

where ρ is the density,
n the number of the harmonic (here n = 1) and
Y is Young's modulus.

A line giving the calculated variation of Y compares well with what is observed. It was calculated from the well-known formula:

$$10^{12}/Y = 1.269 - 0.841 \cos^2\theta + 0.543 \cos^4\theta - 0.862 \sin^2\theta \cdot \cos\theta \sin 3\theta.$$

Acknowledgments are expressed to P.G. Pozdnyakov and I.G. Vasin. There are 3 figures and 5 references: 1 German and 4 English.

SUBMITTED: December 30, 1959

Card 3/3

34734

S/070/62/007/001/020/022
E192/E382

9,2180 (1063, 1142, 1331)

AUTHORS: Vasin, I.G., Pozdnyakov, P.G., Khramov, L.V.
and Yaroslavskiy, M.I.

TITLE: Quartz resonators with slotted piezo-elements

PERIODICAL: Kristallografiya, v.7, no. 1, 1962, 150 - 152

TEXT: At audio and ultrasonic frequencies it is often necessary to employ quartz resonators having a low temperature-frequency coefficient, a high quality factor, a low resonance impedance and, in some cases, a wide resonance range which can be achieved at comparatively small values of the capacitance ratio C_o/C_K . Such resonators are required, in effect, to combine the merits of the resonators with rod-type piezo-elements and the resonators with twin (bimorphous) elements without having their disadvantages. The authors designed (Ref. 3: Author's Certificate no. 123573, July 28, 1959), prepared and investigated a piezo-element of this type satisfying the above requirements. This is achieved by cutting narrow cavities (slots) in resonator plates or rods, the surface of the slots being parallel to the edges of the plates or the
Card 1/3

S/070/62/007/001/020/022
E192/E383

Quartz resonators

rods. Thin metal coatings, used as electrodes, can be deposited on the surface of the slots. In this way, the problem of producing a crystal piezo-element with one or several internal electrodes is solved. The electric field applied between the internal and external electrodes has opposite directions, so that linear deformations of opposite signs are induced in the element. These result in its bending in the plane parallel to the edges. In this case, the piezo-element with a slot is analogous to a twin element and, consequently, it has a low electrical impedance. On the other hand, by using rods of the XYt/α^0 cut, whose temperature-frequency characteristics are in the shape of parabolas whose apex can easily be controlled by changing the angle α^0 of the cut and by suitably arranging the slots (as shown in the figure), the disadvantages of the rod-type resonators can be eliminated (i.e. the inherent high values of R_K and L_K are reduced). Further, due to the large reduction in the equivalent inductance of the resonator, its resonance range is significantly increased. It is also

Card 2/4

Quartz resonators

S/070/62/007/001/020/022
E192/E382

pointed out that the frequency coefficients of a slotted piezo-element are slightly reduced due to the fact that its bending strength is decreased. Due to the low resonance impedance of slotted resonators their oscillatory tendency is greatly increased in comparison with the solid piezo-elements of the same dimensions.

There are 1 figure, 1 table and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc.

SUBMITTED: June 8, 1960 (initially)
July 31, 1961 (after revision)

7

Card 3/4

YAROSLAVSKIY, M.I.

Piezoelectric resonators with crystals having structural defects.
Izv.AN SSSR.Ser.fiz. 20 no.2:268-272 F '56. (MLRA 9:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut p'yezoopticheskogo mineral'nogo syr'ya.
(Piezoelectricity) (Electric resonators)

117 AND 720 ORDERS PROCESSES AND PROPERTIES NOTES 340 AND 474 ORDERS

3

The method of differential spectra in the infrared. A. N. Terenin and N. G. Yaroslavskii. *Bull. acad. sci. U.R.S.S., Sr. phys.* 9, 263-5(1945)(in Russian).—The light coming from the source passes alternatingly, with a frequency of several hundred per sec., through two absorbing objects, after which it is decompd. in an infrared monochromator and then strikes a nonselective receiver of infrared radiation connected with an a.c. amplifier and a galvanometer. When the two objects are identical, the galvanometer does not respond; wherever in the spectrum the two objects differ in their absorption, the galvanometer is deflected and thus registers a "differential" spectrogram. If the spectrum of a single substance is sought, a transparent material or else an empty trough is used as the second object. Absorption spectra obtained by this method show sharp peaks rising above the zero line. The setup is used for obtaining quickly spectra of solid and liquid substances in the region from 2 to 9 μ . The method is applied to bands, corresponding to fundamental vibration frequencies, which can be detected with very small amts. of material, sufficient to provide thicknesses of the order of 0.01 mm. The receiver includes a chamber filled with carbonized vegetable fibers, which absorb the infrared radiation nonselectively. Preliminary exptl. results were obtained in the study of halochromy of aromatic compds. and of adsorption, as expressed in the shift of absorption bands. By using in the two optical branches, resp., the pure components and their mixt., the method was applied to internal interaction of aniline and nitrobenzene; the shift of the frequency of 3400 cm^{-1} of the NH_2 group as a result of that interaction could thus be observed in the fundamental absorption band. Formation of an addn. compd. of quinone and hydroquinone resulted in the appearance of an absorption at 2000 cm^{-1} ; it is interpreted as an increase of the dipole moment in the deformation vibrations of the terminal carbonyl groups in quinone on account of hydrogen bonding with the hydroxyl groups of hydroquinone. In a mixt. of phenol and aniline, hydrogen-bond formation causes the OH band of the phenol to be shifted by 8.10 cm^{-1} .

N. Thon

ASS-51A METALLURGICAL LITERATURE CLASSIFICATION

117 AND 720 ORDERS PROCESSES AND PROPERTIES NOTES 340 AND 474 ORDERS

YAROSLAVSKIY, N. G.

PA 65T19

USSR/Chemistry - Phenol, Spectrum of
Chemistry - Spectra

Mar 1948

"Application of the Method of Differential Spectra in the Near Infrared Field for the Detection of Intermolecular Interaction in Several Aromatic Compounds," N. G. Yaroslavskiy, State Ord of Lenin Opt Inst, Leningrad, 9 pp

"Zhur Fiz Khim" Vol XXII, No 3

Studies intermolecular interaction of aniline, phenol and their compounds in various solutions at various concentrations and temperatures by means of differential infrared spectra. Reproduces and analyzes spectrograms for the various solutions. Submitted 11 Apr 1947.

65T19

PROCESSES AND PROPERTIES

3

Application of the method of differential spectra in the near infrared to the detection of molecular interaction of some aromatic compounds. N. G. Yaroslavskii (Optical Inst., Leningrad). *J. Phys. Chem. (U.S.S.R.)* 22, 205-73 (1948) (in Russian); cf. *C.I.* 40, 108P. The measurements were made between 1.0 and 1.9 μ . The line 1.51 μ of aniline (I), corresponding to vibrations of N-H, is shifted toward smaller λ by, e.g., 60 cm^{-1} by dissolving I in CCl_4 , dioxane, CHCl_3 , acetone, C_6H_6 , or nitrobenzene; a similar shift is achieved by heating molten I to, e.g., 180°. The complex compn. of this line (1.451, 1.495, and 1.52 μ) is made clearer by the soln. of I. The line 1.60 μ (vibrations of C-H in the nucleus) is not affected by it. Dil. solns. of phenol (II) in CCl_4 have a sharp peak of absorption at 1.418 μ (vibrations of free OH groups) and a max. at 1.60 μ ; the latter is not affected by increasing the concn. of II, but the peak is transformed into 2 flat max. at 1.45 and 1.55 μ . Solns. of I with II or *p*-nitrophenol in CCl_4 show, in addn. to the lines of the components, a peak at 1.52 μ which is due either to a H bond between N and OH or to enhancement of the 1.52- μ line of pure I. Solns. of I with 2,6-dinitrophenol in CCl_4 show the 1.52- μ line at high temp. only, and solns. of I with picric acid do not show it at all. There is no selective absorption between 1.2 and 1.6 μ in molten I hydrochloride, as ionization eliminates the vibrations N-H. J. J. B.

AS - S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

YAROSLAVSKIY, N. G. PROCESSES AND PROPERTIES INDEX

Infrared absorption spectra of adsorbed molecules. N. G. Yaroslavskii and A. N. Terenin. *Doklady Akad. Nauk S.S.S.R.* 66, 885-8(1940).—On gradual adsorption of C_6H_6 and of toluene vapors, *in vacuo*, at room temp., on vitreous SiO_2 gel, showing initially only O—H bands, peaks corresponding to the C—H frequencies of the ring, and (in the case of toluene) to the CH_3 group, appear progressively, in position identical to those of the same peaks in absorption in CCl_4 soln.; at the same time, the narrow O—H peak becomes increasingly weaker. In the adsorption of $PhNH_2$, slow on account of its low vapor pressure at room temp., the gradual disappearance of the O—H peak sets in long before the appearance of the C—H

and N—H peaks of the adsorbed mols.; evidently, the disappearance of the O—H peaks is due to the formation of H bonds O—H...N. At the stage of greater surface coverage, the N—H peak at 1.62μ appears shifted to longer waves, by 0.01μ relative to the peak of associated NH groups, and by 0.025μ relative to the isolated NH groups in the soln. of $PhNH_2$ in CCl_4 . This demonstrates the weakening of valence in adsorption. The C—H band remains undisturbed. The height of the N—H peak, relative to that of the C—H peak, is decreased in the adsorbed state, which is attributed to the interaction between the NH group and the OH groups of the surface of the adsorbent. The effects observed with $PhNH_2$ are even more pronounced in C_6H_5N . In the adsorption of $PhOH$, the O—H peak of the adsorbent remains narrow and disappears much more slowly than with $PhNH_2$; the peak at 1.418μ belonging to the OH group of $PhOH$ appears considerably weakened and broadened to longer waves. This indicates that the OH groups of the SiO_2 gel are not readily perturbed by the OH groups of $PhOH$. In the range of capillary condensation, there appear broad maxima characteristic of assocn. of OH groups. N. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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YAROSLAVSKIY, N. G.

PA 50/49T27

USSR/Chemistry - Absorption Spectra
Chemistry - Catalysis

Jun 49

"Infrared Absorption Spectra of Adsorbed
Molecules," N. G. Yaroslavskiy, Acad A. N.
Terenin, 3 $\frac{1}{2}$ pp

"Dok Ak Nauk SSSR" Vol LXVI, No 5

Experimental results cited predicate successful
use of infrared spectra in research on special
cases of adsorption. Theory should be applied
next to catalytic reactions. Submitted 19 Apr 49.

50/49T27

YAROSLAVSKIY, N. G.

USSR/Chemistry - Acridine, Amino
Absorption Spectra

1 Aug 49

"Problem of Structure of 9-Aminoacridine," A. V. Karyakin, A. M. Grigorovskiy, N. G. Yaroslavskiy, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, NO 4

Unlike other aminoacridines, 9-aminoacridine and its derivatives, arivanol and acrichine, possess great bacterial activity. Previous efforts to show that their characteristics were related to their structure and that they did not have the usual amine structure (A) but the tautomeric structure of acridonimine (B) were unsuccessful. Study of absorption spectra in ultraviolet and visual spectral fields makes the latter hypothesis reasonable. Data on infrared absorption spectra confirm the assumption that a 9-aminoacridine molecule has the structure of (B). Submitted by Acad A. N. Terenin 2 Jun 49.

PA 3/50T13

YAROSLAVSKIY, N.G.

Investigation of absorption spectra of silicate materials with the aid of infrared spectral absorption in the near region
 N. G. Yaroslavskiy, *Optika*, 1950, No. 3, 33-35. Investigated the adsorption of water and various org compds on a thin layer of microporous glass. Most studies were made in the 1-2.5 μ region with a special infrared spectrometer with a PbS detector. Spectra were taken at temps. up to 1000°. The presence of the OH harmonic in the spectra of the silicate at these high temps. indicated that Si-OH bonds result from the adsorption of water. The absorption bands studied, on which conclusions were based, were assigned as follows: 1.305 μ , $2\nu_1$ (free O-H); 1.40 μ , $2\nu_1$ [(O-H) . . .]adsorbed; 1.46 μ , $2\nu_1$ (. . . O-H . . .); 1.90 μ , $\nu_1 + \delta$ [(O-H) . . .]adsorbed; 1.98 μ , $\nu_1 + \delta$ (. . . O-H . . .); 2.21 μ , $2\nu_1$ (SiO₂). The bands at 1.90 and 1.98 μ were combination frequencies, where the two δ 's were deformation modes of the silicate.
 R. D. Kross

3

CA

3

Infrared absorption spectrum of microporous adsorbents of the silica gel type. N. G. Yaroslavskii (State Optical Inst., Leningrad). *Zhur. Fiz. Khim.* 24, 88-91 (1950). — The absorption spectrum (between 1 and 2.4 μ) of porous glass (porosity = 27%) was detd. after different treatment of the glass. The very sharp line 1.320 μ was given by glass heated in a vacuum; its intensity was max. when the heating temp. T was 300°, and it disappeared at $T = 1000^\circ$ and on keeping the glass in moist air. This line is a higher harmonic of the valency vibrations of the OH groups chemically bound to the glass surface (as Si-OH). A line 1.39-1.40 μ appeared when the glass was stored in air and disappeared on heating; it belongs to the OH groups of the adsorbed H₂O. The line 1.46 μ was present in moist glass (e.g., satd. with H₂O) and then kept in a vacuum at room temp.; as it is present also in liquid H₂O, it must belong to capillary condensed H₂O. A line 1.90 μ behaved like 1.39-1.40 and also is attributed to adsorbed H₂O. The line 2.21 μ was not affected by heating or moistening and must be due to SiO₂; it may be the harmonic of the 4.4- μ line of fused quartz. Thus, the state of H₂O in adsorbents can be detd. by optical means.

J. J. Bikerman

CA

5

Infrared spectroscopy of the hydrogen bond at low temperatures. V. N. Nikitin and N. G. Yaroslavskii. *Doklady Akad. Nauk S.S.S.R.* 77, 1015-18(1951).—The structure of the infrared absorption band O—H... in the region around 6200 cm.⁻¹ (1st harmonic of the fundamental valence vibration frequency O—H) was investigated in the crystal and amorphous states, at +20 and -180°, in MeOH, EtOH, BuOH, polyvinyl alc., glycerol, resorcinol, beet sugar, phenol-HCHO resin, and cryst. urea (in the latter, for the H bond N—H...O). For the low-temp. detns., use was made of the observation that liquid air in a layer a few cm. thick does not absorb in the region 1.3-1.9 μ; nor does its absorption spectrum in the range 0.0-2.0 μ mask the higher overtones of the vibrations O—H, O—H... N—H, C—H, C=O, and their combinations. Cryst. sucrose at 20° shows a sharp band 1.44 μ (6944 cm.⁻¹) (unperturbed O—H) and 2 displaced broad bands with centers at 1.61 μ (6222 cm.⁻¹) and 1.58 μ (6329 cm.⁻¹) corresponding to O—H...; as the intensity of these bands changes with the position of the plane of polarization, it may be assumed that they belong to perturbed OH groups with different orientations in the crystal. At -180°, one finds 5 sharp peaks 1.50 μ (6667 cm.⁻¹), 1.51(6622), 1.52(6578), 1.54(6494), and 1.58(6329). Similarly, in resorcinol, the 2 max. at 20°, 1.58(6329) and 1.67(5988) μ, over into 4 sharp bands, 1.502(6281), 1.52(6170), 1.54(6061),

and 1.67(5988). Cryst. urea at 20° has 3 max. 1.47(6892), 1.485(6777), and 1.534(6512), and at -180°, 5 sharp bands, 2 of which (belonging to the NH₂ groups) coincide with the above 1st two, and the other 3 lie at 1.457(6863), 1.53(6530), and 1.64(6161). The fine structure appearing at low temps. in the cryst. substances was not observed in amorphous substances which show only a shift of the O—H... band to lower frequencies and a redistribution of the intensities of the components of the band. The shift is greatest (150-200 cm.⁻¹) for the alcs. MeOH, EtOH, BuOH, and glycerol. In amorphous sucrose, the structure of the O—H... does not change appreciably between 20° and -180°, as the disordered structure of the amorphous solid is fixed by the manifold H bonds; the same applies to polyvinyl alc. and the phenol-HCHO resin. For the latter 2, the band does change at higher temps., beginning from +50 and +60° owing to disruption of the H bonds. Absence of the max. at 1.45 μ in amorphous sucrose, resorcinol, glycerol, and the alcs. indicates that practically all OH groups are H-bonded. In the resin, there are both free OH (sharp max. at 1.452 μ) and H-bonded OH (1.56 μ), as in cryst. sucrose. The observed decrease of the intensity of the sharp bands, from 20 to -180°, in the resin and in cryst. sucrose, is due to superposition of the short-wave part of the O—H... band on the peak of free OH,

coupled with the shift of the broad band to longer waves with falling temp. Thom

127

Sep 52

YAROSLAVSKIY, N.G.

USSR/Chemistry - Spectroscopy, Emission

"Infra Red Emission Spectra of Heated Liquid and Solid Organic Films,"

N. G. Yaroslavskiy and A. N. Aleksandrov, Leningrad

Zhur Fiz Khim, Vol 26, No 9, pp 1278-1283

With the aid of sensitive USSR equipment, the authors obtained discrete infra red emission spectra in the range of 1-5 μ from liquid, molten, and solid org compds heated to 150-200 $^{\circ}$ C. The emission spectra represented a reversal of the absorption spectra of the compds considered. These emission spectra also showed the expediency of applying the method to the mol analysis of liquid, molten, and solid org compds. Quant comparison of the infra red emission and absorption spectra will enable detn of the equil or non equil character of phenomena connected with emission.

263 T 17

239130

YAROSLAVSKIY, N. G.

USSR/Chemistry - Adsorption

Aug 52

"The Change in the Infrared Adsorption Band of OH in Microporous Glass During Low-Temperature Adsorption of Oxygen and Nitrogen," N. G. Yaroslavskiy and A. V. Karvakin

"DAN SSSR" Vol 85, No 5, pp 1103-1106

The presence of OH groups on the surface structure of adsorbents detes the adsorption activity of the surface. A piece of microporous glass was placed under vacuum in a glass of water and the adsorption spectra measured after either O or N were

239130

admitted to the vacuum. Cooling to -180° shrinks the OH group band at 1.365 microns. On admission of N, the intensity starts to decrease at the usual absorption peak of 1.365 microns, and increases at 1.378 microns. On admission of O, the usual OH peak immediately disappears. Submitted by Acad A. N. Terentn 26 May 52.

239130

Yaroslavskii N. S.

of the surface structure of microporous glass
 prepared by the method of Yaroslavskii, N. S. and
 plates of microporous glass treated with hydrochloric
 acid (30% HCl) and NaOH (7.98%) were treated com-
 pletely in 5N HCl. The porosity was 37%, the diam. of
 the pores 60 Å, and the sp. surface 100 sq. m./g. Absorp-
 tion spectra were measured in the region 1 to 2.5 μ with a
 PbS cell both by direct automatic recording and by the
 method of differential infrared spectra (cf. Terenin and
 Yaroslavskii, *Chem. Abstr.* 40, 10939). It was assumed that the
 surface of the material is covered with OH groups. Meas-
 urements were made in air and in vacuum after vacuum
 heating at temps 100-1100°. A narrow max. at 1.165 μ
 is attributed to OH. Adsorbed H₂O mols. have a max. at
 1.40 μ , and H₂O condensed in the pores has a max. at 1.16
 μ . The disappearance of the max. *in vacuo* was studied as
 a function of temp. Other absorption bands were at 1.90
 (combination vibration of OH and H₂O) and 2.21 μ (OH).
 At greater wave lengths there are bands of total absorption.
 Spectrograms were also made from microporous glass on
 which were adsorbed benzene, toluene, carbon tetrachloride,
 phenol, and H₂O. In benzene and toluene the 1.165 μ peak
 persists and new max. appear, corresponding to CH and
 CH₂ groups. In carbon tetrachloride the 1.165 μ peak disappears and
 CH and NH peaks appear. NH partially reacts with OH
 groups to form H-bonds O-H...N. Similar conditions
 appear in pyridine. Adsorbed mols. of phenol do not
 greatly disturb the OH groups. Adsorption of H₂ and O₂
 at -180° makes the OH peak disappear. N₂ is desorbed
 upon return to room temp., but O₂ is desorbed only by
 heating to 150-200°. Aging of microporous glass on
 storage modifies the character of the OH groups. S. P.

YAROSLAVSKIY, N. G. and SOLYANON, G. S.

Structure of Aromatic Nitramines. II. Infrared Absorption Spectra and Structure of Arylnitramines (Aryl Nitraminic Acids), page 1325, Sbornik statey no obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

State Inst of Applied Chemistry

YAROSLAVSKY N C

YAROSLAVSKIY, N. J.

USSR/Optics

K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10517

Author : Yaroslavskiy, N.G., Zheludov, B.A., Stanevich, A.E.

Inst : Not Given

Title : Recording Spectrometer for the Long-Wave Infrared Region

Orig Pub: Optika i spektroskopiya, 1956, 1, No 4, 507-515

Abstract: The authors consider the features of the procedures in long-wave infrared spectroscopy and describe a high intensity spectrometer, with diffraction gratings, intended for automatic recording of spectra in the region from 20 to 100 microns and above. In the instrument, constructed in accordance with the Pfund auto-collimation scheme with a relative aperture of the collimating mirror of 1:2.2, there are employed two interchangeable echelettes of 12 and 6 lines per millimeter, measuring 250 x 250 mm, operating in the first order. The scattered short-wave radiation and of the superimposed spectra of the higher orders are eliminated by using

Card : 1/2

USSR/Optics

K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10517

reflecting (matted mirrors, crystal plates, and echelettes working in the zero order) and transmitting (quartz, polyethylene covered with lampblack, etc.) filters. Provision is made for the possibility of employing the method of selective modulation and producing vacuum in the instrument. Using a silita rod at 1400° and a standard radiation thermocouple with a FEOU-17 photo-electronic optical multiplier fed from the IKS-11 apparatus, records are made of the rotation spectra of absorption of vapors of atmospheric water in the region from 19 to 100 microns with a maximum resolution of $1.2 - 1.5 \text{ cm}^{-1}$ and accuracy = 0.3 cm^{-1} . These results are considered by the authors to be preliminary.

Card : 2/2

YAROSLAVSKIY, N. G.

Optics in the German Democratic Republic. Opt. 1 spektr. 1
no.8:1025-1027 D '56.

(MLRA 10:2)

(Germany, East--Optics)

YIROSILAVSKJ V, IV. G

PRIKHOT'KO, A.F.

24(7)

p. 3

PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Univerzitet

Materialy I Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Iba: Fizichnyy zbirnyk, vpp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Jaker, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Larysherg, G.S., Academician (Resp. Ed., Deceased), Noporent, B.S., Doctor of Physical and Mathematical Sciences, Pabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikants, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Physical and Mathematical Sciences, Candidate of Physical and Mathematical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., A. Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Postovskiy, I. Ya., L.F. Trefilova, Yu. N. Sheynker, and S.G. Bogomolov. Coplanarity of Phenol Molecules in Diphenyl Derivatives

388

Yegorov, Yu. P., and Ye. A. Chernyshev. Spectra of Silicoorganic Compounds With an Aromatic Ring

390

Gerasimov, V.M., I.A. Tel'tevskiy, S.V. Mezmelov, and V.P. Sergeyev. Kahlletes in the Range From 2.5 to 600 Microns

394

Kiselev, B.A. Double Monochromator With Diffraction Gratings

397

Yaroslavskiy, N.G., B.A. Zheludov, and A. Ye. Stanevich. Methods and Apparatus for Registration of Long-wave Infrared Spectra

399

Card 25/30

YAROSLAVSKIY, N.G.

AUTHOR:
TITLE:

YAROSLAVSKIY, N.G.

53-2-6/9

Methods and Devices of Infrared Spectroscopy (Longwave Range).
(Metodika i apparatura dlinnovolnovoy infrakrasnoy spektroskopii,
Russian).

PERIODICAL:

Uspekhi Fiz. Nauk, 1957, Vol 62, Nr 2, pp 159 - 186 (U.S.S.R.)

ABSTRACT:

In the following survey, which was compiled after the study of 78 published articles, the longwave part (50 μ to more than 1000 μ) is taken out from the total infrared range and the methods and devices are described which are necessary in order to be able to carry out measurements within this range.

The following methods and devices are dealt with:

A) Methods with which infrared radiation is obtained

- 1) Method with a quartz lens
- 2) Method of total reflection
- 3) Method of selective reflection on crystals
- 4) Use of a diffraction lattice as monochromator.

B) Spectrometers for the longwave infrared range and their application.

- 1) The particular features of infrared spectrometers
- 2) Radiation sources
- 3) Radiation measuring devices
- 4) Description of spectrometers
a) according to Randall

Card 1/2

Methods and Devices of Infrared Spectroscopy.

53-2-6/9

- b) according to Mc Cubbin, Sinton
- c) according to Bohn, Freeman,
- d) according to Meier
- e) according to Yaroslavskii , Zheludov.

ASSOCIATION: Not given

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 2/2

AUTHORS: Yaroslavskiy, N.G. and Stanevich, A.Ye.

SOV/51-5-4-6/21

TITLE: Rotational Spectrum of H₂O in the Long-Wavelength Infrared Region
50-1500 μ (200-7 cm^{-1}). (Vrashchatel'nyy spektr H₂O v dlinnovolnovey
infrakrasnoy oblasti 50-1500 μ (200-7 cm^{-1})).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 4, pp 384-392 (USSR)

ABSTRACT: A vacuum spectrometer DIKS-1, described in Refs 11, 12, was used. An optico-acoustical receiver, developed by Pankratov (Ref 13), was used instead of a thermo-element. The best resolution was 0.2-0.3 cm^{-1} and the mean error in wave-number determination was 0.02 cm^{-1} . The intensities were measured to within 10%. Five interchangeable echelette gratings were used: three of them were prepared in F.M. Gerasimov's laboratory and had constants of 0.0833, 0.1666 and 0.5 mm (12, 6 and 2 lines per mm) and the other two, with 1.5 and 2.5 mm constants, were cut using a precision lathe. The light sources were a platinum ribbon covered with thorium oxide and heated electrically to 1530°K (for 50-100 μ wavelengths) and a mercury lamp PRK-4 (for 100-1500 μ wavelengths). Figs 1 and 2 show the H₂O vapour spectra in the 50-1500 μ region, obtained at pressures from 1 to 750 mm Hg, relative humidity of 80% and at room temperature. 105 absorption bands were recorded in the

Card 1/3

Rotational Spectrum of H_2O in the Long-Wavelength Infrared Region $50-1500\mu$ (200-7 cm^{-1}). SOV/51-5-4-6/21

$50-1500\mu$ spectral region. 94 of them were interpreted as fundamental frequencies of the rotational spectrum and 11 of them as some of the fundamental frequencies which appeared in the second order of the spectrum. The table on pp 387-8 gives complete interpretation of all the observed absorption bands. The wave-numbers of these bands are compared with the wave-numbers calculated from the values of rotational energies given in Ref 6. The difference between the experimentally observed and calculated wave-numbers is about 0.02 cm^{-1} , i.e. it lies within the experimental error. Fig 3 gives the rotational spectrum of H_2O in the region $50-1500\mu$ ($200-7\text{ cm}^{-1}$). The 34 bands recorded or resolved for the first time are marked with the

Card 2/3

SOV/51-5-4-6/21

Rotational Spectrum of H_0 in the Long-Wavelength Infrared Region $50-1500 \mu$
($200-7 \text{ cm}^{-1}$).

plus sign (+). The authors thank N.A. Pankratov and M.L. Veyngercv for supply of optico-acoustical receivers. There are 3 figures, 1 table and 16 references, 7 of which are American, 6 Soviet and 3 German.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov)

SUBMITTED: December 23, 1957

1. Water--Spectra 2. Spectrum analyzers--Equipment

Card 3/3

YAROSLAVSKIY, N.G.; STANEVICH, A.Ye.

Simplified spectrometers for long-wave infrared region from 20
to 180 μ . Inzh.-fiz. zhur. na. 6:50-55 Je '58. (MIRA 11:7)
(Spectrometer)

STANEVICH, A.Ye.; YAROSLAVSKIY, N.G.

Comparative study of the radiation capacity of some infrared
radiation sources in the 20-110 wave range. Inzh.-fiz.zhur.
no.7:49-53 J1 '58. (MIRA 11:8)
(Infrared rays) (Spectrometry)

AUTHORS: Yaroslavskiy, N. G., Stanevich, A. Ye. SOV/48-22-9-38/40

TITLE: Rotation Spectrum of H₂O Vapor in the Range of
50 — 1500 μ (200 — 7 cm⁻¹)(Vrashchatel'nyy spektr parov
H₂O v oblasti 50 — 1500 μ (200 — 7 cm⁻¹))

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958,
Vol 22, Nr 9, pp 1145 - 1149 (USSR)

ABSTRACT: This report presents the results for the investigation
of the rotation spectrum of H₂O in the range of
50 — 1500 μ at varying steam pressure and under
optimum recording conditions. The absorption spectra
of the H₂O vapors in room atmosphere were recorded
with the² long-wave vacuum spectrometer, DIKS, -1 (Refs 11,12).
The thermocouple and the photoelectron optical multiplier
was replaced by an optic-acoustical radiation receiver.
This device was recently developed by N.A.Pankratov
(Ref 13). It permits to measure the absorption spectra
of different objects in the range of 50 — 1500 with
a maximum resolution of 0,2-0,3 cm⁻¹, an average accuracy

Card 1/2

Rotation Spectrum of H₂O Vapor in the Range of
50 — 1500 μ (200 — 7 cm⁻¹)

SOV/48-22-9-38/40

of the wave numbers of 0,02 cm⁻¹ and an error of the intensities less than 10%. The readings are recorded on an automatic recorder. In order to cover the entire spectral range 5 interchangeable gratings were used: three of these with constants equaling 0,0833, 0,1666 and 0,5 were produced in the laboratory of F.M.Gerasimov and two, with the constants 1,5 and 2,5 were produced on a precision milling cutter. A thorium oxide coated platinum band heated to 1580° was used as a source of radiation in the range of 50 ÷ 100 μ. In the range 100 ÷ 1500 μ a mercury lamp PRK-4 was used. In order to exclude the spectra of higher order and that of the diffuse short-wave radiation, a selective modulation at a frequency of 9 c and reflex filters and pass filters were used. 105 absorption bands were recorded in the entire range investigated. 84 were interpreted to be ground frequencies of the rotation spectrum and 11 to be second order frequencies (Table). The scheme of the rotation spectrum is given in figure 2. There are 2 figures, 1 table, and 13 references, 3 of which are Soviet.

Card 2/2

24(7)

SOV/51-6-6-15/34

AUTHORS: Yaroslavskiy, N.G. and Stanovich, A.Ye.

TITLE: Rotational Spectrum of H₂O Vapour and Absorption by Moist Air in the Wavelength Region from 40 to 2500 Microns (Vrashchatel'nyy spektr parov H₂O i pogloshcheniye vlazhnogo vozdukha v oblasti dlin voln ot 40 do 2500 mikron)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 799-801 (USSR)

ABSTRACT: No experimental data have yet been published on the rotational infrared spectrum of H₂O vapour at wavelengths longer than 1400 μ (for the rotational spectrum of H₂O below 1400 μ see an earlier paper by the present authors, Ref 1). The present paper reports experimental results obtained in measurement of the infrared spectrum of H₂O vapour particularly in the region 1400--2500 μ ($7.15\text{--}4.0\text{ cm}^{-1}$) and absorption by atmospheric air in the region from 40 to 2500 μ . The spectra were recorded by means of a vacuum infrared spectrometer DIKS-1 developed earlier (Refs 5-7). To cover the whole region from 40 to 2500 μ the authors used six echelettes of 270 x 270 mm dimensions and the following constants: 0.083(3), 0.166(6), 0.50, 1.50, 2.50 and 5.00 mm. A mercury lamp PRK-4 was used as the source and an optico-acoustic receiver OAP-1 with a crystalline quartz window was employed. The spectra were

Card 1/3

SOV/51-6-6-15/34

Rotational Spectrum of H₂O Vapour and Absorption by Moist Air in the Wavelength
Region from 40 to 2500 Microns

recorded by means of an electronic potentiometer EPP-09. The spectra of higher orders than the first and scattered short-wavelength radiation were removed by selective modulation and by various combinations of reflection and transmission filters. Fig 1 shows the 1000-2500 μ absorption curve (II) of a column of air 7.5 mm long at 20°C and 60% relative humidity. Curve I in Fig 1 represents the emission spectrum of the mercury lamp PRK-4 recorded under the same conditions as curve II. Comparison of the curves I and II shows clearly an absorption band of atmospheric air at 1634 μ . This band is due to water vapours present in air and corresponds to the transition $2_2 \rightarrow 3_{-2}$ (6.12 cm^{-1}) between rotational levels of H₂O whose energies were calculated by Benedict et al (Ref 2). This band was observed using microradiowaves at 1628 μ (6.14 cm^{-1}) by King and Gordy (Ref 3). Fig 1 shows that, apart from the band at 1634 μ , atmospheric air absorbs very little between 1200 and 2500 μ . Fig 2 gives the spectrum of the optical density D in the region 40-2500 μ for a column of air of length 10 m at 20°C, 760 mm Hg and 60% relative humidity.

Card 2/3

SOV/51-6-6-15/34

Rotational Spectrum of H₂O Vapour and Absorption by Moist Air in the Wavelength
Region from 40 to 2500 Microns

Fig 2 shows that there are three regions of high transparency: at 350 μ , 1300 μ and from 1700 μ to 2500 μ (and probably beyond). The authors point out that the errors in determination of the optical density in the last two regions of transparency were several times higher than the quantity measured. There are 2 figures and 7 references, 4 of which are Soviet and 3 English.

Card 3/3

24.3410

66583

SOV/51-7-5-7/21

AUTHORS: Yaroslavskiy, N.G. and Stanovich, A. Ye.TITLE: The Long-Wavelength Infrared Spectrum of H₂O Vapours and Absorption in Atmospheric Air in the Region 20-2500 μ (500-4 cm^{-1}).

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 5, pp 626-631 (USSR)

ABSTRACT: The authors report a study of the rotational spectrum of H₂O at wavelengths from 1400 to 2500 μ and of transparency of atmospheric air in a closed room at wavelengths from 20 to 2500 μ (transparency of air between 18 and 2500 μ is governed by absorption of water vapour present in air). A DIKS-1 infrared spectrometer was used in the first order with six echelettes of 270 x 270 mm dimensions. Three echelettes with 12, 6 and 2 lines/mm were made on a precision ruling machine in F.M. Gerasimov's laboratory. The other three echelettes with 1.5, 2.5 and 5.0 mm constants and a blaze angle of about 10° were made using an ordinary milling machine. The following sources were used: a platinum ribbon, covered with yttrium oxide and heated to 1200°C (it was used in the 20-50 μ region) and a mercury lamp FRK-4 (in the 50-2500 μ region). Optico-acoustic receivers with hermetically sealed chambers, fitted with caesium iodide and quartz windows, were employed. The spectra were recorded automatically with an electronic potentiometer EPP-09. The mean error in determination of wave numbers amounted

Card 1/3

66583

SOV/51-7-5-7/21

The Long-Wavelength Infrared Spectrum of H₂O Vapours and Absorption in Atmospheric Air in the Region 20-2500 μ (500-4 cm^{-1})

to 0.02 cm^{-1} and the error in determination of transmission varied from 3 to 5%. The spectra of higher orders and scattered short-wavelength radiation were practically eliminated by the use of compensated selective modulation of the light beam, achieved by means of various combinations of reflection and absorption filters. In this way the short-wave scattered radiation was reduced to 3-5%. The results are shown in Figs 1-3. Curve I in Fig 2a represents the energy distribution in the spectrum of the mercury lamp PRK-4, which was continuously pumped to keep the pressure at about 1 mm Hg; curve II of the same figure represents the spectrum of the same lamp when it was filled with air, which contained 10.5 g of water per 1 m³ (relative humidity 60%) at 20°C and 760 mm Hg. Comparison of curves I and II shows a clear absorption band at 1634 μ ($\nu = 6.12 \text{ cm}^{-1}$) which is due to H₂O vapours and represents a transition between the rotational levels with quantum numbers $J_{\text{K}}'' = 2_2$ and $J_{\text{K}}' = 3_{-2}$, whose energies were calculated by Bönedikt, Classen and Shaw (Ref 6). The wave-number of this band (6.12 cm^{-1}) agrees, within the experimental error (0.02 cm^{-1}), with the wave-number of 6.14 cm^{-1} (1628 μ), determined by microwave spectroscopy (Ref 6). The absorption by air in a closed room at 20-2500 μ is shown in Figs 1 and 2, where curves I represent the results

Card 2/3

66583

SOV/51-7-5-7/21

The Long-Wavelength Infrared Spectrum of H₂O Vapours and Absorption in Atmospheric Air in the Region 20-2500 μ ($500-4 \text{ cm}^{-1}$)

obtained at 1 mm Hg and curves II represent results obtained in a 7.5 m long column of air at 760 mm Hg pressure, 20°C temperature and absolute humidity of 9.5-10.5 g/m³. The deep minimum on curve I (Fig 16) at 78.5 μ (125.5 cm^{-1}) is due to absorption by crystalline quartz of which the windows in optico-acoustic receivers were made. Fig 3 shows the results obtained, re-calculated in the form of optical densities D_{10} for a column of air 10 m long with 10.5 g/m³ of water. The authors point out that the precision of measurements of the optical density of atmospheric air in the regions where it is highly transparent is comparatively low due to the small absolute values of absorption. Fig 4 shows that in the regions of very low absorption (1200-1500 μ and 1700-2500 μ) the error is several times greater than the measured absorption. Consequently when absorption is measured in these regions the length of the absorbing column of air should be made as long as possible. There are 4 figures and 15 references, 5 of which are Soviet, 8 English, 1 French and 1 German.

SUBMITTED: March 24, 1958

Card 3/3

20727

9.5320
6.3100

S/051/61/010/004/005/007
E032/E314

AUTHORS: Stanevich, A.Ye. and Yaroslavskiy, N.G.

TITLE: Absorption by Liquid Water in the Long Wavelength Region of the Infrared Spectrum (42 - 2 000 μ)

PERIODICAL: Optika i spektroskopiya, 1961, Vol. 10, No. 4, pp. 538 - 540

TEXT: The aim of this work was to investigate the absorption by liquid water of 42-2 000 μ radiation and to check on the data reported by Rubens and Ladenburg (Refs. 13, 14) and Cartwright and Errera (Refs. 15-18) in the region up to 300 μ . The measurements were taken with the vacuum long-wavelength spectrometer ДИКС-1 (DIKS-1) described by Yaroslavskiy, Zheludov and Stanevich in Refs. 20-22. Fig. 1 shows the transmittance T and the optical density D of ordinary water in a 13 μ layer at room temperature. The dashed curve in this figure shows the absorption constant calculated from the formula: ✓

Card 1/4

20727

S/051/61/010/004/005/007
E032/E314

Absorption by

$$k = \frac{\lambda \ln \frac{1}{T}}{4\pi d}$$

where T is the transmittance in relative units,
 λ is the wavelength in μ , and
 d is the thickness of the absorbing layer in μ .

The analogous results for heavy water are shown in Fig. 2. In these figures, S is the spectral slit width; $\tau \cdot v$ is the time constant (sec) multiplied by the rate of recording (cm/sec). Comparison of these data with those reported by Rubens et al (Refs. 13-18) shows good agreement at $\lambda = 52, 152$ and 313μ . The wave numbers of the absorption maxima shown in Fig. 1 are, respectively, 232, 210, 191, 175, 160 and 145 cm^{-1} , while those in Fig. 2 are 221, 196,

Card 2/4

20/21
S/051/61/010/004/005/007
E032/E314

Absorption by

181, 166, 156 and 140 cm^{-1} .

There are 2 figures and 23 references: 4 Soviet and 19 non-Soviet.

SUBMITTED: September 24, 1960

Fig. 1:

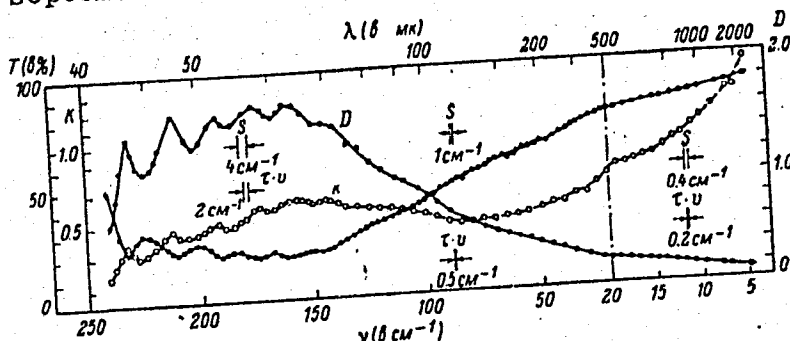


Рис. 1. Пропускание (T), оптическая плотность (D) и показатель поглощения (k) жидкой воды при толщине слоя 0.013 мк в области 42—2000 мк .
 S — спектральная ширина щели (в см^{-1}); $\tau \cdot \nu$ — произведение постоянной времени (в сек.) приемноусилительного устройства на скорость регистрации (в см^{-1} , сек.).

Card 3/4

20727

S/051/61/010/004/005/007
E032/E314

Absorption by

Fig. 2:

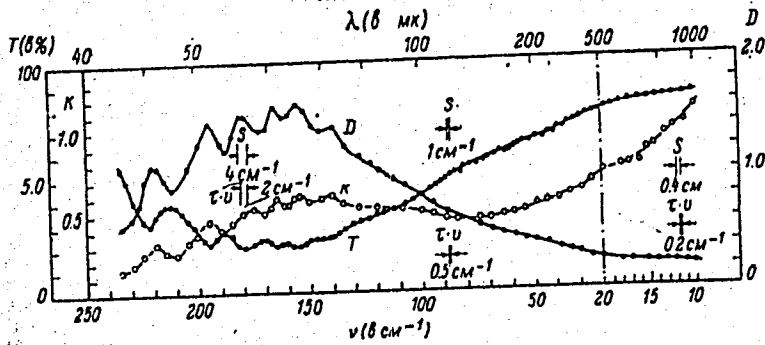


Рис. 2. Пропускание (T), оптическая плотность (D) и показатель поглощения (k) жидкой «тяжелой» воды при толщине слоя $0.013\text{ }\mu\text{m}$ в области $42\text{--}1000\text{ }\mu\text{m}$.

Card 4/4

STANEVICH, A.Ye.; YAROSLAVSKIY, N.G.

Transmission of organic solvents in the long-wave infrared
spectral region. Opt.i spektr. 11 no.1:61-66 JI '61.

(MIRA 14:10)

(Solvents) (Molecular spectra)

STAROVICH, A.Ye.; YAROSLAVSKIY, N.G.

Low frequency infrared absorption spectrum of the hydrogen bond
in the liquid phase and in crystal hydrates. Dokl. AN USSR 137
no. 1:60-63 Mar-Apr '61. (MIRA 14:2)

1. Predstavleno akademikom A.N. Tereninym.
(Hydrogen bonding--Spectra)

YAROSLAVSKIY, N. G.

"Far infrared instrumentation"

Paper to be presented at Spectroscopy (Far Infrared), International
Symposium on - Cincinnati, Ohio, 21-24 Aug. 62

Optical Institute imeni S. I. Vavilov, Leningrad

FRISH, S.E., *otv. red.*; BOBOVICH, Ya.S., *kand. fiz.-matem. nauk, red.*;
VOL'KENSHTEYN, M.V., *doktor fiz.-matem. nauk, red.*; GALANIN,
M.D., *doktor fiz.-matem. nauk, red.*; DRUKAREV, G.F., *doktor*
fiz.-matem. nauk, red.; YEL'YASHEVICH, M.A., *akademik, red.*;
KALITEYEVSKIY, N.I., *doktor fiz.-matem. nauk, red.*; KUSAKOV,
M.M., *doktor khim. nauk, red.*; LIPIS, L.V., *doktor tekhn.nauk,*
red.; PEKAR, S.I., *doktor fiz.-matem. nauk, red.*; PROKOF'YEV,
V.K., *doktor fiz.-matem. nauk, red.*; SOKOLOV, N.D., *doktor*
fiz.-matem. nauk, red.; FEOFILOV, P.P., *doktor fiz.-matem.*
nauk, red.; CHULANOVSKIY, V.M., *doktor fiz.-matem. nauk, red.*;
SHPOL'SKIY, E.V., *doktor fiz.-matem. nauk, red.*; YAROSLAVSKIY,
N.G., *kand. fiz.-matem. nauk, red.*; LEKSINA, I.Ye., *red. izd-*
va; PENKINA, N.V., *red. izd-va*; NOVICHKOVA, N.D., *tekhn. red.*;
KASHINA, P.S., *tekhn. red.*

[Physical problems in spectroscopy] Fizicheskie problemy spektro-
skopii; materialy. Moskva, Izd-vo Akad. nauk SSSR. Vol.1. 1962.
474 p. (MIRA 16:2)

1. Soveshchaniye po spektroskopii. 13th, Leningrad, 1960. 2. Chlen-
korrespondent Akademii nauk SSSR (for Frish). 3. Akademiya nauk
Belurusskoy SSR (for Yel'yashevich).
(Spectrum analysis)

YAROSLAVSKIY, N.G.

Analytical applications of long-wave infrared spectroscopy (survey).
Zav.lab. 28 no.8:944-949 '62. (MIRA 15:11)
(Spectrum, Infrared) (Spectrochemistry)

FILIPPOV, O.K.; YAROSLAVSKIY, N.G.

Transmission of long-wave infrared radiation (40-200 μ) by heated
crystalline and molten quartz. Opt. i spektr. 15 no 4:558-561 0
'63. (MIRA 16:11)

EPSHTEYN, L.M.; YAROSLAVSKIY, N.G.

Long-wave infrared spectra ($400-20\text{ cm}^{-1}$) of diphenyl iodonium salts. Dokl. AN SSSR 149 no. 4:865-868. Ap '63. (MIRA 16:3)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.
Predstavleno akademikom A.N. Nesmeyanovym.
(Iodonium compounds—Absorption spectra)

YAROSLAVSKIY, N.G.; KONOVALOV, L.V.

Long-wave absorption spectra of complex compounds of aniline with metals.
Dokl. AN SSSR 162 no.1:144-146. My '65. (MIRA 18:5)

1. Submitted November 9, 1964.

L 05699-67 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) GG/WW/JD

ACC NR: AP6026352

SOURCE CODE: UR/0237/66/000/005/0001/0004

AUTHOR: Stanevich, A. Ye.; Yaroslavskiy, N. G. 47
B

ORG: none

TITLE: Absolute emissive power of PRK-4 mercury lamp in the longwave infrared range (50-2000 μ)

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 5, 1966, 1-4

TOPIC TAGS: light emission, emissivity, mercury lamp 27

ABSTRACT: Measurements of the absolute emissive power of a PRK-4 mercury lamp were made under its normal operating conditions (current of 4 A) in the range of 50 to 2000 μ with a DIKS-1 spectrometer. The emitted energy E_p was determined from the signal-to-noise ratio measured at various points of the spectrum, and from the values obtained, the spectral intensity r_p was calculated. Comparison of the absolute emissive power thus obtained with the emissive power of a black body shows that in the range above 200 μ the radiation intensity of PRK-4 surpasses that of a black body at 1500°, and at 1000 μ reaches a value corresponding to the radiation of a black body heated to approximately 6000°K. The spectral range for the most effective use of the mercury lamp and thermal sources of radiation was determined by comparing their relative radiation intensities: in the wavelength range above 130 μ , the radiation intensity of the mercury lamp surpasses that of a thermal source (platinum strip coated with yttrium

Card 1/2

UDC: 535.33:621.327.534

L 05099-67

ACC NR: AP6026352

oxide). However, since the intensity of shortwave radiation of a mercury lamp is much lower than that of thermal sources of radiation, the use of mercury lamps in spectrometers with echelette gratings can also be effective in a shorter spectral range. Orig art. has: 1 figure and 1 table. σ

SUB CODE: 13/ SUBM DATE: 01Nov65/ ORIG REF: 006/ OTH REF: 004

nc
Card 2/2

ACC NR: AP7005651

(A)

SOURCE CODE: UR/0413/67/000/002/0100/0101

INVENTOR: Lobachev, M. V.; Sokol'skiy, M. N.; Stanevich, A. Ye; Yaroslavskiy, N. G.

ORG: None

TITLE: A double-beam spectrophotometer. Class 42, No. 190615 [announced by the Leningrad Opticomechanical Society (Leningradskoye optiko-mekhanicheskoye ob"yed- ineniye)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 100-101

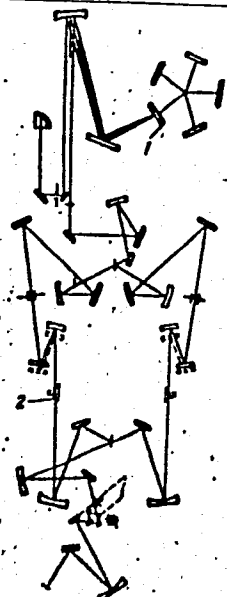
TOPIC TAGS: spectrophotometer, IR optic system, diffraction grating, optic instrument

ABSTRACT: This Author's Certificate introduces: 1. A double-beam spectrophotometer with diffraction (echelette) gratings for operation in the far infrared spectral region (50-1000 μ). The luminosity of the instrument is increased by making the gratings 1.5 times longer in the direction of the lines than in the direction of dispersion. 2. A modification of this spectrophotometer designed for measuring reflection spectra. A prism is mounted in the cell compartment with reflecting surfaces which break up the radiation flux with simultaneous displacement of the focusing elements.

Card 1/2

UDC: 53.853.36

ACC NR: AP7005651



1--grating; 2--prism

SUB CODE: 20-~~1~~ / SUBM DATE: 16Jul65

Card 2/2

YAROSLAVSKIY, N.Ye., inzh.

Use of polyethylene pipes in power engineering. *Energetik* 14
no.1:38-41 Ja '66. (MIRA 19:1)

YAROSLAVSKIY, N.Ye., inzh.

Glass pipes and their use. Energetik. 13 no.7:33-36 JI '65.

(MIRA 18:8)

YAROSLAVSKIY, N. YE.

PA 38/49th8

USSR/Engineering
Boiler, High Pressure
Scale Removal

Mar 49

"Operation of a High-Pressure Boiler Unit,"
F. I. Sipunov, N. Ye. Yaroslavskiy, Engineers,
4 pp

"Elek Stants" No 3

At present there are five boiler units operating
at 80 atm and 500° C. Discusses scale removal,
operation of superheaters and regulation of
superheat, separation of steam, injury to
pipes of the water economizer, etc. Economy of
38/49th8

USSR/Engineering (Contd)

Mar 49

these high-pressure units still does not exceed
that of average-pressure stations.

38/49th8

YAROSLAVSKIY, N.Ye., inzh.

Design of the heat supply system of the construction site of the Bratsk
Hydroelectric Power Station. Elek. sta. 34 no.11:43-47 N '63.
(MIRA 17:2)