

RYTOV, A.V., kandidat tekhnicheskikh nauk.

Computing weights of lines of departure of base nets. Geod.1
kart. no.9:48-54 N '56. (MIRA 10:1)
(Geodesy)

RYTOV, A.V., kandidat tekhnicheskikh nauk; PAVLOV, V.F.

Answers to readers' queries. Geod. i kart. no.6:65-71 Ja '57.
(Cartography) (MLRA 10:8)

RYTOV, A.V.

Standards for theodolites and leveling instruments. Geod. i
kart. no.3:9-17 Mr '64. (MIRA 17:9)

ACCESSION NR: AP4020395

S/0006/64/000/003/0009/0017

AUTHOR: Ry#tov, A. V.

TITLE: Standards on theodolites and levels

SOURCE: Geodeziya i kartografiya, no. 3, 1964, 9-17

TOPIC TAGS: theodolite, level, land surveying, mapping, surveying instrument, theodolite T05, theodolite T1, theodolite T2, theodolite T5, theodolite T10, theodolite T15, theodolite T20, theodolite T30, level N1, level N2, level NS2, level N3, level NS3, level NS4, level NT, level NLS

ABSTRACT: The author cited the need for standards of performance and production of theodolites and levels to: 1) halt production of obsolete and poorly produced models, 2) to standardize production, 3) to improve production quality, 4) to make a more precise and convenient geodesic instrument and 5) to expedite the development of instruments more in step with current technical and scientific advances. Reference was made to prior work defining parameters and technical demands. This work is contained in the publications: GOST: 10528-63, "Niveliry*. Tipy*. Osnovny*ye parametry* i tekhnicheskiye trebovaniya" i GOST: 10529-63, "Teodolity*. Tipy*. Osnovny*ye parametry* i tekhnicheskiye trebovaniya."

Card 1/2

ACCESSION NR: AP4020395

Instead of the 18 theodolite models proposed by GOST, the author foresaw the use of only eight; the T05 and T1--high-accuracy optical theodolites; the T2, T5, and T10--accurate optical theodolites; and the T15, T20 and T30--optical technical theodolites. The author compared by class the advantages of his proposed series over the others. Eight types of levels were presented as offering improvements. These were the levels N1, N2, NS2, N3, NS3, NS4, NT, and NLS. These types were discussed in terms of manufacture and instrument productivity. The author indicated preference for using the mean quadratic error of determination of excess at one station as a more significant and easily obtained level constant. Orig. art. has: one equation.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 000

OTHER: 000

Card 2/2

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RYTOV, A.V.

Uniform method for measuring horizontal angles as proposed by
I.M.Konopal'tsev. Geod. i kart. no.10:35-44 0 '63. (MIRA 16:12)

L 238

ACC NR: AP5010589

SOURCE CODE: UR/0006/65/000/004/0024/0030

AUTHOR: Rytov, A. V.

28

ORG: none

26

TITLE: New Hungarian T2 and T20 theodolites

B

SOURCE: Geodeziya i kartografiya, ²⁸no. 4, ²⁶1965, 24-30

TOPIC TAGS: optic theodolite, triangulation, construction, polygonometry, angle measurement instrument/T2 theodolite, T20 theodolite, Theo 010 theodolite, Tu theodolite, Te-B1 theodolite, Theo 6.1 theodolite, Theo 120 theodolite, Pende 0460 theodolite

ABSTRACT: Two new optical theodolites, the T2 (to replace the T1) and T20 which underwent extensive laboratory and field tests in 1964 are to be manufactured in the USSR in 1965. The T2 is intended chiefly for measurement of horizontal and vertical angles in triangulation work and in third-and fourth-order polygonometry, but can be used in construction work and in the installation of factory machinery. The T2 is described briefly and compared (quite favorably) with the similar East German Theo 010, the West German Tu (Askania Werke), and the Hungarian Te-B1. The State Committee on Standards, Measures, and Measuring Instruments USSR has authorized its serial production for five years, beginning in 1965. Its basic characteristics are listed. The T20 is designed primarily for measuring vertical and horizontal angles in theodo-

2

Card 1/2

UDC: 528.5: 681.2(439.1)

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2

lite and tachymetric traverses on the surface or underground. It is described briefly and compared (favorably, with advantage of light weight) with the comparable East German Theo 6.1 (Freiburger Prazisionsmechanik) and Theo 120 (Karl Zeiss), and the West German Pende 0460 (Otto Fennel). The basic parameters of the T20 are given in a table. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 17, 13 / SUBM DATE: none

Card 2/2 fv

RYUJIN, G.M.

Fuel consumption in petroleum refining. Neftianik 6 no.9:10-11
S '61. (KIRA 14:10)

1. Sotrudnik Azerbaydzhanskogo instituta neftekhimicheskikh
processov.

(~~Refining~~ Refining)

LYSENKO, M.I., inzhener-mayor; RYTOV, L.A., inzhener-kapitan

Utilization of generator tubes at superhigh frequencies.
Vest. protivovozd.obor. no.4:59-61 Ap '61. (MIRA 14:7)
(Oscillators, Electric)

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KARPENKO, G.M., inzhener-podpolkovnik; RYTOV, L.A., inzhener-kapitan

Use of long lines in the antenna feeder systems of a radar
station. Vest. protivovozd. obor. no.8:43-46 Ag '61. (MIRA 14:8)
(Radar, Military)

RYTOV N. V.

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CIA-RDP86-00513R001446510014-5"

RYTOV N. V., LISAVENKO M. A.

Horticulturists

From the history of Russian horticulture. Sad
i og. No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED.

RYTOV, Mikhail Vasil'yevich, 1846-1920; TSVETKOVA, V.A., redaktor; GOLUBIN-
SKAYA, Ye.S., redaktor; SOKOLOVA, N.N., tekhnicheskij redaktor;
GUREVICH, M.M., tekhnicheskij redaktor

[Selected works] Izbrannye trudy. Moskva, Gos. izd-vo selkhoz. lit-ry,
1956. 250 p. (MLRA 9:11)
(Botany)

RYTOV, Mikhail Vasil'yevich

[Russian apples] Russkie iabloki. Moskva, Gos.izd-vo sel'khoz.
lit-ry, 1960. 500 p. (MIRA 14:2)
(Apple)

RYTOV, Nikolay Pavlovich; SINEL'NIKOVA, TS.B., red.; EL'KINA, E.M.,
tekh. red.

[Storage of vegetables; advanced Practices]Khranenie ovo-
shchei; persdovoi opyt. Moskva, Gostorgizdat, 1961. 41 p.
(MIRA 15:11)

(Vegetables--Storage)

PROCESSES AND PROPERTIES INDEX

Sa

A 53
1

1778. Diffraction of Light by Supersonic Waves. S. M. Rytov. *Phys. Zeits. A. Sowjetunion*, 8, 6, pp. 636-643, 1935. In German.—With decrease of the wave-length of supersonic waves the spacial nature of the diffraction of light by such waves is more and more in evidence; the energy distribution approximates more and more towards the distribution for selective reflection, which satisfies Bragg's condition. A theoretical and experimental study is here presented of the transfer region from the diffraction by a two-dimensional grid to the selective reflection by a three-dimensional layered structure. The experimental results are found to be in good agreement with theory. A. W.

A 11-51.4 METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

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4896. Interaction of Light by Ultrasonic Waves. S. Aytun.
Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R. 2, 6, pp. 229-232, 1966. In French. -- The author has worked out approximate formulas for amplitude and phase which are more exact than those of Raman and Nath, and are more suitable for quantitative calculations than Brillouin's rigorous solution. G. E. A.

150 514 ORIGINAL LITERATURE CLASSIFICATION

FORM: EXTENSION

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11 AND LETTERS
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
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PROCESSES AND PROPERTIES INDEX

SA

A53
2

304. Diffraction of Light by Ultrasonic Waves. S. M. Rylov.
Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R. 181-
184, 1934. In French.—Mathematical. A more detailed analysis is
given (see Abstract 4806 (1934)) to determine under what conditions
the Raman-Nath theory holds. G. E. A.

COMMON ELEMENTS

COMMON ELEMENTS

ASM-51A METALLURGICAL LITERATURE CLASSIFICATION

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111 AND LETTERS

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PROCESSES AND PROPERTIES INDEX

Preparation of sound in gaseous systems. S. M. Rytov, V. V. Vladimirov and M. D. Galanin. *J. Exptl. Theoret. Phys. (U. S. S. R.)* 8, 614-21(1938).
Theoretical. Preliminary expts. on a Hg emission in H₂O give the expected order of quenching for a frequency of 7×10^8 Hertz. F. H. Rathmann

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

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APPROVED FOR RELEASE: Thursday, September 26, 2002
APPROVED FOR RELEASE: Thursday, September 26, 2002

RYTOV, S.M.
SA

AS3i

3699. Wave and Geometrical Optics. S. M. Rytov. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 18, 4-5, pp. 263-266, 1938. In French.—By applying to the equation of a wave the approximation in reference to wave-length of geometrical optics the conservation of light flux is demonstrated and a law for the rotation of the vectors (polarisation) is deduced. H. G. C.

AS 3-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS		3RD AND 4TH ORDERS		5TH AND 6TH ORDERS	
A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z	AA	AB	AC	AD
AE	AF	AG	AH	AI	AJ
AK	AL	AM	AN	AO	AP
AQ	AR	AS	AT	AU	AV
AW	AX	AY	AZ	BA	BB
BC	BD	BE	BF	BG	BH
BI	BJ	BK	BL	BM	BN
BO	BP	BQ	BR	BS	BT
BU	BV	BW	BX	BY	BZ
CA	CB	CC	CD	CE	CF
CG	CH	CI	CJ	CK	CL
CM	CN	CO	CP	CQ	CR
CS	CT	CU	CV	CW	CX
CY	CZ	DA	DB	DC	DD
DE	DF	DG	DH	DI	DJ
DK	DL	DM	DN	DO	DP
DQ	DR	DS	DT	DU	DV
DW	DX	DY	DZ	EA	EB
EC	ED	EE	EF	EG	EH
EI	EJ	EK	EL	EM	EN
EO	EP	EQ	ER	ES	ET
EU	EV	EW	EX	EY	EZ
FA	FB	FC	FD	FE	FF
FG	FH	FI	FJ	FK	FL
FM	FN	FO	FP	FQ	FR
FS	FT	FU	FV	FW	FX
FY	FZ	GA	GB	GC	GD
GE	GF	GG	GH	GI	GJ
GK	GL	GM	GN	GO	GP
GQ	GR	GS	GT	GU	GV
GW	GX	GY	GZ	HA	HB
HC	HD	HE	HF	HG	HH
HI	HJ	HK	HL	HM	HN
HO	HP	HQ	HR	HS	HT
HU	HV	HW	HX	HY	HZ
IA	IB	IC	ID	IE	IF
IG	IH	II	IJ	IK	IL
IM	IN	IO	IP	IQ	IR
IS	IT	IU	IV	IW	IX
IY	IZ	JA	JB	JC	JD
JE	JF	JG	JH	JI	JJ
JK	JL	JM	JN	JO	JP
JQ	JR	JS	JT	JU	JV
JW	JX	JY	JZ	KA	KB
KC	KD	KE	KF	KG	KH
KI	KJ	KK	KL	KM	KN
KO	KP	KQ	KR	KS	KT
KU	KV	KW	KX	KY	KZ
LA	LB	LC	LD	LE	LF
LG	LH	LI	LJ	LK	LL
LM	LN	LO	LP	LQ	LR
LS	LT	LU	LV	LW	LX
LY	LZ	MA	MB	MC	MD
ME	MF	MG	MH	MI	MJ
MK	ML	MM	MN	MO	MP
MQ	MR	MS	MT	MU	MV
MW	MX	MY	MZ	NA	NB
NC	ND	NE	NF	NG	NH
NI	NJ	NK	NL	NO	NP
NQ	NR	NS	NT	NU	NV
NW	NX	NY	NZ	OA	OB
OC	OD	OE	OF	OG	OH
OI	OJ	OK	OL	OM	ON
OO	OP	OQ	OR	OS	OT
OU	OV	OW	OX	OY	OZ
PA	PB	PC	PD	PE	PF
PG	PH	PI	PJ	PK	PL
PM	PN	PO	PP	PQ	PR
PS	PT	PU	PV	PW	PX
PY	PZ	QA	QB	QC	QD
QE	QF	QG	QH	QI	QJ
QK	QL	QM	QN	QO	QP
QQ	QR	QS	QT	QU	QV
QW	QX	QY	QZ	RA	RB
RC	RD	RE	RF	RG	RH
RI	RJ	RK	RL	RO	RP
RQ	RR	RS	RT	RU	RV
RW	RX	RY	RZ	SA	SB
SC	SD	SE	SF	SG	SH
SI	SJ	SK	SL	SM	SN
SO	SP	SQ	SR	SS	ST
SU	SV	SW	SX	SY	SZ
TA	TB	TC	TD	TE	TF
TG	TH	TI	TJ	TK	TL
TM	TN	TO	TP	TQ	TR
TS	TT	TU	TV	TW	TX
TY	TZ	UA	UB	UC	UD
UE	UF	UG	UH	UI	UJ
UK	UL	UM	UN	UO	UP
UQ	UR	US	UT	UU	UV
UW	UX	UY	UZ	VA	VB
VC	VD	VE	VF	VG	VH
VI	VJ	VK	VL	VO	VP
VQ	VR	VS	VT	VU	VV
VW	VX	VY	VZ	WA	WB
WC	WD	WE	WF	WG	WH
WI	WJ	WK	WL	WO	WP
WQ	WR	WS	WT	WU	WV
WW	WX	WY	WZ	XA	XB
XC	XD	XE	XF	XG	XH
XI	XJ	XK	XL	XO	XP
XQ	XR	XS	XT	XU	XV
XW	XX	XY	XZ	YA	YB
YC	YD	YE	YF	YG	YH
YI	YJ	YK	YL	YO	YP
YQ	YR	YS	YT	YU	YV
YW	YX	YZ	ZA	ZB	ZC
ZD	ZE	ZF	ZG	ZH	ZI
ZJ	ZK	ZL	ZM	ZN	ZO
ZP	ZQ	ZR	ZS	ZT	ZU
ZV	ZW	ZX	ZY	ZZ	

"The Calculation of the Skin-Effect by Means of the Perturbation Method," Zhur. Eksper. i Teoret. Fiz., Vol. 10, No. 2, 1940

"On the Attenuation of Electromagnetic Waves in Tubes," Zhur. Fiz., 2, No. 2, 1940.

"Reflection of Electromagnetic Waves from a Layer with a Negative Dielectric Constant," Iz. Ak. Nauk, SSSR, Ser. Fiz., Vol. 4, No. 3, 1940

393. CORRECTIONS TO "ON THE ATTENUATION OF ELECTRO-
MAGNETIC WAVES IN TUBES" AND TO "CALCULA-
TION OF SKIN-EFFECT BY THE METHOD OF PERTUR-
BATIONS." - S. M. Rytov. (*Journ. of Phys. (of
USSR)*, No. 3, Vol. 4, 1941, p. 287; in English.)
See 2860 & 4191 of 1949.

1ST AND 2ND EDITIONS PROCESSED AND PROPERTIES INDEX 3RD AND 4TH EDITIONS

W. E.

Subsidiary Apparatus and Materials

3074 PARAMETRIC VIBRATIONS OF AN IRON BODY
IN A VARYING MAGNETIC FIELD.—S. Rytov.
(Journ. of Phys. (USSR), No. 6, Vol. 8,
1944, p. 383; in English, summary only,
in full in Nos. 1-4, Bull. de l'Ac. des Sci.
de l'URSS, Série Physique, 1944.)

Sept '45

330.314 METALLURGICAL LITERATURE CLASSIFICATION

METALLURGICAL LITERATURE CLASSIFICATION													METALLURGICAL LITERATURE CLASSIFICATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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RYTOV, S. M. & AL'PERT, IA. L.

RT-1124 (Suppression of radio noise) O kompensatsii radiopomekh.
Zhurnal Tekhnicheskoi Fiziki, 14(12): 730-748, 1944.

On the Theory of Frequency Stabilization.
S. M. Byrd, A. M. Puchkov, and A. P. Zhukovskiy,
Zh. Tekhn. Fiz., 1968, Vol. 38, No. 10, pp. 537-541. In Russian. In all investigations published on the operation of a valve oscillator containing a stabilizing element, simplifying assumptions are made regarding the linearity of the system under consideration. There are strong reasons to believe that good results can be obtained by using rigorous methods based on the Poincaré-Lyapunov theory, although this is only applicable to slightly nonlinear systems, i.e. to systems with a small parameter determining the deviation of the system from linearity.
Accordingly, the operation of a full in system consisting of a valve oscillator inductively coupled to an LCR circuit (Fig. 1) is discussed from the standpoint of the theory. The properties of the LCR circuit are determined and a definition of stability is given necessary for it, to act as a quartz stabilizer. The operation of a parallel-coupled oscillator with a capacitive coupling (Fig. 2, bottom) and of Pierce's oscillator (Fig. 3, top) are derived for the two systems respectively. An analysis of the first system only is given. A periodic solution of equations (17) is found and its stability investigated. Formulae (14) and (20) determining the variation of the amplitude and of the frequency respectively are derived and it is shown that in the absence of anode reaction and grid current, the stabilization makes the frequency of oscillations independent of the valve parameters apart from second order effects. A numerical example of the calculation of the oscillation frequency is added. See also 377 below.

1ST AND 2ND ORDERS
PROCESSED AND PROPERTIES INDEX
1ST AND 4TH ORDERS

W.E.

Mathematics

100
An Extension of the Limits of Applicability of
the Small Parameter Method (for solving non-
linear oscillation problems); —S. M. Rytov. (*C.R.
Acad. Sci. U.S.S.R.*, 30th April 1975, Vol. 47,
No. 3, pp 181-184)

Jan 1/6

ASB-SLA METALLOGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	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
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RYTOV, S. M.

Structure of the Electromagnetic Field of Two Synchronously Working Oscillators,
published in Zhur. Tekh. Fiz., Vol. 16, No. 4, 1946

10000

Rytov, S. M. Excitation of a hollow spherical resonator
by a dipole placed at its centre. C. R. (Doklady) Acad.
Sci. USSR (N.S.) 51, 111-114 (1946)

Source: Mathematical Reviews,

Vol. 9, No. 3

SMW
Jan

Physics Course, Vol. II (Electricity, Optics, Nuclear Physics), Ministry of
Higher Education of USSR, Moscow, 1947 (Papaleksi, N. D., Editor).

RYTOV, S. M.

"Development of Theory of Nonlinear Oscillations in the USSR," Radiotekh., II,
No. 8, 1947, 5 pp.

Rytov, S. M., and Zhabotinsky, M. E. Application of the small parameter method to systems close to those of Sturm-Liouville. Bull. Acad. Sci. URSS. Ser. Phys. [Izvestia Akad. Nauk SSSR] 11, 135-140 (1947). (Russian. English summary)

The authors consider the nonlinear Sturm-Liouville system of the form (1) $L(y) - \mu y = f(y, \mu)$, where L is a self-adjoint partial differential operator, y is a vector with components y_1, y_2, y_3 and $f(y, \mu)$ is a vector function of y which reduces to zero for $\mu = 0$. The boundary conditions are nonlinear, depend upon μ and have the property that for $\mu = 0$ they become linear. The authors use the method of small parameters to obtain solutions of the nonlinear problem in terms of solutions of the linear problem, using standard perturbation technique. R. Bellman (Princeton, N. J.).

Source: Mathematical Reviews, 1948, Vol 9, No. 1

8m

RYTOV, S. M.

USSR/Optics
Refraction
Photography

Jan 1947

"Observation of Refractional Structures," S. Rytov, M. Yabotinskiy, Institute of
Physics imeni P. N. Lebedev, Acad. of Sci. of USSR, 1 p

Journal of Physics, Vol. XI, No. 1

A general discussion is given on attempts to observe or photograph transparent
objects possessing only refractional structures, i.e., changing phase, but not
amplitude of light.

26T52

USSR/Radio Waves - UHF
Meters, Wave

Feb 1947

"On the Thermometric Method of Measuring the Intensity of the Field of Centimeter Waves," S. M. Rytov, 8 pp

"Izv Ak Nauk Fiz" Vol XI, No 2

Methods of substantially increasing the sensitivity of a thermometer, enabling it to be employed to measure field intensity in the region of centimeter waves.

8T111

Rytov, S. M. Certain theorems on the group velocity of electromagnetic waves. Akad. Nauk SSSR, Zhurnal Eksper. Teoret. Fiz. 17, 930-936 (1947). (Russian)

This paper deals with the propagation of a quasi-monochromatic, quasi-plane wave in a linear, quasi-homogeneous and quasi-static, nonabsorbing, dispersive medium endowed with an arbitrary electric and magnetic anisotropy and rotatory power. The theorems proved consist of the following set of 24 relations between the complex amplitudes F_{α} , H^{im} of the field components, the components of the propagation four-vector $\kappa_m = (\mathbf{k}, -\omega(\mathbf{k})/c)$, and the complex permittivity-permeability tensor defined by $H^{im} = \epsilon^{im\alpha\beta} F_{\alpha}$:

$$\frac{F_{1i}H^{im} + F_{1i}H^{im} \partial \kappa_m}{2 \partial \kappa_m} - \frac{\kappa_i \partial^j F_{\alpha}}{4 \partial \kappa_i} F_{\alpha} F_{\beta} \frac{\partial \kappa_i}{\partial \kappa_m} = 0,$$

$$\frac{F_{1i}H^{im} - F_{1i}H^{im} \partial \kappa_m}{2 \partial \kappa_m} + \frac{\kappa_k}{4} \left(H^{im} \frac{\partial F_{im}}{\partial \kappa_m} - H^{im} \frac{\partial F_{im}}{\partial \kappa_m} \right) = 0,$$

with $k=1, 2, 3, 4$ and $\alpha=1, 2, 3$. The first 12 relations are given the three-dimensional interpretation:

$$\theta_{\alpha\beta} = -\epsilon_{\alpha\beta\gamma} S_{\gamma} = w u_{\alpha}, \quad \alpha, \beta = 1, 2, 3,$$

where the three-vector $u_{\alpha} = \partial \omega(\mathbf{k}) / \partial k_{\alpha}$ is the group velocity and $\theta_{\alpha\beta}$, S_{α} , $\epsilon_{\alpha\beta}$, w are respectively the time averages over the fundamental period of the wave group of the Maxwell stress tensor, the Poynting flux vector, the momentum density and the energy density. The author is unable to find a similar simple three-dimensional interpretation of the second set of 12 relations involving the derivatives of the field amplitudes F_{α} with respect to κ_m . G. M. Volkoff.

Smil
1947

Source: Mathematical Reviews,

Vol 9 No. 6

Physics Dept in Libeled

Mar 1947

USSR/Physics
Wave Analysis
Oscillations

"Some Studies in the Field of Nonlinear Oscillations Conducted in the Soviet Union Since 1935," N.D. Papaleksi (Deceased), A. A. Andronov, G.S. Gorelik, S.M. Rytov, 17½ pp

"Uspekhi Fiz Nauk" Vol XXXIII, No. 3

Discusses two categories of nonlinear systems: 1) those weakly nonlinear, and 2) those strongly nonlinear. State that information presented is nothing new or startling, but merely short discussion of some of the improvements upon ideas in existence in 1935. Refer to article by Mandel'shtam, Papaleksi, Andronov, Khaykin and Vitt, published in 1936, that contained basic data for improvements they discuss.

PA 50T97

100

*Papaletski, N. D. Sobranie trudov. [Collected Works].
Edited by S. M. Rytov. Izdatel'stvo Akademii Nauk
SSSR, Moscow-Leningrad, 1948. 428 pp.

~~100~~

Source: Mathematical Reviews, 1950 Vol 11 No. 8

USSR/Academy of Sciences
Radio

Feb/1948

"Academician Nikolay Dmitriyevich Papaleksi," 15 pp.

Izvest. Akad. Nauk SSSR, Ser. Fiz., Vol. XII, No. 1

Detailed account of Papaleksi's main contributions to science from 1907 until his death; quotes from some of his works, and gives brief descriptions of various other scientists who worked with him.

39T4

USSR/Radio

Mar/Apr 1948

Oscillators, Electron Tube
Oscillators, Stabilized

"Stabilization of the Frequency of Tube Oscillators,"
S. M. Rytov, A. M. Prokhorev, M. Ye. Zhabotinskiy,
2 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 2

Discusses subject with reference to small parameter
method as applied to quartz stabilization.

69T99

"Several theorems about group speed of electromagnetic waves," published in the Journal of Expe . and Theoret. Physics, Vol. 1⁷, No. 10, 1948

"The Fundamental Wave in Lines without Losses," (book), 1948

"From the Early History of Radio," (book) 1948

"Course in Physics, Vol. II," 1948. Ye. L. Feynberg and L. V. Groshev co-authors.

"In memorium, N. D. PAPALESKI," Successes of the Physical Scis., Vol. 34, No. 4, 1948.

RETOV, S. M.

"Development of a Class of Surfaces for which the Telegraph Equation is True,"
Radiotekh., No. 2, 1949

"Telegraph Equation for Lines with Small Losses," Radiotekhnika, No. 2, 1949

"Basic Wave in Lines without Loss," Radiotekh., No. 2, 1949

RYTOV, S. M. (editor)

Complete Works, Vol 3, L. I. Mendel'shtam. Moscow-Leningrad, 1950, 424 pp.

Book W-22202, 7 Apr 52

"On the Telegraphic Equation for Generalized Lines with Small Losses," Journal of Technical Physics, Vol. XX, No. 3, 1950, pp. 257-81.

RYTOV, A.S.

USSR/Physics - New Techniques
Diffraction
Apr 50

"New Form of a Phase-Diffraction Grating," S. M. Rytov, I. L. Fabelinskiy, Phys Inst Imeni Lebedev, Acad Sci USSR, 2 pp

"Zhur Eksper 1 Teoret Fiz" Vol XX, No 4

Describes reflecting diffraction grating that mainly admits only phase modulation to light wave reflected from it. Prepared and used such a grating to conduct number of qualitative observations on distribution of intensities in diffraction spectra in natural and

159T92

USSR/Physics - New Techniques (Contd) Apr 50
polarized light. Observed clear sharp distinctions in intensity distribution. Submitted 5 Jan 50.

159T92

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5

RYTOV, S. A.
RT-969 (On the telegraphic equation for generalized lines with small losses) 0 telegrafnom
uravnenii dlia obobshchennykh linii s malymi poteriami.
ZHURNAL TEKHNICHESKOI FIZIKI, 22(3): 257-281, 1950.

168T83

RYTOV, S. M.

USSR/Physics - Microscopy
Optics

Aug 50

"Method of Phase Contrast in Microscopy," S. M.
Rytov

"Uspekhi Fiz Nauk" Vol XLI, No 4, pp 425-451

This lecture was read at colloquy of the Phys Inst
imeni Lebedev, Acad Sci USSR. Rytov claims So-
viet eminence in field, but it is still little
known to physicists. Discusses modulation in ra-
dio, formation of optical images, representations
of amplitude and phase structures, and method of
phase contrast.

168T83

Die Moderne Schwingungs-Und Wellenlehre. Berlin, Kultur Und Fortschritt, 1952.
67 P. Illus., Diagrns.
Translation From The Russian, Sovremennoye Ucheniye O Kolebaniyakh I Volnakh,
Moscow, 1951.
Added T.-P. In Russian.

SO: N/5
613.05
.R951

RYTOV, S.M.

Electrons

Dispersion on a charged filament. Zhur. eksp/ i teor. fiz., 22, No. 4, 1952

Monthly List of Russian Accessions, Library of Congress, November, 1952 UNCLASSIFIED

USSR/Physics - Skin Effect

Sep 52

"Differential Law of Intensity of Electric Fluctuations and Their Behavior Under Skin Effect," M. A. Leontovich, S. M. Rytov, Phys Inst Imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol 23, No 3, pp 246-252

Under the condition that it be quasi-stationary the authors indicate the form of the correlation function of the lateral elec field causing integral emf of thermal elec fluctuations, whose spectral intensity is given by Nyquist formula. They show that the condition that spectral intensity

227T81

of integral random emf be proportional to the active resistance of the conductor is effected by setting the radius of correlation of the lateral field very small, in comparison with the radius of the conductor and width of skin layer. Received 21 May 52.

227T81

(PA 56 no. 668: 5466 53)

"Theory of Electric Fluctuations and Thermal Radiation," Dokl. AN SSSR, 87,
No.4, pp 535-538, 1952

Refers to his work with M.A.Leontovich (ZhTEF 23, 246, 1952) in which he
passed from integral emf to the effect of incidental electric field and derived
space function of correlation for an arbitrary field component. The derived formula
characterizes fluctuations in the material of the conductor. Presented by Acad.
M:A. Leontovich 3 Oct 52 256T62

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

RYTOV, S.M.; LEONTOVICH, M.A., redaktor

[Theory of electrical fluctuations and thermal radiation] Teoriia
elektricheskikh fluktuatsii i teplovogo izlucheniia. Moskva, Izd-
vo Akademii nauk SSSR, 1953. 231 p. (MLRA 7:2)
(Electromagnetic theory)

USSR/

APPROVED FOR RELEASE: Thursday, September 26, 2002
Approved for Release by NSA on 09-26-2002 pursuant to E.O. 13526

CIA-RDP86-00513R001446510014-5
CIA-RDP86-00513R001446510014-5

FD-1404

Card 1/1 : Pub. 146-7/20

Author : Rytov, S. M.

Title : ~~Magnetic flux~~ Magnetic flux generated by a dipole located within a round ferromagnetic cable

Periodical : Zhur. eksp. i teor. fiz., 27, 307-312, Sep 1954

Abstract : A general expression for induction flux generated by a magnetic dipole located within a ferromagnetic infinite round cable is derived. Computation is carried out for the flux passing through a circular area, its center lying on the cable axis and its plane perpendicular to the axis. Three references.

Institution : Physics Institute imeni Lebedev, Acad Sci USSR

Submitted : December 28, 1953

USSR/Physics - Waveguide radiation

Card 1/1 Pub. 146 - 6/20

Author : Rytov, S. M.

Title : Thermal radiation in waveguides

Periodical : Zhur. eksp. i teor. fiz., 27, No 5 (11), 571-578, Nov 1954

Abstract : The author generalizes the waveguide form of Kirchhoff's law to the case where the radiating bodies in a waveguide are heated nonuniformly but under the condition that the skin effect be expressed sufficiently strongly (for the particular case see the author's Theory of electrical fluctuations and heat radiation [Teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya], Acad. Sci. USSR Press, Moscow, 1953). He shows that the radiated power can be expressed through the absorption coefficients of waves E_{mn} , H_{mn} and through the effective temperatures, which are the average temperatures weighted according to the distribution of energy flow for these waves on the surface of the radiator. He obtains a simple expression for the radiated power in the case where the radiator consists of bodies heated variously but uniformly. Three references, 1 Western (Nyquist, 1928) and 2 USSR (e.g. S. M. Rytov, *ibid.*, 10, 180, 1940).

Institution : Physics Institute imeni P. N. Lebedev, Acad. Sci. USSR

Submitted : February 10, 1954

BYTCV, S. M.

"Acoustic Properties of Fine Laminar Medium".

Physical Institute imeni F. N. Lebedev, Academy of Sciences USSR

A report delivered at a conference on Electro-acoustics held by the Acoustic Commission, the Acoustic Institute of the Academy Sciences USSR, and the Kiev Order of Lenin Polytechnic Inst., from 1-5 July 1955 in Kiev.

SO: Sum 728, 28 Nov 1955.

RYTOV
RAYLEIGH, John William Stratton; · USPENSKIY, P.N. [translator];
KAMENETSKIY, S.A., [translator]; RYTOV, S.M., redaktor

[Theory of sound. Translated from the English] Teoriia zvuka.
Perevod s 3. angliiskogo izd. P.N.Uspenskogo i S.A.Kamenetskogo.
Izd.2., pod red. i s predisl. S.M.Rytova. Moskva, Gos.izd-vo
tekhniko-teoret. lit-ry, 1955. (MLRA 9:3)
(Sound) (Vibration) (Waves)

Card 1/1 Pub 90-1/9

Author : Rytov, S. M.

Title : Theory of thermal noises, part I

Periodical : Radiotekhnika 10, 3-13, Feb 55

Abstract : Increased sensitivity of modern radio receivers has placed new demands for the study of origin and behavior of thermal noises. The theory of thermal noises was originally adapted to thermal electrical fluctuations in the quasi-stationary circuits with lumped impedances, whose dimensions were small compared to the wave length. With the advent of ultra-short waves, the original quasi-stationary theory premises could not be applied any more, since the wave length becomes comparable to the dimensions of the circuit. Recently, a generalized theory of thermal electrical fluctuations applicable to the ultrashort waves has been worked out, and it is briefly described in this article. Specific examples of application of the new generalized electro-dynamic theory of thermal electrical fluctuations to the problems of radio physics and radio-engineering are given. The theory of waveguides is treated.

Institution: --

Submitted : May 7, 1954

USSR/Electronics Research

Card 1/1 Pub 90-1/12

Author : Rytov, S. M.

Title : Theory of thermal noises, Part II

Periodical : Radiotekhnika, 10, 3-13, Mar 1955

Abstract : The origin and effect of thermal noises, and methods of estimating them for various circuits, are elaborated in this article. Methods of calculating the heat generated in wave guides and coaxial cables, responsible for thermal noises, are offered in this article for several sets of simple lay-outs. For simple geometric configuration of wave guides and coaxial cables the coefficient of heat absorption is readily calculated, and then applied to formulas for calculating the heat generated. Nyquist formula is explored for its applicability to the problems of thermal noises. Eight USSR references. Formulas.

Institution:

Submitted : 7 May 1954

Rytov, S. M.

USSR/ Physics

Card 1/1 Pub. 124 - 4/32

Authors : Rytov, S. M., Dr. of Phys.-Math. Sc.

Title : Electric fluctuations and heat emission

Periodical : Vest. AN SSSR 25/6, 24-33, June 1955

Abstract : The lecture presented does not deal in just any ordinary electrical fluctuation but only in such electrical fluctuations the origination of which is due mainly to thermal migration of electrons, ions and general micro-charges in a substance. The fluctuation connected with thermal migration of micro-charges are called, "thermal noise". It is pointed out that these noises, the intensity of which depends upon temperature, determine the lowest level of the total fluctuation noise possible in a given circuit at a given temperature. Five USSR references (1952-1955).

Institution :

Submitted :

USSR/Physics - Heat radiation

FD-3048

Card 1/1 Pub. 153 - 17/23

Author : Levin, M. L.; Rytov, S. M.

Title : Thermal radiation of a thin rectilinear antenna

Periodical : Zhur. tekhn. fiz., 25, February 1955, 323-332

Abstract : On the basis of the general theory of electrical fluctuations (S. M. Rytov, Teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya [Thermal radiation etc.], Moscow, 1953) and the theory of thin antenna (M. A. Leontovich and M. L. Levin, ZhTF, 14, 481, 1944 and Izv. AN SSSR, Ser. fiz., 8, 157, 1944) the authors consider the thermal radiation of a thin cylindrical straight conductor both at nonresonant and at resonant frequencies. They find the spectral intensities for density of energy flow and for total radiated power, and obtain an expression for the reduced characteristic (diagram of directivity) of thermal radiation; they also calculate the distribution of the fluctuational current along the antenna and its radiation resistance. In conclusion they generalize all these results to the case of a conductor of variable cross section. Three references: e.g. M. L. Levin, DAN SSSR, 54, 599, 1946 and Izv. AN SSSR, Ser. fiz., 11, 117, 1947.

Submitted : October 8, 1954

USSR/Physics - Self-excited Thomson fluctuations

FD-2966

Card 1/2 Pub. 146 - 7/28

Author : Rytov, S. M.

Title : ~~Fluctuations in self-excited oscillatory systems of the Thomson type. I~~
Fluctuations in self-excited oscillatory systems of the Thomson type. I

Periodical : Zhur. eksp. i teor. fiz., 29, September 1955, 304-314

Abstract : The author considers the fluctuations in amplitude and phase in weakly nonlinear self-excited oscillatory systems which permit the application of the method of small parameter in the finding of the periodic regime. In contrast to preceding investigations (L. Pontryagin, A. Andronov, A. Vitt, *ibid.*, 3, 165, 1933; I. L. Bershteyn, DAN SSSR, 20, 11, 1938 and *ZhETF*, 11, 305, 1941; P. I. Kuznetsov, R. L. Stratonovich, V. I. Tikhonov, DAN SSSR, 97, 639, 1954; M. Ye. Zhabotinskiy, *ZhETF*, 26, 758, 1954) the present writers do not employ the Einstein-Focke equations, but use the symbolic differential equations for describing the fluctuations of random functions and the methods of the correlational theory. In the first part of the article the author considers a system with one degree of freedom and for illustration of the method he applies the general theory to an already earlier investigated

FD-2966

Card 2/2

Pub. 146 - 7/28

Abstract : (I. L. Bershteyn, op. cit.) case of autonomous system and to a concrete example of a tube generator (oscillator) in a soft regime of self-excited excitation. Seven references.

Institution : Physical Institute im. P. N. Lebedev, Academy of Sciences USSR

Submitted : December 2, 1954

RYTOV

USSR/Physics - Self-excited Thomson fluctuations

FD-2967

Card 1/1 Pub. 146 - 8/28

Author : Rytov, S. M.

Title : ~~Fluctuations in self-excited oscillatory systems of the Thomson type. II~~
Fluctuations in self-excited oscillatory systems of the Thomson type. II

Periodical : Zhur. eksp. i teor. fiz., 29, September 1955, 315-328

Abstract : The author applies the theory developed in part I [see the preceding abstract] to a nonautonomous system with one degree of freedom. As an example he considers a tube oscillator entrapped [zakhvachenny] by a harmonic force. By the same method he investigates a system with two degrees of freedom, namely a tube oscillator connected to a circuit with high figure of merit [vysoko-dobrotnyy kontur], and clarifies the influence of this method of frequency stabilization upon fluctuations in amplitude and phase. He shows how the thermal fluctuations are taken into account in the given theory. Five references: e.g. S. M. Rytov, A. M. Prokhorov, M. Ye. Zhabotinskiy, *ibid.*, 15, 557 and 613, 1945; V. I. Bunimovich, *Fluktuatsionnyye protsessy v radiopriyemnykh ustroystvakh* [Fluctuational processes in radio receiver apparatus], Soviet Radio Press, Moscow, 1951

Institution : Physical Institute im. P. N. Lebedev, Academy of Sciences USSR
Submitted : December 2, 1954

Rytov

Card 1/1 Pub. 146 - 7/28

Author : Rytov, S. M.

Title : Electromagnetic Properties of a Laminar Medium

Periodical : Zhur. Eksp. i Teor. Fiz., 29, No 5, 605-616, 1955

Abstract : A medium consisting of successive sufficiently thin lamina of two isotropic substances exhibits towards electromagnetic waves a behavior of a uniform, but anisotropic (single axis crystal) matter. Effective permeability tensors of such a crystal are obtained and limits of lamina thickness are derived as related to the material and to frequency parameters. Losses in the microlaminar structure and boundary conditions on its surface are analyzed. Academician M. A. Leontovich is thanked for discussion. Twelve references including 9 foreign.

Institution : Physics Institute im. Lebedev, Acad. Sci. USSR

Submitted : June 9, 1954

USSR/Nuclear Physics wave functions

FD-3351

Card 1/1 Pub. 146-23/28

Author : Rytov S. M.

Title : Bond distribution of quasimonochromatic stationary process with its envelop distribution. (Letter to the editor)

Periodical : Zhur. Eksp. i Teor. Fiz., 29, No 5, 702-703, 1955

Abstract : Wave equations published by A. Blanc-Lapierre et al. (Ann. tele-commun. 9, 237, 1954) are analyzed and some new derivations added. The aforementioned reference and one by the author.

Institution : Physics Institute im. Lebedev, Acad. Sci. USSR

Submitted : July 23, 1955

USSR/Physics - Electrical fluctuation problems

Card 1/2 Pub. 118 - 2/8

Authors : Rytov, S. M.

Title : Electrical fluctuations and thermal radiation

Periodical : Usp. fiz. nauk 55/3, 299-314, Mar 1955

Abstract : A report was read, in commemoration of the 10th anniversary since the death of L. I. Mandel'shtam, at a joint meeting of the physico-mathematical and the technical branches of the Acad. of Scs., USSR. The Report deals with electrical fluctuations due to the thermal movement of electrons forming the so-called thermal noise. The report has a dual purpose: the first is to ennumerate the subjects of L. I. Mandel'shtam's interest and his methods of handling such problems; and the second, to outline

Institution :

Submitted :

Card 2/2 Pub. 118 - 2/8

Periodical : Usp. fiz. nauk 55/3, 299-314, Mar 1955

Abstract : the steps of the theoretical development of the electrical fluctuation problem up to the present day and its practical application to such modern devices of UHF technics as wave guides, coaxial cables, etc. Various methods used by different physicists and engineers for the solutions of the problem are described. Thirteen references: 9 USSR, 2 USA and 2 German (1908-1954).

RYTOV, S. M. (U.S.S.R.)

"Acoustical Properties of a Laminated Medium".
Abstracted for inclusion in the Second International Congress on Acoustics, Cambridge,
Mass., 17-24, Jun 1956

P. N. Lebedev Physical Institute of the Academy of Sciences of the USSR

RYTOV, S. M. P. N. Lebedev Physical Institute of the Academy of Sciences of the USSR, Moscow
LEVIN, M. L. Ivanov Pedagogical Institute

"On the Transition of the Geometrical Approximation in the Theory of Elasticity"
paper presented at 2nd International Congress on Acoustics, Cambridge, Mass., 17-23 June 1956.

So: B-100200

RYTOV, S. M.

USSR/Radiophysics - Electric Networks, I-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35256

Author: Rytov, S. M.

Institution: Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

Title: On the Problem of Phase Fluctuations in a Vacuum Tube Oscillator

Original

Periodical: Radiotekhnika i elektronika, 1956, 1, No 1, 114-119

Abstract: Analysis of an article by I. S. Gonorovskiy "On Phase Fluctuations in Vacuum Tube Oscillator (Referat Zhur - Fizika, 1956, 14093). The fallacy in the computation method used in this article is shown; this fallacy led the author to an incorrect conclusion concerning the quadratic time rise of the dispersion of the phase of the vacuum-tube oscillator.

Card 1/1

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Akusticheskiy Zhurnal, vol. 2, No. 1, 1956

S. M. RYTOV; Acoustic properties of finely laminated media

70

Abstract: A medium composed of alternate layers of two isotropic substances acts, on the average, like a homogeneous but anisotropic medium when the wave field varies slightly per thickness of the separate layer (fine layer). The anisotropy corresponds to a crystal of hexagonal symmetry. Expressions are obtained for the effective elastic constants of the crystal as a function of the parameters of both substances and of the lamina thickness. Considered are alternate layers of two solid substances and alternate layers of solids and fluids.

Artificial finely laminated media, which are easily produced, but the properties can be very different (anisotropy of the propagation and absorption velocities for both compression and shear waves), are of known practical interest, in particular, for shock absorbers. (P. N. Lebedev Physics Inst. Sept., 1955)

[Handwritten signature]

Category : USSR/Acoustics - Sound vibrations and waves

J-2

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2108

Author : Levin, M.L., Rytov, S.M.

Inst : Acoustics Institute, Academy of Sciences USSR

Title : On the Transition to the Geometric Approximation in the Theory of Elasticity

Orig Pub : Akust. Zh., 1956, 2, No 2, 173-176

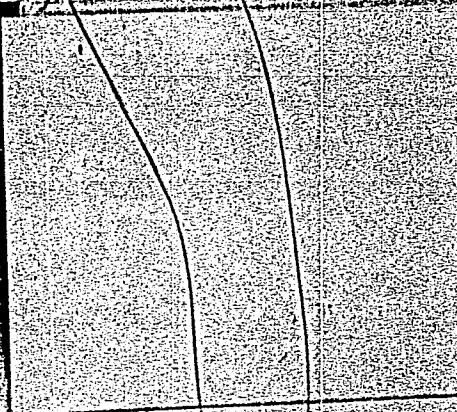
Abstract : It is shown that the linearized equations of the theory of elasticity, presented in the geometric approximation, in addition to yielding the Eikonal equation and the law of conservation of energy flux in the compression and shear waves, also result in a law for the variation of the polarization of the shear waves along the corresponding rays. This polarization law turns out to be the same as for electromagnetic waves.

Card : 1/1

RYTOV

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The Transition to a Geometric Approximation in the Theory of Elasticity. M. L. Lavin and S. M. Rytov. *Soviet Physics Acoustics*, No. 2, 1956, pp. 170-184. Translation. Analysis which shows that the law of variation of shear-wave polarization along corresponding rays follows from the linearized equations of the theory of elasticity in a geometric approximation, along with the equation of the eikonal and the laws of conservation of energy flow in the compression and shear waves.

2

RYTOV
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

ZHABOTINSKIY, M.Ye.; IRISOVA, N.A.; RYTOV, S.M.

Effect of variable-frequency signals on a linear resonance system.
Trudy Fiz.inst. 8:3-12 '56. (MIRA 10:3)
(Radio frequency modulation)

SUBJECT USSR / PHYSICS
 AUTHOR RYTOV, S.M.
 TITLE On the Thermal Fluctuations in Distributed Systems.
 PERIODICAL Dokl. Akad. Nauk, 110, fasc. 3, 371-374 (1956)
 Issued: 12 / 1956

Here the well-known theorem by H. NYQUIST, Phys. Rev. 29, 614 (1927); 32, 110 (1928) on the spectral intensity of the thermal electric fluctuations in a conductor is generalized for distributed systems in which fluctuations are described by chance functions of time and space. On this occasion we pass from steady chance processes to homogeneous chance fields which are isotropic in accordance with the character of the problem. Next, the contents of the "fluctuation dissipation theorem" by KALLEN et al. is discussed in short, and

the corresponding correlation matrix of the spectral amplitudes has the form

$$\begin{cases} j\omega \\ k\omega' \end{cases} \begin{cases} * \\ \end{cases} = C(\omega) i(\alpha_{jk} - \alpha_{kj}^*) \delta(\omega - \omega')$$

and $\Theta = kT$ is the temperature. The matrix α_{jk} obeys certain symmetry relations. By the application of the notion of exterior fluctuation forces this theorem may be formulated also in a different manner. Also for that case the correlation matrix of the spectral amplitudes is given.

We now pass on to the theorem itself. The fluctuations in a distributed system with the volume V are described by a homogeneous chance field $\{ (t, \vec{r}) \}$, and for reasons of simplicity a onedimensional field is investigated here. Generalization for the system of the fields $\{ (\alpha) (t, \vec{r}) (\alpha=1, 2, \dots) \}$ is not difficult. The

BRUKHOVSKIKH, L.M., ~~BYTOV~~ S.M., doktor fiziko-matematicheskikh nauk,
otvetstvennyy redaktor; GUROV, K.P., redaktor izdatel'stva;
PAVLOVSKIY, A.A., tekhnicheskiiy redaktor.

[Waves in laminated media.] Volny v sloistyykh sredakh. Moskva,
Izd-vo Akad.nauk SSSR, 1957. 501 p. (MLRA 10:6)
(Waves)

109-8- 16/17

AUT~~OR~~: Rytov, S.M.

TITLE: Gabriel Semenovich Gorelik. An Obituary.
(Gabriel' Semenovich Gorelik)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, Nr 8,
pp.1083-1085 (USSR)

ABSTRACT: G. S. Gorelik lost his life in an unfortunate accident on 27th June, 1957. He was one of the most outstanding Soviet physicists and was known for his investigations in the field of the theory of oscillations, radio physics, optics, acoustics and also for his long and brilliant pedagogic activity. G.S. Gorelik was born on the 8th December 1906 in the family of a physician. He received his higher education at the Moscow State University where he graduated in theoretical physics in 1929. In 1934 he received the degree of Dr. of Physical Sciences at the same University. During 1935-1937 he worked at the Physical Technical Research Institute in Gorkiy. Since 1939 he had the position of Professor and Dean of the Faculty of Physics at the Gorkiy State University and he lived in Gorkiy until 1953. He is the author of a number of original scientific

Card 1/2

109-8-16/17

Gabriel Semenovich Gorelik. (An Obituary).

works and some books, such as "Oscillations and Waves",
1950, and was awarded a number of Soviet decorations and
orders.

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Rytov, S.M.

109-11-7/8

TITLE: Development of the Theory of Non-linear Oscillations in the USSR (Razvitiye teorii nelineynykh kolebaniy v SSSR)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.11, pp. 1435-1450 (USSR).

ABSTRACT: The non-linear theory of oscillations which was originated by Poincaré has since been developed intensively in the Soviet Union by a number of outstanding scientists, such as L.I. Mandel'shtam and A.A. Andronov. The theory is based on the four principal methods: 1) quantitative theory of the Poincaré differential equations which gives geometrical representation of the motion of dynamic systems, in particular, their limit cycles; 2) the small parameter method which was originated by Euler and Lagrange, developed by Poincaré and employed in practice by van der Pol; 3) the method of the investigation of stable states and periodic oscillations, and 4) the method of broken-line approximation of non-linear characteristics. The second method was used in the Soviet Union to investigate the problem of forced synchronisation in simple oscillators. L.I. Mandel'shtam and N.D. Papaleksi studied the "Periodic Solutions of the Second Kind" and concluded that in a regenerative system, it is possible to

Card1/3

109-11-7/8

Development of the Theory of Non-linear Oscillations in the USSR.

excite oscillations having the frequency of n-th sub-harmonic. They also developed the theory of the parametric generation of oscillations. The conditions of self-excitation in the systems with parametric variables were studied by G.S. Gorelik and S.B. Strelkov. The study of small non-linearities was originated by Mandel'shtam and later generalised to include systems with large non-linearities. The problem of relaxation oscillations was first studied by Mandel'shtam and Papaleksi and, since then, a large number of works dealing with various aspects of the problem have been published. The qualitative theory of non-linear, differential equations was given by Andronov and Pontryagin; the school founded by A.A. Andronov in Gorki has since investigated this field very extensively. Andronov proposed also a new scientific theory, the so-called "general dynamics of machines" which classifies the machines and analyses their functioning in very general terms. This theory is of particular importance in the field of automatic control, where the non-linear problems are particularly relevant and where they become very complicated. Andronov and his school have also investigated the Nyquist criterion and have introduced a new approach to the problem of stability. Another field of the non-linear theory, which was investigated by I.L. Bershteyn, is

Card2/3

109-11-7/8

Development of the Theory of Non-linear Oscillations in the USSR.

the influence of the fluctuation noise on oscillation systems.
There are 198 references, 193 of which are Slavic.

AVAILABLE: Library of Congress.

Card 3/3

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Distr: LiEic/hE3d

440.163 : 635.49

1821. CORRELATION THEORY OF THERMAL FLUCTUATIONS
IN AN ISOTROPIC MEDIUM. S. M. Rytov.

Zh. eksper. teor. Fiz., Vol. 33, No. 1(7), 166-78 (1957). In Russian.

The so-called "fluctuation-dissipation" theorem of Callen et al. (1951-2) is used to develop a spectral theory of thermal fluctuations in an isotropic elasto-viscous continuous medium. The mechanical and thermal parameters of the medium in this case can possess any frequency dispersion consistent with the dissipation condition. Correlation functions of $6k$ amplitudes (amplitudes of Fourier time-space expansions) were determined for stress, deformation, velocity, temperature and entropy fluctuations. Using these equations the spectral intensities (which yield spatial correlation at a frequency ω), as well as the spatial correlation functions of quantities which are not decomposed spectrally, can be calculated. The results are useful in the spectral theory of Rayleigh scattering 21
A

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- 56-2-28/47

AUTHOR: Rytov, S.M.

TITLE: Note on the Correlation Theory of Raleigh Scattering of Light
(Korrelyatsionnaya teoriya Releyevskogo rasseyaniya sveta)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 2(8) pp.514-524
(USSR)

ABSTRACT: At the beginning the author deals shortly with the well known spectral solution of the problem of scattering of a plane monochromatic wave on weak optical inhomogeneities of the medium. The problem is reduced, therefore, to the computation of the Ω_q intensities of the four components of the tensor $\epsilon_{\alpha\beta}$. The tensor $\epsilon_{\alpha\beta}$ here denotes the small fluctuations of the dielectricity constant: $\epsilon_0 \delta_{\alpha\beta} + \epsilon_{\alpha\beta}(t, \vec{r})$. Because the fluctuations are very small, the relation of $\epsilon_{\alpha\beta}$ with the fluctuation deformations, with the quantity $u_{\alpha\beta} = \Delta u = -\rho/\rho_0$ (ρ_0 denoting the deviation of density from its equilibrium value) and with $\eta = T/T_0$ (T denoting the temperature, T_0 the equilibrium value of temperature) is linear. In the case of spectral amplitudes this relationship is purely algebraic according to the assumptions. If certain coefficients as well as the mechanical and thermal parameters of the medium do not show dispersion (and therefore are real), the relation given here holds also for the quantities which were not analyzed spectrally. The determination of the spectral intensities of the scattered light is reduced to the ascertainment of the Ω_q intensities for the fluctuations of the deformations and the

Card 1/2

Note on the Correlation Theory of Raleigh Scattering of Light. 56-2-28/47

temperature. Here the author employs a former solution of the problem. The finite width of the maxima of both doublets is connected with the dispersion of the parameters of the medium. At the absence of losses these maxima are transformed to discrete lines. The dispersion of the parameters leads to the existence of a widespread continuous background, the distribution of which depends on the dispersion laws.

For the integral intensity of the isotropical part of the scattered light an expression is given. Finally the case of a liquid with a low viscosity is considered. There are no reference and 1 table.

ASSOCIATION: Physics Institute imeni P.N.Lebedev, AN of the USSR (Fizicheskiy Institut im.P.N.Lebedeva AN SSSR)

SUBMITTED: March 2, 1957

AVAILABLE Library of Congress

Rytov, S. M.

AUTHOR: Rytov, S.M.

56-3-19/59

TITLE: Correlation Theory of Rayleigh Scattering of Light. II.
(Korrelyatsionnaya teoriya releyevskogo rasseyaniya sveta II)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3,
pp. 669-682 (USSR)

ABSTRACT: The following problems are discussed and solved theoretically:
a) Integral intensity of the component I_{IZ} (formation of problem and solution.)
b) Anisotropic scattering. Notes to the theory of M.A.Leontovich.
c) Spectral intensity of the "displaced" flank
d) Integral intensity of anisotropic scattering.

The integral intensity of the microstructure component of the isotropically scattered part of light is given for a medium with small heat losses and for a certain concretizing of dispersion laws. As regards anisotropic scattering the simple dispersion laws are shown which supply a satisfactory approximation of the intensity distribution observed at Rayleigh's flank. Furthermore, approximation formulae for the coefficient of depolarization of Rayleigh's scattering are given. There are 1 figure and 8 Slavic references.

ASSOCIATION: Physical Institute imeni P.N.Lebedev AN USSR (Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR)

Card 1/1

RY
AUTHOR RYTOV, S.M. 56-7-24/66
TITLE The Correlation Theory of Thermal Fluctuations in an Isotropic Medium
(Korrelyatsionnaya teoriya teplovykh fluktuatsiy v izotropnoy srede.
Russian)
PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 166 - 178
(U.S.S.R.)
ABSTRACT The theory developed here does not give concrete data concerning the
mechanism of the dispersion and is of a purely phenomenological charac-
ter. The results obtained may, above all, be applied directly to the
spectral theory of RALEIGH'S scattering of light.
The initial equations: The author here confines himself to an isotropic
medium, the mechanical properties of which can be expressed by the
scalar coefficients of heat conductivity and of thermal expansion. All
these parameters of the medium are functions of the frequency ω and
are generally complex. The deviations from the thermodynamical state
of equilibrium of this medium can, in the case of the known restrictions,
be described by a further parameter. In the case of lacking dispersion
all equations given here are true for the spectrally not decomposed
quantities, and thermodynamics then enters into force. The next chapter
gives general formulae for the correlation functions and for the spectral
intensities. Now the author deals with the thermal fluctuations in an

Card 1/2

56-7-24/66

The Correlation Theory of Thermal Fluctuations in an Isotropic Medium
elastic-viscous medium.

The spectral intensities of foreign forces: The spectral equations given formerly are here transformed by the introduction of foreign forces. The foreign momentum is equal to zero. In the following chapters the spectral ω k-intensities of the tensions and of the temperature as well as the spectral ω k-intensities of the velocity and of the deformations are derived.

Spectral correlation: The corresponding ω -intensities can be computed with the help of the ω k-intensities, which then give the spatial correlation of the orders to be investigated with respect to the frequency ω . By means of a further formula the correlation functions of the spectrally not decomposed quantities can be determined. (No illustrations).

ASSOCIATION

Physical Institute "P.N. Lebedev" of the academy of Sciences of the U.S.S.R. (Fizicheskii institut im. P.N.Lebedeva Akademii nauk SSSR)

PRESENTED BY

SUBMITTED

29.12.1956

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Library of Congress

Card 2/2

53-4-8/10

AUTHOR: Rytov, S. M.

TITLE: In Memory of G. S. Gorelik (Pamyati G. S. Gorelika)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol. 62, Nr 4, pp. 485-496 (USSR)

ABSTRACT: On June 27th Gabriel Semenovich Gorelik, one of the most prominent Soviet physicists, died by a tragic accident. He was well known on account of his investigations on the theory of oscillations, on radio physics, optics and acoustics as well as on account of his excellent pedagogical activity of many years. G. S. Gorelik was born in 1906 at Paris, where his father studied at that time. In 1923 he began his studies at the mathematical-physical faculty of Moscow university and, influenced by L. I. Mandel'shtam, he turned to theoretical physics, also as an aspirant he worked under Mandel'shtam. When beginning to work as an aspirant (1930), he began teaching. From 1934 to 1938 he delivered lectures on the theory of oscillations. During this time he finished seven further scientific investigations on the theory of oscillations. From 1935 to 1937 he worked at the physical-technical research institute at Gor'kiy. In 1938 he took over the chair for general physics at Gor'kiy, where he lived till 1953. During his stay at Gor'kiy, he wrote more than 20 scientific treatises

Card 1/2

53-4-8/10

In Memory of G. S. Gorelik

on various problems of the theory of oscillations, magnetism, theory of automatic control, radiophysics and optics. When delivering his excellent lectures, he always endeavored to combine the "classical" and the "modern". His pedagogical talent expressed itself in his capability to train scientific workers and to form congenial collectives. During the war he carried out important commissions for construction offices working at Gor'kiy. In the years after the war Gorelik took part in the development of the theory of the nonlinear oscillations. Gorelik developed an individual direction which may be described as an investigation of the properties of matter and radiation by means of oscillation methods and mainly radiophysical methods. In June 1953 he was offered the professorial chair at the Moscow physical-technical institute. Further details of his activities are discussed. There are 1 figure and 64 references, 60 of which are Slavic. All 64 references are scientific works by Gorelik.

AVAILABLE: Library of Congress

Card 2/2

Rytov
AUTHOR: Rytov, S. M.

53-4-2/11

TITLE: The Correlation Theory of Electric Fluctuations and of Thermal Radiation (Korrel'yatsionnaya teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya).

PERIODICAL: Uspekhi Fizicheskikh Nauk, 1957, Vol. 63, Nr 4, pp. 657-672 (USSR).

ABSTRACT: The present survey is arranged as follows. Introduction, fluctuation dissipation theorem for distributed systems, application to an electromagnetic field in a homogeneous medium, general characteristic of the theory, the case of bodies with good conductivity, some results of the application of the theory (radiation into the free space, radiation in lines and spatial resonators), application of the principle of reciprocity, the thermal electromagnetic field near radiating bodies, the phenomena of interference in thermal radiation, thermal radiation in anisotropic media. There are 5 figures, and 31 references, 21 of which are Slavic.

AVAILABLE: Library of Congress.

Card 1/1

LEBEDEV, Vsevolod Leonidovich; RYTOV, S.M., prof., retsenzent; YAGLOM, A.M.,
doktor fiz.-mat.nauk, retsenzent; KOSTIYENKO, A.I., kand.fiz.-mat.
nauk, red.; AKHLAMOV, S.N., tekhn.red.

[Random processes in electric and mechanical systems] Sluchainye
protsessy v elektricheskikh i mekhanicheskikh sistemakh. Moskva,
Gos.izd-vo fiziko-matem.lit-ry, 1958. 176 p. (MIRA 12:2)
(Probabilities)

Ry 1981

21 (9), 24 (0) PHASE I BOOK EXPLOITATION SOV/3E

Akademiya nauk SSSR. Fizicheskii Institut

Issledovaniya po eksperimental'noy i teoreticheskoj fizike: (sbornik) (Studies on Experimental and Theoretical Physics: Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Pabelinskiy, Doctor of Physical and Mathematical Sciences; Eds. of Publishing House: A. L. Chernyak and V. G. Berkgauf, Tech. Ed.: Yu. V. Rykina; Commission for Publishing the Collection in Memory of Grigoriya Samuilovich Landsberg: I. Ye. Tsam (Chairman), Academician; M. A. Lejontovich, Academician; P. A. Bazhulin, Doctor of Physical and Mathematical Sciences; S. L. Mandel'shtam, Doctor of Physical and Mathematical Sciences; I. L. Pabelinskiy, Doctor of Physical and Mathematical Sciences; P. S. Landsberg-Baryshanskaya, Candidate of Physical and Mathematical Sciences; and G. P. Mokulevich (Secretary); Candidates of Physical and Mathematical Sciences.

PURPOSE: This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials. COVERAGE: The collection contains 30 articles which review investigations in spectroscopy, molecular optics, semi-conductor physics, and other branches of physics. Landsberg, Professor and Head of the Department of Optics of the Division of Physical Technology at Moscow University, and reviews his work in Rayleigh scattering, combat gases, spectral analysis of metals, etc. No personalities are mentioned. References accompany each article.

Reponent, B. S. Kinetics of the Action of Light Gases on the Intensity of Absorption Spectra of Vapors of Aromatic Compounds 149

Obstainov, I. V. and Ye. S. Irakhoz. The Resistance of Micra to Rupture Along the Cleavage Plane 159

Rytov, S. M. The Correlation Theory of Rayleigh Light Scattering 175

Sobel'shan, I. I. The Quantum Mechanics Theory of the Intensity of Combined-Scattering Lines 192

Suachinskiy, M. M. Dependency of the Width of Combined-Scattering Lines of the Anisotropy of a Derived Polarizability Tensor 211

Tam, I. Ye. Present State of the Theory of Weak Interactions of Elementary Particles 218

Tuzerman, L. A. and B. A. Chayanov. The Illumination of Dielectrics in High Voltage a-c Electric Fields 231

Dkholin, S. A. and M. Z. Erunina. Investigation of Combined Light-Scattering Spectra in H₂O-H₂O and H₂O₂-Dioxane Solutions 244

Pabelinskiy, I. L. The Thin Structure of Lines of Rayleigh Light-Scattering in Gases 254

Frank, I. M. The Role of the Group Speed of Light in Irradiation in a Refractive Medium 261

Prish, S. E. and I. P. Bogdanova. Excitation of Spectral Lines in the Negative Illumination of a Gas Discharge 275

Prishberg, A. A. and V. V. Medler. The Possibility of Increasing the Sensitivity of the Spectral Determination of Some Elements 287

Shpol'skiy, E. Y. The Interpretation of Spectra of Aromatic Hydrocarbons in Frozen Crystalline Solutions 296

GORELIK, Gabriel' Semenovich; RYTOV, S.M., prof., red.; KUZNETSOVA,
Ye.B., red.; AKHLAMOV, S.N.; tekhn.red.

[Oscillations and waves; introduction to acoustics, radiophysics,
and optics] Kolebaniia i volny; vvedenie v akustiku, radiofiziku
i optiku. Pod red. S.M.Rytova. Izd.2. Moskva, Gos.izd-vo fizi-
ko-matem.lit-ry, 1959. 572 p. (MIRA 12:11)
(Oscillations) (Waves)

06334

SOV/141-2-1-6/19

AUTHOR: Rytov, S.M.

TITLE: The Spectrum of a Quasiperiodic Random Process

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
1959, Vol 2, Nr 1, pp 45 - 49 (USSR)

ABSTRACT: In Ref 1 (Ya.I. Khurgin), an expression has already been found for the spectral density of the random pulse train of Eq (1), in which the amplitude, duration and occurrence of the pulses are all independently random. The process is stationary and the mean value, dispersion and distribution functions of pulse spacing and length are all known. With modifications the same approach may be used for the strongly non-sinusoidal waveform in Figure 1. Here, the amplitudes of all positive excursions are the same and of all negative excursions are the same. The durations of the respective "half-waves" are randomly independent. The process is described by Eqs (2), (3), whence it will be seen that, in distinction from Eq (1), the pulse duration is not independent of the pulse-spacing but is equal to it. Introducing the transform, Eq (4), the spectral density

Card1/2

06334
SOV/141-2-1-6/19

The Spectrum of a Quasiperiodic Random Process

of a finite segment of the process is Eq (5). Using the characteristic functions, Eqs (7), and summing over m and n with the length of segment allowed to expand to infinity, Eq (5) becomes Eq (9). If the distribution functions of the "half-wave" durations are the same and the fluctuations are considered as small perturbations, the spectral density is Eq (11), whence the spectrum appears as a number of lines of half-width given by Eq (13). The normalised line-width is proportional to the line-order and the spectral density in the neighbourhood of a line is Eq (16).
There are 1 figure and 1 Soviet reference.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR
(P.N. Lebedev Institute of Physics of the Ac.Sc., USSR)

SUBMITTED: November 3, 1958

Card2/2

RYTOV, S.M.

Fluctuations in self-oscillating systems with piece-wise linear characteristics. Izv.vys.ucheb.zav.; radiofiz. 2 no.1:50-62 (MIRA 12:10) '59.

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Oscillators, Electric)

30(1)

SOV/142-2-1-21/22

AUTHOR: Suchkin, G.L.

TITLE: The First All-Union Conference on Statistical Radio Physics (Pervaya Vsesoyuznaya konferentsiya po statisticheskoy radiofizike)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - radiotekhnika, 1959, Vol 2, Nr 1, pp 121-127 (USSR)

ABSTRACT: The first All-Union Conference on Statistical Radio Physics took place in Gor'kiy from 13 to 18 October 1958. The Conference was organized and conducted by the Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete imeni N.I. Lobachevskogo (Scientific Research Institute of Radio Physics at the Gor'kiy State University imeni N.I. Lobachevskiy - NIRFI) by order of the USSR Ministry of Higher Education, AS USSR, VNTOR and E imeni A.S. Popov. A number of well-known specialists participated at the Conference, among them S.M. Rytov, M.L. Levin, I.L. Bernshteyn and others. Further, there were representatives of

Card 1/22

5

SOV/142-2-1-21/22

The First All-Union Conference on Statistical Radio Physics

is on a satisfactory level. Concerning the latter problem, there is a lack of scientific papers, and the number of reports dealing with this subject, was inadequate, even at this Conference. The Conference participants heard with great interest the latest research results in the field of the statistical theory of communication (theory of information) contained in the report "The Theory of Radio Communication Channels Having Parameters Changing at Random" by V.I. Siforov, Associate of AS USSR, which was delivered at the plenary session. I.L. Bernshteyn (NIRFI, Gor'kiy) reviewed the development of statistical radio physics in his report, titled "Fluctuation Phenomena in Self-Oscillator Networks". Already in the mid-thirties, by suggestion and under supervision of A.A. Andronov, the author analyzed and calculated processes in an ordinary vacuum tube oscillator, considering the fluctuation influence of the shot effect in the tube and the thermal effect in the network. Later,

Card 3/ 82

5

The First All-Union Conference on Statistical Radio Physics

the problem of oscillator fluctuations became important, when receivers for the cm-wave range were built. In 1949, experimental investigations of the oscillation fluctuation of an ordinary tube oscillator were conducted at GIFTI (Gor'kiy). Recently, a large number of papers were published on this subject and the author mentioned in this connection G.S. Gorelik, S.M. Rytov, D. Middleton (USA), V.S. Troitskiy, A.N. Malakhova, M.Ye. Zhabotinskiy and P.Ye. Zil'berman. S.M. Rytov delivered the last report at the plenary session, titled "The Fluctuation Theory in Strictly Non-Linear Self-Oscillator Networks". In this report, self-oscillating networks were considered, permitting a piece-linear approximation of non-linear characteristics. Random forces were assumed as being small and shortly correlated. For simplicity, the theory was developed for the special case of a system with only one degree of freedom. The phase space of the system under consideration is a plane, divided into

Card 4/22
5

The First All-Union Conference on Statistical Radio Physics

two semiplanes which are infinitely straight. Using the point transformation method, small fluctuations investigated in the neighborhood of a stable limit cycle. The statistical characteristic and the diffusion coefficient of the "phase" were obtained. Disregarding the "amplitude" fluctuation, the self-oscillation spectrum was obtained. The author showed that the width of the lines at half the intensity level is proportional to the square of the harmonic number, and also their integral intensity, which is also the case during the absence of fluctuations. As an example, the author discussed a tube oscillator with an anode network and inductive feedback. → The work of the three conference sections was conducted from 14 to 17 October 1958. The section "Fluctuations in Self-Oscillator, Radio Measuring and Amplifier Networks" was headed by I.L. Bernshteyn and S.M. Rytov. A.N. Malakhov (NIRFI, Gor'kiy) delivered a report on "The Spectral Line Width of Oscillators and the Parameter Fluctuation".

Card 5/22

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AUTHOR: Rytov, S.M., Professor

TITLE: What an Astronaut² Traveling at a Velocity Close to
That of Light Will See and Encounter

PERIODICAL: Priroda, 1960, Nr 4, pp 64 - 70 (USSR)

ABSTRACT: The author describes a spaceflight^{iv} at a velocity near
that of light. He discusses the appearance of the
firmament, the apparent shape of approaching stars
and "relativistic" dust and wind. In the author's
opinion, the main obstacles to be surmounted before
cosmic velocity becomes possible, are the construct-
ion of an effective photon engine and the development
of methods of clearing micro-and macroparticles from
the spacecraft path. There are 6 drawings, 6 diagrams,
1 Soviet and 2 English references. 4

Card 1/1

RYTOV, A.V., kandidat tekhnicheskikh nauk.

Computing weights of lines of departure of base nets. Geod.1
kart. no.9:48-54 N '56. (MIRA 10:1)
(Geodesy)

RYTOV, A.V., kandidat tekhnicheskikh nauk; PAVLOV, V.F.

Answers to readers' queries. Geod. i kart. no.6:65-71 Ja '57.
(Cartography) (MLRA 10:8)

RYTOV, A.V.

Standards for theodolites and leveling instruments. Geod. i
kart. no.3:9-17 Mr '64. (MIRA 17:9)

ACCESSION NR: AP4020395

S/0006/64/000/003/0009/0017

AUTHOR: Ry#tov, A. V.

TITLE: Standards on theodolites and levels

SOURCE: Geodeziya i kartografiya, no. 3, 1964, 9-17

TOPIC TAGS: theodolite, level, land surveying, mapping, surveying instrument, theodolite T05, theodolite T1, theodolite T2, theodolite T5, theodolite T10, theodolite T15, theodolite T20, theodolite T30, level N1, level N2, level NS2, level N3, level NS3, level NS4, level NT, level NLS

ABSTRACT: The author cited the need for standards of performance and production of theodolites and levels to: 1) halt production of obsolete and poorly produced models, 2) to standardize production, 3) to improve production quality, 4) to make a more precise and convenient geodesic instrument and 5) to expedite the development of instruments more in step with current technical and scientific advances. Reference was made to prior work defining parameters and technical demands. This work is contained in the publications: GOST: 10528-63, "Niveliry*. Tipy*. Osnovny*ye parametry* i tekhnicheskiye trebovaniya" i GOST: 10529-63, "Teodolity*. Tipy*. Osnovny*ye parametry* i tekhnicheskiye trebovaniya."

Card 1/2

ACCESSION NR: AP4020395

Instead of the 18 theodolite models proposed by GOST, the author foresaw the use of only eight; the T05 and T1--high-accuracy optical theodolites; the T2, T5, and T10--accurate optical theodolites; and the T15, T20 and T30--optical technical theodolites. The author compared by class the advantages of his proposed series over the others. Eight types of levels were presented as offering improvements. These were the levels N1, N2, NS2, N3, NS3, NS4, NT, and NLS. These types were discussed in terms of manufacture and instrument productivity. The author indicated preference for using the mean quadratic error of determination of excess at one station as a more significant and easily obtained level constant. Orig. art. has: one equation.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 000

OTHER: 000

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

RYTOV, A.V.

Uniform method for measuring horizontal angles as proposed by
I.M.Konopal'tsev. Geod. i kart. no.10:35-44 0 '63. (MIRA 16:12)

L 238

ACC NR: AP5010589

SOURCE CODE: UR/0006/65/000/004/0024/0030

AUTHOR: Rytov, A. V.

28

ORG: none

26

TITLE: New Hungarian T2 and T20 theodolites

B

SOURCE: Geodeziya i kartografiya, ²⁸no. 4, ²⁶1965, 24-30

TOPIC TAGS: optic theodolite, triangulation, construction, polygonometry, angle measurement instrument/T2 theodolite, T20 theodolite, Theo 010 theodolite, Tu theodolite, Te-B1 theodolite, Theo 6.1 theodolite, Theo 120 theodolite, Pende 0460 theodolite

ABSTRACT: Two new optical theodolites, the T2 (to replace the T1) and T20 which underwent extensive laboratory and field tests in 1964 are to be manufactured in the USSR in 1965. The T2 is intended chiefly for measurement of horizontal and vertical angles in triangulation work and in third-and fourth-order polygonometry, but can be used in construction work and in the installation of factory machinery. The T2 is described briefly and compared (quite favorably) with the similar East German Theo 010, the West German Tu (Askania Werke), and the Hungarian Te-B1. The State Committee on Standards, Measures, and Measuring Instruments USSR has authorized its serial production for five years, beginning in 1965. Its basic characteristics are listed. The T20 is designed primarily for measuring vertical and horizontal angles in theodo-

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Card 1/2

UDC: 528.5: 681.2(439.1)

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ACC NR: AP5010589

lite and tachymetric traverses on the surface or underground. It is described briefly and compared (favorably, with advantage of light weight) with the comparable East German Theo 6.1 (Freiburger Prazisionsmechanik) and Theo 120 (Karl Zeiss), and the West German Pende 0460 (Otto Fennel). The basic parameters of the T20 are given in a table. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 17, 13 / SUBM DATE: none

Card 2/2 fv

RYUJIN, G.M.

Fuel consumption in petroleum refining. Neftianik 6 no.9:10-11
S '61. (KIRA 14:10)

1. Sotrudnik Azerbaydzhanskogo instituta neftekhimicheskikh
processov.

(~~Refining~~ Refining)

LYSENKO, M.I., inzhener-mayor; RYTOV, L.A., inzhener-kapitan

Utilization of generator tubes at superhigh frequencies.
Vest. protivovozd.obor. no.4:59-61 Ap '61. (MIRA 14:7)
(Oscillators, Electric)

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

KARPENKO, G.M., inzhener-podpolkovnik; RYTOV, L.A., inzhener-kapitan

Use of long lines in the antenna feeder systems of a radar
station. Vest. protivovozd. obor. no.8:43-46 Ag '61. (MIRA 14:8)
(Radar, Military)

RYTOV M. V.

"APPROVED FOR RELEASE: Thursday, September 26, 2002
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CIA-RDP86-00513R001446510014-5"

RYTOV M. V., LISAVENKO M. A.

Horticulturists

From the history of Russian horticulture. Sad
i og. No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED.

RYTOV, Mikhail Vasil'yevich, 1846-1920; TSVETKOVA, V.A., redaktor; GOLUBIN-
SKAYA, Ye.S., redaktor; SOKOLOVA, N.N., tekhnicheskij redaktor;
GUREVICH, M.M., tekhnicheskij redaktor

[Selected works] Izbrannye trudy. Moskva, Gos. izd-vo selkhoz. lit-ry,
1956. 250 p. (MLRA 9:11)
(Botany)

RYTOV, Mikhail Vasil'yevich

[Russian apples] Russkie iabloki. Moskva, Gos.izd-vo sel'khoz.
lit-ry, 1960. 500 p. (MIRA 14:2)
(Apple)

RYTOV, Nikolay Pavlovich; SINEL'NIKOVA, TS.B., red.; EL'KINA, E.M.,
tekh. red.

[Storage of vegetables; advanced Practices] Khranenie ovo-
shchei; persdovoi opyt. Moskva, Gostorgizdat, 1961. 41 p.
(MIRA 15:11)

(Vegetables--Storage)

PROCESSES AND PROPERTIES INDEX 100 AND 101 GENERAL

Sa

A 53
1

1778. Diffraction of Light by Supersonic Waves. S. M. Rytov. *Phys. Zeits. A. Sowjetunion*, 8, 6, pp. 636-643, 1935. In German.—With decrease of the wave-length of supersonic waves the spacial nature of the diffraction of light by such waves is more and more in evidence; the energy distribution approximates more and more towards the distribution for selective reflection, which satisfies Bragg's condition. A theoretical and experimental study is here presented of the transfer region from the diffraction by a two-dimensional grid to the selective reflection by a three-dimensional layered structure. The experimental results are found to be in good agreement with theory. A. W.

A 11-51.4 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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PROCESSES AND PROPERTIES INDEX

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A-53
P

4896. Interaction of Light by Ultrasonic Waves. S. Aytun.
Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R. 2, 6, pp. 229-232, 1966. In French. -- The author has worked out approximate formulas for amplitude and phase which are more exact than those of Raman and Nath, and are more suitable for quantitative calculations than Brillouin's rigorous solution. G. E. A.

150-514 ORIGINAL LITERATURE CLASSIFICATION

FORM: 1-61

ALPHABETICALLY

INDEXED

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INDEXED

AND LETTERS

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PROCESSES AND PROPERTIES INDEX

SA

A53
2

304. Diffraction of Light by Ultrasonic Waves. S. M. Rylov.
Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R. 181-
184, 1936. In French.—Mathematical. A more detailed analysis is
given (see Abstract 4806 (1936)) to determine under what conditions
the Raman-Nath theory holds. G. E. A.

COMMON ELEMENTS

COMMON ELEMENTS

ASM-51A METALLURGICAL LITERATURE CLASSIFICATION

19000 1110221VA

19000 HIF ONY USE

001110201

19000 20110V

111 AND LETTERS

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	JJ	JK	JL	JM	JN	JO	JP	JQ	JR	JS	JT	JU	JV	JW	JX	JY	JZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ
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PROCESSES AND PROPERTIES INDEX

Preparation of sound in gaseous systems. S. M. Rytov, V. V. Vladimirov and M. D. Galanin. *J. Exptl. Theoret. Phys. (U. S. S. R.)* 8, 614-21(1939).
Theoretical. Preliminary expts. on a Hg emission in H₂O give the expected order of quenching for a frequency of 7×10^8 Hertz. F. H. Rathmann

COMMON VARIABLE INDEX

COMMON VARIABLE INDEX

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

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APPROVED FOR RELEASE: Thursday, September 26, 2002
APPROVED FOR RELEASE: Thursday, September 26, 2002

RYTOV, S.M.
SA

AS3i

3699. Wave and Geometrical Optics. S. M. Rytov. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 18, 4-5, pp. 263-266, 1938. In French.—By applying to the equation of a wave the approximation in reference to wave-length of geometrical optics the conservation of light flux is demonstrated and a law for the rotation of the vectors (polarisation) is deduced. H. G. C.

AS 36-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS		3RD AND 4TH ORDERS		5TH AND 6TH ORDERS	
A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z	AA	AB	AC	AD
AE	AF	AG	AH	AI	AJ
AK	AL	AM	AN	AO	AP
AQ	AR	AS	AT	AU	AV
AW	AX	AY	AZ	BA	BB
BC	BD	BE	BF	BG	BH
BI	BJ	BK	BL	BM	BN
BO	BP	BQ	BR	BS	BT
BU	BV	BW	BX	BY	BZ
CA	CB	CC	CD	CE	CF
CG	CH	CI	CJ	CK	CL
CM	CN	CO	CP	CQ	CR
CS	CT	CU	CV	CW	CX
CY	CZ	DA	DB	DC	DD
DE	DF	DG	DH	DI	DJ
DK	DL	DM	DN	DO	DP
DQ	DR	DS	DT	DU	DV
DW	DX	DY	DZ	EA	EB
EC	ED	EE	EF	EG	EH
EI	EJ	EK	EL	EM	EN
EO	EP	EQ	ER	ES	ET
EU	EV	EW	EX	EY	EZ
FA	FB	FC	FD	FE	FF
FG	FH	FI	FJ	FK	FL
FM	FN	FO	FP	FQ	FR
FS	FT	FU	FV	FW	FX
FY	FZ	GA	GB	GC	GD
GE	GF	GG	GH	GI	GJ
GK	GL	GM	GN	GO	GP
GQ	GR	GS	GT	GU	GV
GW	GX	GY	GZ	HA	HB
HC	HD	HE	HF	HG	HH
HI	HJ	HK	HL	HM	HN
HO	HP	HQ	HR	HS	HT
HU	HV	HW	HX	HY	HZ
IA	IB	IC	ID	IE	IF
IG	IH	II	IJ	IK	IL
IM	IN	IO	IP	IQ	IR
IS	IT	IU	IV	IW	IX
IY	IZ	JA	JB	JC	JD
JE	JF	JG	JH	JI	JJ
JK	JL	JM	JN	JO	JP
JQ	JR	KA	KB	KC	KD
KE	KF	KG	KH	KI	KJ
KK	KL	KM	KN	KO	KP
KQ	KR	LA	LB	LC	LD
LE	LF	LG	LH	LI	LJ
LK	LL	LM	LN	LO	LP
LQ	LR	MA	MB	MC	MD
ME	MF	MG	MH	MI	MJ
MK	ML	MN	MO	MP	MQ
MR	MS	MT	MU	MV	MW
MX	MY	MY	MZ	NA	NB
NC	ND	NE	NF	NG	NH
NI	NJ	NK	NL	NO	NP
NQ	NR	OA	OB	OC	OD
OE	OF	OG	OH	OI	OJ
OK	OL	OM	ON	OO	OP
OQ	OR	PA	PB	PC	PD
PE	PF	PG	PH	PI	PJ
PK	PL	PM	PN	PO	PP
PQ	PR	QA	QB	QC	QD
QE	QF	QG	QH	QI	QJ
QK	QL	QM	QN	QO	QP
QQ	QR	RA	RB	RC	RD
RE	RF	RG	RH	RI	RJ
RK	RL	RM	RN	RO	RP
RQ	RR	SA	SB	SC	SD
SE	SF	SG	SH	SI	SJ
SK	SL	SM	SN	SO	SP
SQ	SR	TA	TB	TC	TD
TE	TF	TG	TH	TI	TJ
TK	TL	TM	TN	TO	TP
TQ	TR	UA	UB	UC	UD
UE	UF	UG	UH	UI	UJ
UK	UL	UM	UN	UO	UP
UQ	UR	VA	VB	VC	VD
VE	VF	VG	VH	VI	VJ
VK	VL	VM	VN	VO	VP
VQ	VR	WA	WB	WC	WD
WE	WF	WG	WH	WI	WJ
WK	WL	WM	WN	WO	WP
WQ	WR	XA	XB	XC	XD
XE	XF	XG	XH	XI	XJ
XK	XL	XM	XN	XO	XP
XQ	XR	YA	YB	YC	YD
YE	YF	YG	YH	YI	YJ
YK	YL	YM	YN	YO	YP
YQ	YR	ZA	ZB	ZC	ZD
ZE	ZF	ZG	ZH	ZI	ZJ
ZK	ZL	ZM	ZN	ZO	ZP
ZQ	ZR				

"The Calculation of the Skin-Effect by Means of the Perturbation Method," Zhur. Eksper. i Teoret. Fiz., Vol. 10, No. 2, 1940

"On the Attenuation of Electromagnetic Waves in Tubes," Zhur. Fiz., 2, No. 2, 1940.

"Reflection of Electromagnetic Waves from a Layer with a Negative Dielectric Constant," Iz. Ak. Nauk, SSSR, Ser. Fiz., Vol. 4, No. 3, 1940

393. CORRECTIONS TO "ON THE ATTENUATION OF ELECTRO-
MAGNETIC WAVES IN TUBES" AND TO "CALCULA-
TION OF SKIN-EFFECT BY THE METHOD OF PERTUR-
BATIONS." - S. M. Rytov. (*Journ. of Phys. (of
USSR)*, No. 3, Vol. 4, 1941, p. 287; in English.)
See 2860 & 4191 of 1949.

RYTOV, S. M. & AL'PERT, IA. L.

RT-1124 (Suppression of radio noise) O kompensatsii radiopomekh.
Zhurnal Tekhnicheskoi Fiziki, 14(12): 730-748, 1944.

On the Theory of Frequency Stabilization.
S. M. Byrd, A. M. Puchkov, and A. P. Zhukovskiy.
Zh. Tekhn. Fiz., 1968, Vol. 38, No. 10, pp. 357-371. (Russian). In all investigations published on the operation of a valve oscillator containing a stabilizing element, simplifying assumptions are made regarding the linearity of the system under consideration. There are strong reasons to believe that good results can be obtained by using rigorous methods based on the Poincaré-Lyapunov theory, although this is only applicable to slightly nonlinear systems, i.e. to systems with a small parameter determining the deviation of the system from linearity.
Accordingly, the operation of a full in system consisting of a valve oscillator inductively coupled to an LCR circuit (Fig. 1) is discussed from the standpoint of the theory. The properties of the LCR circuit are determined and a definition of stability is given necessary for it, to act as a quartz stabilizer.
The operation of a parallel-coupled oscillator with a capacitive coupling (Fig. 2, bottom) and of Pierce's oscillator (Fig. 3, top) are derived for the two systems respectively. An analysis of the first system only is given. A periodic solution of equations (17) is found and its stability investigated. Formulae (14) and (20) determining the variation of the amplitude and of the frequency respectively are derived and it is shown that in the absence of anode reaction and grid current, the stabilization makes the frequency of oscillations independent of the valve parameters apart from second order effects. A numerical example of the calculation of the oscillation frequency is added. See also 377 below.

1ST AND 2ND ORDERS
PROCESSED AND PROPERTIES INDEX
1ST AND 4TH ORDERS

W.E.

Mathematics

100
An Extension of the Limits of Applicability of
the Small Parameter Method (for solving non-
linear oscillation problems); —S. M. Rytov. (*C.R.
Acad. Sci. U.S.S.R.*, 30th April 1975; Vol. 47,
No. 3, pp 181-184)

Jan 1/6

ASB-SLA METALLOGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	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
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RYTOV, S. M.

Structure of the Electromagnetic Field of Two Synchronously Working Oscillators,
published in Zhur. Tekh. Fiz., Vol. 16, No. 4, 1946

10000

Rytov, S. M. Excitation of a hollow spherical resonator
by a dipole placed at its centre. C. R. (Doklady) Acad.
Sci. URSS (N.S.) 51, 111-114 (1946)

Source: Mathematical Reviews,

Vol. 9, No. 3

SMW
Jan

Physics Course, Vol. II (Electricity, Optics, Nuclear Physics), Ministry of
Higher Education of USSR, Moscow, 1947 (Papaleksi, N. D., Editor).

RYTOV, S. M.

"Development of Theory of Nonlinear Oscillations in the USSR," Radiotekh., II,
No. 8, 1947, 5 pp.

Rytov, S. M., and Zhabotinsky, M. E. Application of the small parameter method to systems close to those of Sturm-Liouville. Bull. Acad. Sci. URSS. Ser. Phys. [Izvestia Akad. Nauk SSSR] 11, 135-140 (1947). (Russian. English summary)

The authors consider the nonlinear Sturm-Liouville system of the form (1) $L(y) - \rho y'' = f(y, \mu)$, where L is a self-adjoint partial differential operator, y is a vector with components y_1, y_2, y_3 and $f(y, \mu)$ is a vector function of y which reduces to zero for $\mu = 0$. The boundary conditions are nonlinear, depend upon μ and have the property that for $\mu = 0$ they become linear. The authors use the method of small parameters to obtain solutions of the nonlinear problem in terms of solutions of the linear problem, using standard perturbation technique. R. Bellman (Princeton, N. J.).

Source: Mathematical Reviews, 1948, Vol 9, No. 1

8m

RYTOV, S. M.

USSR/Optics
Refraction
Photography

Jan 1947

"Observation of Refractional Structures," S. Rytov, M. Yabotinskiy, Institute of
Physics imeni P. N. Lebedev, Acad. of Sci. of USSR, 1 p

Journal of Physics, Vol. XI, No. 1

A general discussion is given on attempts to observe or photograph transparent
objects possessing only refractional structures, i.e., changing phase, but not
amplitude of light.

26T52

USSR/Radio Waves - UHF
Meters, Wave

Feb 1947

"On the Thermometric Method of Measuring the Intensity of the Field of Centimeter Waves," S. M. Rytov, 8 pp

"Izv Ak Nauk Fiz" Vol XI, No 2

Methods of substantially increasing the sensitivity of a thermometer, enabling it to be employed to measure field intensity in the region of centimeter waves.

8T111

Rytov, S. M. Certain theorems on the group velocity of electromagnetic waves. Akad. Nauk SSSR, Zhurnal Eksper. Teoret. Fiz. 17, 930-936 (1947). (Russian)

This paper deals with the propagation of a quasi-monochromatic, quasi-plane wave in a linear, quasi-homogeneous and quasi-static, nonabsorbing, dispersive medium endowed with an arbitrary electric and magnetic anisotropy and rotatory power. The theorems proved consist of the following set of 24 relations between the complex amplitudes F_{α} , H^{im} of the field components, the components of the propagation four-vector $\kappa_m = (\mathbf{k}, -\omega(\mathbf{k})/c)$, and the complex permittivity-permeability tensor defined by $H^{im} = \epsilon^{im\alpha} F_{\alpha}$:

$$\frac{F_{1i}H^{im} + F_{1i}H^{im} \partial \kappa_m}{2 \partial \kappa_m} - \frac{\kappa_i \partial F_{m\alpha}}{4 \partial \kappa_i} F_{m\alpha} \frac{\partial \kappa_i}{\partial \kappa_m} = 0,$$

$$\frac{F_{1i}H^{im} - F_{1i}H^{im} \partial \kappa_m}{2 \partial \kappa_m} + \frac{\kappa_k}{4} \left(H^{im} \frac{\partial F_{im}}{\partial \kappa_m} - H^{im} \frac{\partial F_{im}}{\partial \kappa_k} \right) = 0,$$

with $k=1, 2, 3, 4$ and $\alpha=1, 2, 3$. The first 12 relations are given the three-dimensional interpretation:

$$\theta_{\alpha\beta} = -\epsilon_{\alpha\beta\gamma} S_{\gamma} = w u_{\alpha}, \quad \alpha, \beta = 1, 2, 3,$$

where the three-vector $u_{\alpha} = \partial \omega(\mathbf{k}) / \partial k_{\alpha}$ is the group velocity and $\theta_{\alpha\beta}$, S_{α} , $\epsilon_{\alpha\beta\gamma}$, w are respectively the time averages over the fundamental period of the wave group of the Maxwell stress tensor, the Poynting flux vector, the momentum density and the energy density. The author is unable to find a similar simple three-dimensional interpretation of the second set of 12 relations involving the derivatives of the field amplitudes F_{α} with respect to κ_m . G. M. Volkoff.

Smil
1947

Source: Mathematical Reviews,

Vol 9 No. 6

Physics Inst. in Libeled

Mar 1947

USSR/Physics
Wave Analysis
Oscillations

"Some Studies in the Field of Nonlinear Oscillations Conducted in the Soviet Union Since 1935," N.D. Papaleksi (Deceased), A. A. Andronov, G.S. Gorelik, S.M. Rytov, 17½ pp

"Uspekhi Fiz Nauk" Vol XXXIII, No. 3

Discusses two categories of nonlinear systems: 1) those weakly nonlinear, and 2) those strongly nonlinear. State that information presented is nothing new or startling, but merely short discussion of some of the improvements upon ideas in existence in 1935. Refer to article by Mandel'shtam, Papaleksi, Andronov, Khaykin and Vitt, published in 1936, that contained basic data for improvements they discuss.

PA 50T97

100

*Papaletski, N. D. Sobranie trudov. [Collected Works].
Edited by S. M. Rytov. Izdatel'stvo Akademii Nauk
SSSR, Moscow-Leningrad, 1948. 428 pp.

~~100~~

Source: Mathematical Reviews, 1950 Vol 11 No. 8

USSR/Academy of Sciences
Radio

Feb/1948

"Academician Nikolay Dmitriyevich Papaleksi," 15 pp.

Izvest. Akad. Nauk SSSR, Ser. Fiz., Vol. XII, No. 1

Detailed account of Papaleksi's main contributions to science from 1907 until his death; quotes from some of his works, and gives brief descriptions of various other scientists who worked with him.

39T4

USSR/Radio

Mar/Apr 1948

Oscillators, Electron Tube
Oscillators, Stabilized

"Stabilization of the Frequency of Tube Oscillators,"
S. M. Rytov, A. M. Prokhorev, M. Ye. Zhabotinskiy,
2 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 2

Discusses subject with reference to small parameter
method as applied to quartz stabilization.

69T99

"Several theorems about group speed of electromagnetic waves," published in the Journal of Expe . and Theoret. Physics, Vol. 1⁷, No. 10, 1948

"The Fundamental Wave in Lines without Losses," (book), 1948

"From the Early History of Radio," (book) 1948

"Course in Physics, Vol. II," 1948. Ye. L. Feynberg and L. V. Groshev co-authors.

"In memorium, N. D. PAPALESKI," Successes of the Physical Scis., Vol. 34, No. 4,
1948.

RETOV, S. M.

"Development of a Class of Surfaces for which the Telegraph Equation is True,"
Radiotekh., No. 2, 1949

"Telegraph Equation for Lines with Small Losses," Radiotekhnika, No. 2, 1949

"Basic Wave in Lines without Loss," Radiotekh., No. 2, 1949

RYTOV, S. M. (editor)

Complete Works, Vol 3, L. I. Mendel'shtam. Moscow-Leningrad, 1950, 424 pp.

Book W-22202, 7 Apr 52

"On the Telegraphic Equation for Generalized Lines with Small Losses," Journal of Technical Physics, Vol. XX, No. 3, 1950, pp. 257-81.

RYTOV, A.S.

USSR/Physics - New Techniques
Diffraction

Apr 50

"New Form of a Phase-Diffraction Grating," S. M. Rytov, I. L. Fabelinskiy, Phys Inst Imeni Lebedev, Acad Sci USSR, 2 pp

"Zhur Eksper 1 Teoret Fiz" Vol XX, No 4

Describes reflecting diffraction grating that mainly admits only phase modulation to light wave reflected from it. Prepared and used such a grating to conduct number of qualitative observations on distribution of intensities in diffraction spectra in natural and

159192

USSR/Physics - New Techniques (Contd)

Apr 50

polarized light. Observed clear sharp distinctions in intensity distribution. Submitted 5 Jan 50.

159192

RYTOV, S.

APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446510014-5

APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446510014-5"

RT-969 (On the telegraphic equation for generalized lines with small losses) 0 telegrafnom
uravnenii dlia obobshchennykh linii s malymi poteriami.
ZHURNAL TEKHNICHESKOI FIZIKI, 22(3): 257-281, 1950.

168T83

RYTOV, S. M.

USSR/Physics - Microscopy
Optics

Aug 50

"Method of Phase Contrast in Microscopy," S. M.
Rytov

"Uspekhi Fiz Nauk" Vol XLI, No 4, pp 425-451

This lecture was read at colloquy of the Phys Inst
imeni Lebedev, Acad Sci USSR. Rytov claims So-
viet eminence in field, but it is still little
known to physicists. Discusses modulation in ra-
dio, formation of optical images, representations
of amplitude and phase structures, and method of
phase contrast.

168T83

Die Moderne Schwingungs-Und Wellenlehre. Berlin, Kultur Und Fortschritt, 1952.
67 P. Illus., Diagrns.
Translation From The Russian, Sovremennoye Ucheniye O Kolebaniyakh I Volnakh,
Moscow, 1951.
Added T.-P. In Russian.

SO: N/5
613.05
.R951

RYTOV, S.M.

Electrons

Dispersion on a charged filament. Zhur. eksp/ i teor. fiz., 22, No. 4, 1952

Monthly List of Russian Accessions, Library of Congress, November, 1952 UNCLASSIFIED

USSR/Physics - Skin Effect

Sep 52

"Differential Law of Intensity of Electric Fluctuations and Their Behavior Under Skin Effect," M. A. Leontovich, S. M. Rytov, Phys Inst Imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol 23, No 3, pp 246-252

Under the condition that it be quasi-stationary the authors indicate the form of the correlation function of the lateral elec field causing integral emf of thermal elec fluctuations, whose spectral intensity is given by Nyquist formula. They show that the condition that spectral intensity

227T81

of integral random emf be proportional to the active resistance of the conductor is effected by setting the radius of correlation of the lateral field very small, in comparison with the radius of the conductor and width of skin layer. Received 21 May 52.

227T81

(PA 56 no. 668: 5466 '53)

"Theory of Electric Fluctuations and Thermal Radiation," Dokl. AN SSSR, 87,
No.4, pp 535-538, 1952

Refers to his work with M.A.Leontovich (ZhTEF 23, 246, 1952) in which he
passed from integral emf to the effect of incidental electric field and derived
space function of correlation for an arbitrary field component. The derived formula
characterizes fluctuations in the material of the conductor. Presented by Acad.
M:A. Leontovich 3 Oct 52 256T62

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

RYTOV, S.M.; LEONTOVICH, M.A., redaktor

[Theory of electrical fluctuations and thermal radiation] Teoriia
elektricheskikh fluktuatsii i teplovogo izlucheniia. Moskva, Izd-
vo Akademii nauk SSSR, 1953. 231 p. (MLRA 7:2)
(Electromagnetic theory)

USSR/Approved For Release: Thursday, September 26, 2002

Card 1/1 : Pub. 146-7/20

Author : Rytov, S. M.

Title : ~~Magnetic flux~~ Magnetic flux generated by a dipole located within a round ferromagnetic cable

Periodical : Zhur. eksp. i teor. fiz., 27, 307-312, Sep 1954

Abstract : A general expression for induction flux generated by a magnetic dipole located within a ferromagnetic infinite round cable is derived. Computation is carried out for the flux passing through a circular area, its center lying on the cable axis and its plane perpendicular to the axis. Three references.

Institution : Physics Institute imeni Lebedev, Acad Sci USSR

Submitted : December 28, 1953

USSR/Physics - Waveguide radiation

Card 1/1 Pub. 146 - 6/20

Author : Rytov, S. M.

Title : Thermal radiation in waveguides

Periodical : Zhur. eksp. i teor. fiz., 27, No 5 (11), 571-578, Nov 1954

Abstract : The author generalizes the waveguide form of Kirchhoff's law to the case where the radiating bodies in a waveguide are heated nonuniformly but under the condition that the skin effect be expressed sufficiently strongly (for the particular case see the author's Theory of electrical fluctuations and heat radiation [Teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya], Acad. Sci. USSR Press, Moscow, 1953). He shows that the radiated power can be expressed through the absorption coefficients of waves E_{mn} , H_{mn} and through the effective temperatures, which are the average temperatures weighted according to the distribution of energy flow for these waves on the surface of the radiator. He obtains a simple expression for the radiated power in the case where the radiator consists of bodies heated variously but uniformly. Three references, 1 Western (Nyquist, 1928) and 2 USSR (e.g. S. M. Rytov, *ibid.*, 10, 180, 1940).

Institution : Physics Institute imeni P. N. Lebedev, Acad. Sci. USSR

Submitted : February 10, 1954

BYTCV, S. M.

"Acoustic Properties of Fine Laminar Medium".

Physical Institute imeni F. N. Lebedev, Academy of Sciences USSR

A report delivered at a conference on Electro-acoustics held by the Acoustic Commission, the Acoustic Institute of the Academy Sciences USSR, and the Kiev Order of Lenin Polytechnic Inst., from 1-5 July 1955 in Kiev.

SO: Sum 728, 28 Nov 1955.

RYTOV
RAYLEIGH, John William Stratton; · USPENSKIY, P.N. [translator];
KAMENETSKIY, S.A., [translator]; RYTOV, S.M., redaktor

[Theory of sound. Translated from the English] Teoriia zvuka.
Perevod s 3. angliiskogo izd. P.N.Uspenskogo i S.A.Kamenetskogo.
Izd.2., pod red. i s predisl. S.M.Rytova. Moskva, Gos.izd-vo
tekhniko-teoret. lit-ry, 1955. (MLRA 9:3)
(Sound) (Vibration) (Waves)

Card 1/1 Pub 90-1/9

Author : Rytov, S. M.

Title : Theory of thermal noises, part I

Periodical : Radiotekhnika 10, 3-13, Feb 55

Abstract : Increased sensitivity of modern radio receivers has placed new demands for the study of origin and behavior of thermal noises. The theory of thermal noises was originally adapted to thermal electrical fluctuations in the quasi-stationary circuits with lumped impedances, whose dimensions were small compared to the wave length. With the advent of ultra-short waves, the original quasi-stationary theory premises could not be applied any more, since the wave length becomes comparable to the dimensions of the circuit. Recently, a generalized theory of thermal electrical fluctuations applicable to the ultrashort waves has been worked out, and it is briefly described in this article. Specific examples of application of the new generalized electro-dynamic theory of thermal electrical fluctuations to the problems of radio physics and radio-engineering are given. The theory of waveguides is treated.

Institution: --

Submitted : May 7, 1954

USSR/Electronics Research

Card 1/1 Pub 90-1/12

Author : Rytov, S. M.

Title : Theory of thermal noises, Part II

Periodical : Radiotekhnika, 10, 3-13, Mar 1955

Abstract : The origin and effect of thermal noises, and methods of estimating them for various circuits, are elaborated in this article. Methods of calculating the heat generated in wave guides and coaxial cables, responsible for thermal noises, are offered in this article for several sets of simple lay-outs. For simple geometric configuration of wave guides and coaxial cables the coefficient of heat absorption is readily calculated, and then applied to formulas for calculating the heat generated. Nyquist formula is explored for its applicability to the problems of thermal noises. Eight USSR references. Formulas.

Institution:

Submitted : 7 May 1954

Rytov, S. M.

USSR/ Physics

Card 1/1 Pub. 124 - 4/32

Authors : Rytov, S. M., Dr. of Phys.-Math. Sc.

Title : Electric fluctuations and heat emission

Periodical : Vest. AN SSSR 25/6, 24-33, June 1955

Abstract : The lecture presented does not deal in just any ordinary electrical fluctuation but only in such electrical fluctuations the origination of which is due mainly to thermal migration of electrons, ions and general micro-charges in a substance. The fluctuation connected with thermal migration of micro-charges are called, "thermal noise". It is pointed out that these noises, the intensity of which depends upon temperature, determine the lowest level of the total fluctuation noise possible in a given circuit at a given temperature. Five USSR references (1952-1955).

Institution :

Submitted :

USSR/Physics - Heat radiation

FD-3048

Card 1/1 Pub. 153 - 17/23

Author : Levin, M. L.; Rytov, S. M.

Title : Thermal radiation of a thin rectilinear antenna

Periodical : Zhur. tekhn. fiz., 25, February 1955, 323-332

Abstract : On the basis of the general theory of electrical fluctuations (S. M. Rytov, *Teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya* [Thermal radiation etc.], Moscow, 1953) and the theory of thin antenna (M. A. Leontovich and M. L. Levin, *ZhTF*, 14, 481, 1944 and *Izv. AN SSSR, Ser. fiz.*, 8, 157, 1944) the authors consider the thermal radiation of a thin cylindrical straight conductor both at nonresonant and at resonant frequencies. They find the spectral intensities for density of energy flow and for total radiated power, and obtain an expression for the reduced characteristic (diagram of directivity) of thermal radiation; they also calculate the distribution of the fluctuational current along the antenna and its radiation resistance. In conclusion they generalize all these results to the case of a conductor of variable cross section. Three references: e.g. M. L. Levin, *DAN SSSR*, 54, 599, 1946 and *Izv. AN SSSR, Ser. fiz.*, 11, 117, 1947.

Submitted : October 8, 1954

USSR/Physics - Self-excited Thomson fluctuations

FD-2966

Card 1/2 Pub. 146 - 7/28

Author : Rytov, S. M.

Title : ~~Fluctuations in self-excited oscillatory systems of the Thomson type. I~~
Fluctuations in self-excited oscillatory systems of the Thomson type. I

Periodical : Zhur. eksp. i teor. fiz., 29, September 1955, 304-314

Abstract : The author considers the fluctuations in amplitude and phase in weakly nonlinear self-excited oscillatory systems which permit the application of the method of small parameter in the finding of the periodic regime. In contrast to preceding investigations (L. Pontryagin, A. Andronov, A. Vitt, *ibid.*, 3, 165, 1933; I. L. Bershteyn, DAN SSSR, 20, 11, 1938 and *ZhETF*, 11, 305, 1941; P. I. Kuznetsov, R. L. Stratonovich, V. I. Tikhonov, DAN SSSR, 97, 639, 1954; M. Ye. Zhabotinskiy, *ZhETF*, 26, 758, 1954) the present writers do not employ the Einstein-Fock equations, but use the symbolic differential equations for describing the fluctuations of random functions and the methods of the correlational theory. In the first part of the article the author considers a system with one degree of freedom and for illustration of the method he applies the general theory to an already earlier investigated

FD-2966

Card 2/2

Pub. 146 - 7/28

Abstract : (I. L. Bershteyn, op. cit.) case of autonomous system and to a concrete example of a tube generator (oscillator) in a soft regime of self-excited excitation. Seven references.

Institution : Physical Institute im. P. N. Lebedev, Academy of Sciences USSR

Submitted : December 2, 1954

RYTOV

USSR/Physics - Self-excited Thomson fluctuations

FD-2967

Card 1/1 Pub. 146 - 8/28

Author : Rytov, S. M.

Title : ~~Fluctuations in self-excited oscillatory systems of the Thomson type. II~~
Fluctuations in self-excited oscillatory systems of the Thomson type. II

Periodical : Zhur. eksp. i teor. fiz., 29, September 1955, 315-328

Abstract : The author applies the theory developed in part I [see the preceding abstract] to a nonautonomous system with one degree of freedom. As an example he considers a tube oscillator entrapped [zakhvachenny] by a harmonic force. By the same method he investigates a system with two degrees of freedom, namely a tube oscillator connected to a circuit with high figure of merit [vysoko-dobrotnyy kontur], and clarifies the influence of this method of frequency stabilization upon fluctuations in amplitude and phase. He shows how the thermal fluctuations are taken into account in the given theory. Five references: e.g. S. M. Rytov, A. M. Prokhorov, M. Ye. Zhabotinskiy, *ibid.*, 15, 557 and 613, 1945; V. I. Bunimovich, *Fluktuatsionnyye protsessy v radiopriyemnykh ustroystvakh* [Fluctuational processes in radio receiver apparatus], Soviet Radio Press, Moscow, 1951

Institution : Physical Institute im. P. N. Lebedev, Academy of Sciences USSR
Submitted : December 2, 1954

Rytov

Card 1/1 Pub. 146 - 7/28

Author : Rytov, S. M.

Title : Electromagnetic Properties of a Laminar Medium

Periodical : Zhur. Eksp. i Teor. Fiz., 29, No 5, 605-616, 1955

Abstract : A medium consisting of successive sufficiently thin lamina of two isotropic substances exhibits towards electromagnetic waves a behavior of a uniform, but anisotropic (single axis crystal) matter. Effective permeability tensors of such a crystal are obtained and limits of lamina thickness are derived as related to the material and to frequency parameters. Losses in the microlaminar structure and boundary conditions on its surface are analyzed. Academician M. A. Leontovich is thanked for discussion. Twelve references including 9 foreign.

Institution : Physics Institute im. Lebedev, Acad. Sci. USSR

Submitted : June 9, 1954

Card 1/1 Pub. 146-23/28

Author : Rytov S. M.

Title : Bond distribution of quasimonochromatic stationary process with its envelop distribution. (Letter to the editor)

Periodical : Zhur. Eksp. i Teor. Fiz., 29, No 5, 702-703, 1955

Abstract : Wave equations published by A. Blanc-Lapierre et al. (Ann. tele-commun. 9, 237, 1954) are analyzed and some new derivations added. The aforementioned reference and one by the author.

Institution : Physics Institute im. Lebedev, Acad. Sci. USSR

Submitted : July 23, 1955

USSR/Physics - Electrical fluctuation problems

Card 1/2 Pub. 118 - 2/8

Authors : Rytov, S. M.

Title : Electrical fluctuations and thermal radiation

Periodical : Usp. fiz. nauk 55/3, 299-314, Mar 1955

Abstract : A report was read, in commemoration of the 10th anniversary since the death of L. I. Mandel'shtam, at a joint meeting of the physico-mathematical and the technical branches of the Acad. of Scs., USSR. The Report deals with electrical fluctuations due to the thermal movement of electrons forming the so-called thermal noise. The report has a dual purpose: the first is to ennumerate the subjects of L. I. Mandel'shtam's interest and his methods of handling such problems; and the second, to outline

Institution :

Submitted :

Card 2/2 Pub. 118 - 2/8

Periodical : Usp. fiz. nauk 55/3, 299-314, Mar 1955

Abstract : the steps of the theoretical development of the electrical fluctuation problem up to the present day and its practical application to such modern devices of UHF technics as wave guides, coaxial cables, etc. Various methods used by different physicists and engineers for the solutions of the problem are described. Thirteen references: 9 USSR, 2 USA and 2 German (1908-1954).

RYTOV, S. M. (U.S.S.R.)

"Acoustical Properties of a Laminated Medium".
Abstracted for inclusion in the Second International Congress on Acoustics, Cambridge,
Mass., 17-24, Jun 1956

P. N. Lebedev Physical Institute of the Academy of Sciences of the USSR

RYTOV, S. M. P. N. Lebedev Physical Institute of the Academy of Sciences of the USSR, Moscow
LEVIN, M. L. Ivanov Pedagogical Institute

"On the Transition of the Geometrical Approximation in the Theory of Elasticity"
paper presented at 2nd International Congress on Acoustics, Cambridge, Mass., 17-23 June 1956.

So: B-100200

RYTOV, S. M.

USSR/Radiophysics - Electric Networks, I-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35256

Author: Rytov, S. M.

Institution: Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

Title: On the Problem of Phase Fluctuations in a Vacuum Tube Oscillator

Original

Periodical: Radiotekhnika i elektronika, 1956, 1, No 1, 114-119

Abstract: Analysis of an article by I. S. Gonorovskiy "On Phase Fluctuations in Vacuum Tube Oscillator (Referat Zhur - Fizika, 1956, 14093). The fallacy in the computation method used in this article is shown; this fallacy led the author to an incorrect conclusion concerning the quadratic time rise of the dispersion of the phase of the vacuum-tube oscillator.

Card 1/1

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Akusticheskiy Zhurnal, vol. 2, No. 1, 1956

S. M. RYTOV; Acoustic properties of finely laminated media

70

Abstract: A medium composed of alternate layers of two isotropic substances acts, on the average, like a homogeneous but anisotropic medium when the wave field varies slightly per thickness of the separate layer (fine layer). The anisotropy corresponds to a crystal of hexagonal symmetry. Expressions are obtained for the effective elastic constants of the crystal as a function of the parameters of both substances and of the lamina thickness. Considered are alternate layers of two solid substances and alternate layers of solids and fluids.

Artificial finely laminated media, which are easily produced, but the properties can be very different (anisotropy of the propagation and absorption velocities for both compression and shear waves), are of known practical interest, in particular, for shock absorbers. (P. N. Lebedev Physics Inst. Sept., 1955)

[Handwritten signature]

Category : USSR/Acoustics - Sound vibrations and waves

J-2

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2108

Author : Levin, M.L., Rytov, S.M.

Inst : Acoustics Institute, Academy of Sciences USSR

Title : On the Transition to the Geometric Approximation in the Theory of Elasticity

Orig Pub : Akust. Zh., 1956, 2, No 2, 173-176

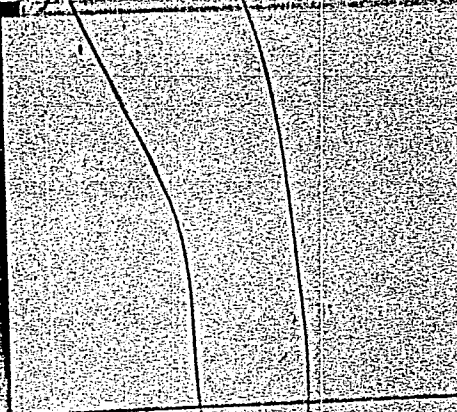
Abstract : It is shown that the linearized equations of the theory of elasticity, presented in the geometric approximation, in addition to yielding the Eikonal equation and the law of conservation of energy flux in the compression and shear waves, also result in a law for the variation of the polarization of the shear waves along the corresponding rays. This polarization law turns out to be the same as for electromagnetic waves.

Card : 1/1

RYTOV

APPROVED FOR RELEASE Thursday, September 26, 2002

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The Transition to a Geometric Approximation in the Theory of Elasticity. M. L. Lavin and S. M. Rytov. *Soviet Physics Acoustics*, No. 2, 1956, pp. 179-184. Translation. Analysis which shows that the law of variation of shear-wave polarization along corresponding rays follows from the linearized equations of the theory of elasticity in a geometric approximation, along with the equation of the eikonal and the laws of conservation of energy flow in the compression and shear waves.

2

RYTOV
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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510014-5"

ZHABOTINSKIY, M.Ye.; IRISOVA, N.A.; RYTOV, S.M.

Effect of variable-frequency signals on a linear resonance system.
Trudy Fiz.inst. 8:3-12 '56. (MLBA 10:3)
(Radio frequency modulation)

SUBJECT USSR / PHYSICS
 AUTHOR RYTOV, S.M.
 TITLE On the Thermal Fluctuations in Distributed Systems.
 PERIODICAL Dokl. Akad. Nauk, 110, fasc. 3, 371-374 (1956)
 Issued: 12 / 1956

Here the well-known theorem by H. NYQUIST, Phys. Rev. 29, 614 (1927); 32, 110 (1928) on the spectral intensity of the thermal electric fluctuations in a conductor is generalized for distributed systems in which fluctuations are described by chance functions of time and space. On this occasion we pass from steady chance processes to homogeneous chance fields which are isotropic in accordance with the character of the problem. Next, the contents of the "fluctuation dissipation theorem" by KALLEN et al. is discussed in short, and

the corresponding correlation matrix of the spectral amplitudes has the form

$$\begin{Bmatrix} j\omega \\ k\omega' \end{Bmatrix} \begin{Bmatrix} * \\ * \end{Bmatrix} = C(\omega) i(\alpha_{jk} - \alpha_{kj}^*) \delta(\omega - \omega')$$

and $\Theta = kT$ is the temperature. The matrix α_{jk} obeys certain symmetry relations. By the application of the notion of exterior fluctuation forces this theorem may be formulated also in a different manner. Also for that case the correlation matrix of the spectral amplitudes is given.

We now pass on to the theorem itself. The fluctuations in a distributed system with the volume V are described by a homogeneous chance field $\{ (t, \vec{r}) \}$, and for reasons of simplicity a onedimensional field is investigated here. Generalization for the system of the fields $\{ (\alpha) (t, \vec{r}) (\alpha=1, 2, \dots) \}$ is not difficult. The

BRUKHOVSKIKH, L.M., ~~BYTOV~~ S.M., doktor fiziko-matematicheskikh nauk,
otvetstvennyy redaktor; GUROV, K.P., redaktor izdatel'stva;
PAVLOVSKIY, A.A., tekhnicheskiy redaktor.

[Waves in laminated media.] Volny v sloistyykh sredakh. Moskva,
Izd-vo Akad.nauk SSSR, 1957. 501 p. (MLRA 10:6)
(Waves)

109-8- 16/17

AUT~~OR~~: Rytov, S.M.

TITLE: Gabriel Semenovich Gorelik. An Obituary.
(Gabriel' Semenovich Gorelik)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, Nr 8,
pp.1083-1085 (USSR)

ABSTRACT: G. S. Gorelik lost his life in an unfortunate accident on 27th June, 1957. He was one of the most outstanding Soviet physicists and was known for his investigations in the field of the theory of oscillations, radio physics, optics, acoustics and also for his long and brilliant pedagogic activity. G.S. Gorelik was born on the 8th December 1906 in the family of a physician. He received his higher education at the Moscow State University where he graduated in theoretical physics in 1929. In 1934 he received the degree of Dr. of Physical Sciences at the same University. During 1935-1937 he worked at the Physical Technical Research Institute in Gorkiy. Since 1939 he had the position of Professor and Dean of the Faculty of Physics at the Gorkiy State University and he lived in Gorkiy until 1953. He is the author of a number of original scientific

Card 1/2

109-8-16/17

Gabriel Semenovich Gorelik. (An Obituary).

works and some books, such as "Oscillations and Waves",
1950, and was awarded a number of Soviet decorations and
orders.

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Rytov, S.M.

109-11-7/8

TITLE: Development of the Theory of Non-linear Oscillations in the USSR (Razvitiye teorii nelineynykh kolebaniy v SSSR)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.11, pp. 1435-1450 (USSR).

ABSTRACT: The non-linear theory of oscillations which was originated by Poincaré has since been developed intensively in the Soviet Union by a number of outstanding scientists, such as L.I. Mandel'shtam and A.A. Andronov. The theory is based on the four principal methods: 1) quantitative theory of the Poincaré differential equations which gives geometrical representation of the motion of dynamic systems, in particular, their limit cycles; 2) the small parameter method which was originated by Euler and Lagrange, developed by Poincaré and employed in practice by van der Pol; 3) the method of the investigation of stable states and periodic oscillations, and 4) the method of broken-line approximation of non-linear characteristics. The second method was used in the Soviet Union to investigate the problem of forced synchronisation in simple oscillators. L.I. Mandel'shtam and N.D. Papaleksi studied the "Periodic Solutions of the Second Kind" and concluded that in a regenerative system, it is possible to

Card1/3

109-11-7/8

Development of the Theory of Non-linear Oscillations in the USSR.

excite oscillations having the frequency of n-th sub-harmonic. They also developed the theory of the parametric generation of oscillations. The conditions of self-excitation in the systems with parametric variables were studied by G.S. Gorelik and S.B. Strelkov. The study of small non-linearities was originated by Mandel'shtam and later generalised to include systems with large non-linearities. The problem of relaxation oscillations was first studied by Mandel'shtam and Papaleksi and, since then, a large number of works dealing with various aspects of the problem have been published. The qualitative theory of non-linear, differential equations was given by Andronov and Pontryagin; the school founded by A.A. Andronov in Gorki has since investigated this field very extensively. Andronov proposed also a new scientific theory, the so-called "general dynamics of machines" which classifies the machines and analyses their functioning in very general terms. This theory is of particular importance in the field of automatic control, where the non-linear problems are particularly relevant and where they become very complicated. Andronov and his school have also investigated the Nyquist criterion and have introduced a new approach to the problem of stability. Another field of the non-linear theory, which was investigated by I.L. Bershteyn, is

Card2/3

109-11-7/8

Development of the Theory of Non-linear Oscillations in the USSR.

the influence of the fluctuation noise on oscillation systems.
There are 198 references, 193 of which are Slavic.

AVAILABLE: Library of Congress.

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1821. CORRELATION THEORY OF THERMAL FLUCTUATIONS
IN AN ISOTROPIC MEDIUM. S. M. Rytov.

Zh. eksper. teor. Fiz., Vol. 33, No. 1(7), 166-78 (1957). In Russian.

The so-called "fluctuation-dissipation" theorem of Callen et al. (1951-2) is used to develop a spectral theory of thermal fluctuations in an isotropic elasto-viscous continuous medium. The mechanical and thermal parameters of the medium in this case can possess any frequency dispersion consistent with the dissipation condition. Correlation functions of $6k$ amplitudes (amplitudes of Fourier time-space expansions) were determined for stress, deformation, velocity, temperature and entropy fluctuations. Using these equations the spectral intensities (which yield spatial correlation at a frequency ω), as well as the spatial correlation functions of quantities which are not decomposed spectrally, can be calculated. The results are useful in the spectral theory of Rayleigh scattering 21
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- 56-2-28/47

AUTHOR: Rytov, S.M.

TITLE: Note on the Correlation Theory of Raleigh Scattering of Light
(Korrel'yatsionnaya teoriya Releyevskogo rasseyaniya sveta)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 2(8) pp.514-524
(USSR)

ABSTRACT: At the beginning the author deals shortly with the well known spectral solution of the problem of scattering of a plane monochromatic wave on weak optical inhomogeneities of the medium. The problem is reduced, therefore, to the computation of the Ω_q intensities of the four components of the tensor $\epsilon_{\alpha\beta}$. The tensor $\epsilon_{\alpha\beta}$ here denotes the small fluctuations of the dielectricity constant: $\epsilon_0 \delta_{\alpha\beta} + \epsilon_{\alpha\beta}(t, \vec{r})$. Because the fluctuations are very small, the relation of $\epsilon_{\alpha\beta}$ with the fluctuation deformations, with the quantity $u_{\alpha\beta} = \Delta u = -\rho/\rho_0$ (ρ_0 denoting the deviation of density from its equilibrium value) and with $\eta = T/T_0$ (T denoting the temperature, T_0 the equilibrium value of temperature) is linear. In the case of spectral amplitudes this relationship is purely algebraic according to the assumptions. If certain coefficients as well as the mechanical and thermal parameters of the medium do not show dispersion (and therefore are real), the relation given here holds also for the quantities which were not analyzed spectrally. The determination of the spectral intensities of the scattered light is reduced to the ascertainment of the Ω_q intensities for the fluctuations of the deformations and the

Card 1/2

Note on the Correlation Theory of Raleigh Scattering of Light. 56-2-28/47

temperature. Here the author employs a former solution of the problem. The finite width of the maxima of both doublets is connected with the dispersion of the parameters of the medium. At the absence of losses these maxima are transformed to discrete lines. The dispersion of the parameters leads to the existence of a widespread continuous background, the distribution of which depends on the dispersion laws.

For the integral intensity of the isotropical part of the scattered light an expression is given. Finally the case of a liquid with a low viscosity is considered. There are no reference and 1 table.

ASSOCIATION: Physics Institute imeni P.N.Lebedev, AN of the USSR (Fizicheskiy Institut im.P.N.Lebedeva AN SSSR)

SUBMITTED: March 2, 1957

AVAILABLE Library of Congress

Rytov, S. M.

AUTHOR: Rytov, S.M.

56-3-19/59

TITLE: Correlation Theory of Rayleigh Scattering of Light. II.
(Korrelyatsionnaya teoriya releyevskogo rasseyaniya sveta II)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3,
pp. 669-682 (USSR)

ABSTRACT: The following problems are discussed and solved theoretically:
a) Integral intensity of the component I_{IZ} (formation of problem and solution.)
b) Anisotropic scattering. Notes to the theory of M.A.Leontovich.
c) Spectral intensity of the "displaced" flank
d) Integral intensity of anisotropic scattering.

The integral intensity of the microstructure component of the isotropically scattered part of light is given for a medium with small heat losses and for a certain concretizing of dispersion laws. As regards anisotropic scattering the simple dispersion laws are shown which supply a satisfactory approximation of the intensity distribution observed at Rayleigh's flank. Furthermore, approximation formulae for the coefficient of depolarization of Rayleigh's scattering are given. There are 1 figure and 8 Slavic references.

ASSOCIATION: Physical Institute imeni P.N.Lebedev AN USSR (Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR)

Card 1/1

RY 56-7-24/66

AUTHOR RYTOV, S.M.

TITLE The Correlation Theory of Thermal Fluctuations in an Isotropic Medium
(Korrelyatsionnaya teoriya teplovykh fluktuatsiy v izotropnoy srede.
Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 166 - 178
(U.S.S.R.)

ABSTRACT The theory developed here does not give concrete data concerning the
mechanism of the dispersion and is of a purely phenomenological charac-
ter. The results obtained may, above all, be applied directly to the
spectral theory of RALEIGH'S scattering of light.

The initial equations: The author here confines himself to an isotropic
medium, the mechanical properties of which can be expressed by the
scalar coefficients of heat conductivity and of thermal expansion. All
these parameters of the medium are functions of the frequency ω and
are generally complex. The deviations from the thermodynamical state
of equilibrium of this medium can, in the case of the known restrictions,
be described by a further parameter. In the case of lacking dispersion
all equations given here are true for the spectrally not decomposed
quantities, and thermodynamics then enters into force. The next chapter
gives general formulae for the correlation functions and for the spectral
intensities. Now the author deals with the thermal fluctuations in an

Card 1/2

56-7-24/66

The Correlation Theory of Thermal Fluctuations in an Isotropic Medium
elastic-viscous medium.

The spectral intensities of foreign forces: The spectral equations given formerly are here transformed by the introduction of foreign forces. The foreign momentum is equal to zero. In the following chapters the spectral ω k-intensities of the tensions and of the temperature as well as the spectral ω k-intensities of the velocity and of the deformations are derived.

Spectral correlation: The corresponding ω -intensities can be computed with the help of the ω k-intensities, which then give the spatial correlation of the orders to be investigated with respect to the frequency ω . By means of a further formula the correlation functions of the spectrally not decomposed quantities can be determined. (No illustrations).

ASSOCIATION

Physical Institute "P.N. Lebedev" of the academy of Sciences of the U.S.S.R. (Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR)

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SUBMITTED

29.12.1956

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Card 2/2

53-4-8/10

AUTHOR: Rytov, S. M.

TITLE: In Memory of G. S. Gorelik (Pamyati G. S. Gorelika)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol. 62, Nr 4, pp. 485-496 (USSR)

ABSTRACT: On June 27th Gabriel Semenovich Gorelik, one of the most prominent Soviet physicists, died by a tragic accident. He was well known on account of his investigations on the theory of oscillations, on radio physics, optics and acoustics as well as on account of his excellent pedagogical activity of many years. G. S. Gorelik was born in 1906 at Paris, where his father studied at that time. In 1923 he began his studies at the mathematical-physical faculty of Moscow university and, influenced by L. I. Mandel'shtam, he turned to theoretical physics, also as an aspirant he worked under Mandel'shtam. When beginning to work as an aspirant (1930), he began teaching. From 1934 to 1938 he delivered lectures on the theory of oscillations. During this time he finished seven further scientific investigations on the theory of oscillations. From 1935 to 1937 he worked at the physical-technical research institute at Gor'kiy. In 1938 he took over the chair for general physics at Gor'kiy, where he lived till 1953. During his stay at Gor'kiy, he wrote more than 20 scientific treatises

Card 1/2

53-4-8/10

In Memory of G. S. Gorelik

on various problems of the theory of oscillations, magnetism, theory of automatic control, radiophysics and optics. When delivering his excellent lectures, he always endeavored to combine the "classical" and the "modern". His pedagogical talent expressed itself in his capability to train scientific workers and to form congenial collectives. During the war he carried out important commissions for construction offices working at Gor'kiy. In the years after the war Gorelik took part in the development of the theory of the nonlinear oscillations. Gorelik developed an individual direction which may be described as an investigation of the properties of matter and radiation by means of oscillation methods and mainly radiophysical methods. In June 1953 he was offered the professorial chair at the Moscow physical-technical institute. Further details of his activities are discussed. There are 1 figure and 64 references, 60 of which are Slavic. All 64 references are scientific works by Gorelik.

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Card 2/2

Rytov
AUTHOR: Rytov, S. M.

53-4-2/11

TITLE: The Correlation Theory of Electric Fluctuations and of Thermal Radiation (Korrel'yatsionnaya teoriya elektricheskikh fluktuatsiy i teplovogo izlucheniya).

PERIODICAL: Uspekhi Fizicheskikh Nauk, 1957, Vol. 63, Nr 4, pp. 657-672 (USSR).

ABSTRACT: The present survey is arranged as follows. Introduction, fluctuation dissipation theorem for distributed systems, application to an electromagnetic field in a homogeneous medium, general characteristic of the theory, the case of bodies with good conductivity, some results of the application of the theory (radiation into the free space, radiation in lines and spatial resonators), application of the principle of reciprocity, the thermal electromagnetic field near radiating bodies, the phenomena of interference in thermal radiation, thermal radiation in anisotropic media. There are 5 figures, and 31 references, 21 of which are Slavic.

AVAILABLE: Library of Congress.

Card 1/1

LEBEDEV, Vsevolod Leonidovich; RYTOV, S.M., prof., retsenzent; YAGLOM, A.M.,
doktor fiz.-mat.nauk, retsenzent; KOSTIYENKO, A.I., kand.fiz.-mat.
nauk, red.; AKHLAMOV, S.N., tekhn.red.

[Random processes in electric and mechanical systems] Sluchainye
protssesy v elektricheskikh i mekhanicheskikh sistemakh. Moskva,
Gos.izd-vo fiziko-matem.lit-ry, 1958. 176 p. (MIRA 12:2)
(Probabilities)

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21 (9), 24 (0) PHASE I BOOK EXPLOITATION

Akademiya nauk SSSR. Fizicheskii Institut

Issledovaniya po eksperimental'noy i teoreticheskoj fizike: (sbornik) (Studies on Experimental and Theoretical Physics: Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Pabelinskiy, Doctor of Physical and Mathematical Sciences; Eds. of Publishing House: A. L. Chernyak and V. G. Berkgaus, Tech. Ed.: Yu. V. Rykina; Commission for Publishing the Collection in Memory of Grigoriya Samuilovich Landsberg: I. Ye. Tsam (Chairman), Academician; M. A. Lejontovich, Academician; P. A. Bazhulin, Doctor of Physical and Mathematical Sciences; S. L. Mandel'shtam, Doctor of Physical and Mathematical Sciences; I. L. Pabelinskiy, Doctor of Physical and Mathematical Sciences; P. S. Landsberg-Baryshanskaya, Candidate of Physical and Mathematical Sciences; and G. P. Molevich (Secretary); Candidates of Physical and Mathematical Sciences.

PURPOSE: This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials. COVERAGE: The collection contains 30 articles which review investigations in spectroscopy, molecular optics, semi-conductor physics, atomic physics, and other branches of physics. Landsberg, Professor and Head of the Department of Optics of the Division of Physical Technology at Moscow University, and reviews his work in Rayleigh scattering, combat gases, spectral analysis of metals, etc. No personalities are mentioned. References accompany each article.

Report, B. S. Kinetics of the Action of Light Gases on the Intensity of Absorption Spectra of Vapors of Aromatic Compounds	149
Obstoye I. V. and Ye. S. Irakhoz. The Resistance of Mica to Rupture Along the Cleavage Plane	159
Rytov, S. M. The Correlation Theory of Rayleigh Light Scattering	175
Sobel'san, I. I. The Quantum Mechanics Theory of the Intensity of Combined-Scattering Lines	192
Smachinskiy, M. M. Dependency of the Width of Combined-Scattering Lines of the Anisotropy of a Derived Polarizability Tensor	211
Tam, I. Ye. Present State of the Theory of Weak Interactions of Elementary Particles	218
Tuzerman, L. A. and B. A. Chayanov. The Illumination of Dielectrics in High Voltage a-c Electric Fields	231
Dkholin, S. A. and M. Z. Erunina. Investigation of Combined Light-Scattering Spectra in H ₂ O-H ₂ O and H ₂ O ₂ -Dioxane Solutions	244
Pabelinskiy, I. L. The Thin Structure of Lines of Rayleigh Light-Scattering in Gases	254
Frank, I. M. The Role of the Group Speed of Light in Irradiation in a Refractive Medium	261
Prish, S. E. and I. P. Bogdanova. Excitation of Spectral Lines in the Negative Illumination of a Gas Discharge	275
Prishberg, A. A. and V. V. Medler. The Possibility of Increasing the Sensitivity of the Spectral Determination of Some Elements	287
Shpol'skiy, E. Y. The Interpretation of Spectra of Aromatic Hydrocarbons in Frozen Crystalline Solutions	296

GORELIK, Gabriel' Semenovich; RYTOV, S.M., prof., red.; KUZNETSOVA,
Ye.B., red.; AKHLAMOV, S.N.; tekhn.red.

[Oscillations and waves; introduction to acoustics, radiophysics,
and optics] Kolebaniia i volny; vvedenie v akustiku, radiofiziku
i optiku. Pod red. S.M.Rytova. Izd.2. Moskva, Gos.izd-vo fizi-
ko-matem.lit-ry, 1959. 572 p. (MIRA 12:11)
(Oscillations) (Waves)

06334

SOV/141-2-1-6/19

AUTHOR: Rytov, S.M.

TITLE: The Spectrum of a Quasiperiodic Random Process

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
1959, Vol 2, Nr 1, pp 45 - 49 (USSR)

ABSTRACT: In Ref 1 (Ya.I. Khurgin), an expression has already been found for the spectral density of the random pulse train of Eq (1), in which the amplitude, duration and occurrence of the pulses are all independently random. The process is stationary and the mean value, dispersion and distribution functions of pulse spacing and length are all known. With modifications the same approach may be used for the strongly non-sinusoidal waveform in Figure 1. Here, the amplitudes of all positive excursions are the same and of all negative excursions are the same. The durations of the respective "half-waves" are randomly independent. The process is described by Eqs (2), (3), whence it will be seen that, in distinction from Eq (1), the pulse duration is not independent of the pulse-spacing but is equal to it. Introducing the transform, Eq (4), the spectral density

Card1/2

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The Spectrum of a Quasiperiodic Random Process

of a finite segment of the process is Eq (5). Using the characteristic functions, Eqs (7), and summing over m and n with the length of segment allowed to expand to infinity, Eq (5) becomes Eq (9). If the distribution functions of the "half-wave" durations are the same and the fluctuations are considered as small perturbations, the spectral density is Eq (11), whence the spectrum appears as a number of lines of half-width given by Eq (13). The normalised line-width is proportional to the line-order and the spectral density in the neighbourhood of a line is Eq (16).
There are 1 figure and 1 Soviet reference.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR
(P.N. Lebedev Institute of Physics of the Ac.Sc., USSR)

SUBMITTED: November 3, 1958

Card2/2

RYTOV, S.M.

Fluctuations in self-oscillating systems with piece-wise linear characteristics. Izv.vys.ucheb.zav.; radiofiz. 2 no.1:50-62 (MIRA 12:10) '59.

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Oscillators, Electric)

30(1)

SOV/142-2-1-21/22

AUTHOR: Suchkin, G.L.

TITLE: The First All-Union Conference on Statistical Radio Physics (Pervaya Vsesoyuznaya konferentsiya po statisticheskoy radiofizike)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - radiotekhnika, 1959, Vol 2, Nr 1, pp 121-127 (USSR)

ABSTRACT: The first All-Union Conference on Statistical Radio Physics took place in Gor'kiy from 13 to 18 October 1958. The Conference was organized and conducted by the Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete imeni N.I. Lobachevskogo (Scientific Research Institute of Radio Physics at the Gor'kiy State University imeni N.I. Lobachevskiy - NIRFI) by order of the USSR Ministry of Higher Education, AS USSR, VNTOR and E imeni A.S. Popov. A number of well-known specialists participated at the Conference, among them S.M. Rytov, M.L. Levin, I.L. Bernshteyn and others. Further, there were representatives of

Card 1/22

5

SOV/142-2-1-21/22

The First All-Union Conference on Statistical Radio Physics

is on a satisfactory level. Concerning the latter problem, there is a lack of scientific papers, and the number of reports dealing with this subject, was inadequate, even at this Conference. The Conference participants heard with great interest the latest research results in the field of the statistical theory of communication (theory of information) contained in the report "The Theory of Radio Communication Channels Having Parameters Changing at Random" by V.I. Siforov, Associate of AS USSR, which was delivered at the plenary session. I.L. Bernshteyn (NIRFI, Gor'kiy) reviewed the development of statistical radio physics in his report, titled "Fluctuation Phenomena in Self-Oscillator Networks". Already in the mid-thirties, by suggestion and under supervision of A.A. Andronov, the author analyzed and calculated processes in an ordinary vacuum tube oscillator, considering the fluctuation influence of the shot effect in the tube and the thermal effect in the network. Later,

Card 3/ 82

5

The First All-Union Conference on Statistical Radio Physics

the problem of oscillator fluctuations became important, when receivers for the cm-wave range were built. In 1949, experimental investigations of the oscillation fluctuation of an ordinary tube oscillator were conducted at GIFTI (Gor'kiy). Recently, a large number of papers were published on this subject and the author mentioned in this connection G.S. Gorelik, S.M. Rytov, D. Middleton (USA), V.S. Troitskiy, A.N. Malakhova, M.Ye. Zhabotinskiy and P.Ye. Zil'berman. S.M. Rytov delivered the last report at the plenary session, titled "The Fluctuation Theory in Strictly Non-Linear Self-Oscillator Networks". In this report, self-oscillating networks were considered, permitting a piece-linear approximation of non-linear characteristics. Random forces were assumed as being small and shortly correlated. For simplicity, the theory was developed for the special case of a system with only one degree of freedom. The phase space of the system under consideration is a plane, divided into

The First All-Union Conference on Statistical Radio Physics

two semiplanes which are infinitely straight. Using the point transformation method, small fluctuations investigated in the neighborhood of a stable limit cycle. The statistical characteristic and the diffusion coefficient of the "phase" were obtained. Disregarding the "amplitude" fluctuation, the self-oscillation spectrum was obtained. The author showed that the width of the lines at half the intensity level is proportional to the square of the harmonic number, and also their integral intensity, which is also the case during the absence of fluctuations. As an example, the author discussed a tube oscillator with an anode network and inductive feedback. → The work of the three conference sections was conducted from 14 to 17 October 1958. The section "Fluctuations in Self-Oscillator, Radio Measuring and Amplifier Networks" was headed by I.L. Bernshteyn and S.M. Rytov. A.N. Malakhov (NIRFI, Gor'kiy) delivered a report on "The Spectral Line Width of Oscillators and the Parameter Fluctuation".

Card 5/22

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AUTHOR: Rytov, S.M., Professor

TITLE: What an Astronaut² Traveling at a Velocity Close to
That of Light Will See and Encounter

PERIODICAL: Priroda, 1960, Nr 4, pp 64 - 70 (USSR)

ABSTRACT: The author describes a spaceflight^{iv} at a velocity near
that of light. He discusses the appearance of the
firmament, the apparent shape of approaching stars
and "relativistic" dust and wind. In the author's
opinion, the main obstacles to be surmounted before
cosmic velocity becomes possible, are the construct-
ion of an effective photon engine and the development
of methods of clearing micro-and macroparticles from
the spacecraft path. There are 6 drawings, 6 diagrams,
1 Soviet and 2 English references. 4

Card 1/1