

STALIN'SKI, B.

X-ray analysis of lanthanum hydrides? B. Staliński
(Polish Acad. Sci. Warszawa, Bull. Acad. Sci. Classe III, 3, 1953, 1-10) (English transl. The presence of
lanthanum hydride in the structure of lanthanum
hydroxide and the structure of lanthanum hydroxide
— Lang. W. 1953)

Handwritten scribbles and the number 3.

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STALINSKI, BOHDAN

POLAND/Physical Chemistry - Crystals.

B-5

Abs Jour : Ref Zhur Khimiya, No 5, 1958, 13578

Author : Wlodzimierz Trzebiatowski, Bohdan Stalinski.

Inst : - Chem. Org. Chem., Wroclaw Polytech. Inst. Lab for Structural Research, Inst. of Phys. Chem., Polish Acad. Sci., Wroclaw

Title : X-Ray Study of Zirconium - Hydrogen System.

Orig Pub : Roczn. chem., 1956, 30, No 3, 691-696

Abstract : Zr hydrides were produced at 400° of spectrally pure Zr and H₂ obtained by thermal decomposition of Ti hydride. 19 preparations of composition from ZrH_{0.10} to ZrH_{1.99} were made and they were studied by the powder method, as well as in Preston chambers. The radiations Cu-K α and Fe-K α were used. The accuracy of the lattice parameter determination was above -0.05%. 3 phases (α, β, γ) were revealed in the Zr - H system. The γ phase is a solid solution of H₂ in hexagonal α -Zr. It appears in the 2-phase region ($\alpha + \beta$) up to the composition ZrH_{1.32}. The face centered cubic β -phase

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Abs Jour : Ref Zhur - Khimiya, No 5, 1958, 13578

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001652810020-6"

(corresponding to the ϵ -phase of Hegg) was found in the region of the compositions from ZrH_{0.25} to ZrH_{1.70}. The tetragonal body-centered γ -phase (corresponding to the ϵ -phase of Hegg) exists in the range from ZrH_{1.66} to ZrH_{1.99}. The change of the lattice parameters of this phase with the rise of the H₂ content was established (a increases from 3.469 to 3.519 A, c decreases from 4.560 to 4.450 A).

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STALINSKI, BOHDAN

POLAND/Physical Chemistry - Crystals.

B.

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 45816

Author : B. Stalinski

POLAND/Physical Chemistry - Crystals.

B.

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 45816

within the range of the uniform hydride phase LaH_2 - LaH_3 . Compounds close to LaH_3 are diamagnetic. Two possible explanations of the LaH_3 diamagnetism are presented.

Card 2/2

FCLAND/Physical Chemistry. Crystals.

B-5

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42415.

creased hydrogen content. It was ascertained that the well defined correlation between electric conductivity and the temperature, which is characteristic of semi-conductors, is exhibited only by the hydrides $\text{LaH}_{2.7}$ - $\text{LaH}_{3.0}$. The results obtained indicate that the hydride phase of lanthanum constitutes a transition hydride between true metal hydrides and ionic hydrides.

Card : 2/2

S/058/62/000/010/074/093
A061/A10i

Structure and magnetic properties of...

in the Ti hydride causes a significant rise of the temperature dependence of susceptibility and also the appearance, on the curve of this dependence, of a maximum being characteristic of antiferromagnetic materials. Significant variations in susceptibility and its temperature coefficient in the systems under investigation indicate that the H atoms pass over to the ionic state during the process of dissolution. ✓

[Abstracter's note: Complete translation]

Card 2/2

STALINSKI, B.

Magnetic properties of cerium and of the cerium-hydrogen system.
Electric conductivity of cerium hydride. Bul Ac Pol chim 7 no.5:
269-274 '59. (EEAI 9:9)

1. Department of Inorganic Chemistry, Institute of Technology,
Wroclaw and Institute of Physical Chemistry, Polish Academy of
Sciences. Presented by W.Trzebiatowski.

(Cerium) (Hydrogen) (Cerium hydride)
(Electric conductivity) (Magnetic susceptibility)
(Systems (Chemistry))

STALINSKI, B.; BIEGANSKI, Z.

Heat capacity and thermodynamical functions of titanium hydride TiH_2 within the range of 24° to $363^\circ K$. Bul chim PAN 8 no.5:243-248 '60.

1. Institute of Physical Chemistry, Polish Academy of Sciences and Low Temperature Laboratory, Department of Inorganic Chemistry, Institute of Technology, Wroclaw. Presented by W. Trzebiatowski.

BIEGANSKI, Z.; STALINSKI, B.

Heat capacities and thermodynamic functions of vanadium and vanadium hydride within the range 24 to 340° K. The hydrogen contribution to the heat capacity of transition metal hydrides. Bul chim PAN 9 no.5: 367-372 '61.

1. Institute of Physical Chemistry, Polish Academy of Sciences and Low Temperature Laboratory, Department of Inorganic Chemistry, Institute of Technology, Wroclaw. Presented by W. Trzebiatowski.

(Heat) (Thermodynamics) (Vanadium) (Hydride)
(Hydrogen)

STALINSKI, Bohdan

"Hydrogen in steel" by Michal Smialowski. Reviewed by Bohdan
Stalinski. Przem chem 41 no.6:342 Je '62.

BIEGANSKI, Z.; STALINSKI, B.

The low-temperature heat capacities of nonstoichiometric
niobium hydride. Hydrogen frequencies in metal hydrides.
Bull chim PAN 11 no.10:579-582 '63.

1. Laboratory of Structural Research, Polish Academy of Sciences
and Low Temperature Laboratory, Department of Inorganic
Chemistry, Technical University, Wrocław. Presented by
W. Trzebiatowski.

SMALINSKI, B.; BIEGANSKI, W.

Low-temperature heat capacity of cerium dihydride; crystal field effects. *Bul chim PAN* 12 no.5:331-334 '64.

1. Institute of Structural Research, Wrocław, Polish Academy of Sciences. Presented by W. Trzebiatowski.

STALINSKI, Janusz, doc., mgr., inz.; ZIELONKO, Romuald, mgr., inz.

Basic notions on acoustics and their application to ship noise problems. Bud okretowe Warszawa 6 no.8:251-255 '61.

1. Politechnika Gdanska.

(Ships) (Noise)

STALINSKI, J., doc., mgr., inz.

Publications of the Shipbuilding Faculty at the University
in Rostock. Bud okret 7 no.4:133 Ap '62.

STALINSKI, Janusz, prof.

"Shipbuilding engineering manual" by W. Henschke and others.
Bud okretowe Warszawa 8 no.10:363-364 0 '63.

PIECHOTA, Andrzej, mgr inz.; STALINSKI, Janusz, doc. mgr inz.

Trends in automatic control of combustion power plants on ships with particular consideration of distant steering of the main engines. Pt. 1. Bud okretowe Warszawa 9 no. 7:246-248 J1 '64.

1. Research Center of the Shipbuilding Industry, Central Ship Design Office No. 1., Gdansk (for Piechota). 2. Technical University, Gdansk (for Stalinski).

PIECHOTA, Andrzej, mgr inż.; STALINSKI, Janusz, doc. mgr inż.

Trends in automatic control of ship combustion engines with particular consideration of remote steering of the main engines. Pt. 2. Bud. skrotowe Warszawa 9 no. 3:274-278 Ag 64.

1. Research Center of the Shipbuilding Industry, Central Ship Design Office No. 1, Gdansk (for Piechota). 2. Technical University, Gdansk (for Stalinski).

PIECHOTA, Andrzej, mgr inz.; STALINSKI, Janusz, doc. mgr inz.

Trends in automatic control of ship combustion engines with particular consideration of remote steering of the main engines. Pt. 3. Bud okretowe Warszawa 9 no. 9:316-318 S '64.

1. Research Center of the Shipbuilding Industry, Central Ship Design Office No. 1, Gdansk (for Piechota). 2. Technical University, Gdansk (for Stalinski).

STALINSKI, Z.

Z. KAMINSKI & Z. STALINSKI of the Higher School of Agriculture and the Zootechnics Institute in Krakow wrote an article which appeared in the PAN periodical Postepy Nauk Rolniczych, under the title: Wplyw Heterospermicznego Unasieniania Samcami tej Samej Rasy na Wage Naworodka u Krolakow (Oryctolagus cuniculus). (The Influence of Heterospermic Insemination with Semen of Males of the Same Breed on the Birth Weight of Rabbits).

SO: Postepy Nauk Rolniczych, #3, May-Jun 56, Warsaw, PWRIL, Uncl. fsg

KAMINSKI, Z.; KNOTHE, A.; STALINSKI, Z.

Heritability of birth weight and weaning weight in the stock of Polish merinos in Jedrzejewice. Postepy nauk roln 7 no.1:33-40 Ja/F '60.
(EEAI 9:10)

1. Wyższa Szkoła Rolnicza w Krakowie i Zakład Hodowli Dowsiadczalnej
Zwierząt Polskiej Akademii Nauk
(Poland--Merino sheep)

STALINSKI, Zbigniew; BRZESKI, Erazm; WEZYK, Stanislaw

Degree of inbreeding and cognation of Polish ponies. Postepy nauk roln 10 no.5:119-124 '63.

1. Department of Animal Breeding and Department of Horse Breeding, College of Agriculture, Krakow.

STALINSKY, Ye.

✓ 4048. Energy consumed in the plasticization of rubber on a roll mill. E. STALINSKY. *Compt. rend. Acad. Sci.*, 1954, 238, 894-6; *Rubb. Chem. Technol.*, 1955, 28, 606-7. Cf. this journal, 1954, abs. 3020. An English translation of this paper now appears. 353

Smiley

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GINTAUTAS, A.; STALIONIS, S.; SHLEIKUS, P.; MOZGEVA, T.; BABIANSKAS, M.;
BIZIULIAVICHUS, S.

Experience in the control of helminthiasis in Kovarsk as District,
Lithuanian S.S.R.
(KOVARSKAS DISTRICT—WORMS, INTESTINAL AND PARASITIC)

LASIENE, J., med. m. d-re; JANKEVICIUTE, J., med. m. kand.; STALIORAITYTE, E.,
med. m. kand.; LIUTKUS, L.

On the problem of the classification and terminology of tumors of the
hematopoetic organs. Sveik. apsaug. 6 no.9(69):15-19 S '61.

1. Kauno Valst. medicinos instituto patologines anatomijos katedra.
Katedros vedeja - med. m. d-re J. Lasiene.

(HEMATOPOIETIC SYSTEM neopl)

LASIENE, J., prof.; STALIORAITYPE, E., doc.

Pathogenetic diagnosis of acute diseases of the respiratory
system in infants and its prophylactic significance. Sveik.
apsaug. 8 no.2:3-7 F'63.

. Kauno Valstybinis medicinos institutas.
1. Kauno Valstybinis medicinos institutas.

*

LASHENE, Ya. [J. Lastene] (Kaunas); YANKYAVICHYTE, Yu. [Jankeviciute, J.] (Kaunas); STALIORAITITE, Ye. [Stalioraityte, E.] (Kaunas); LIUTKUS, L. [Liutkus, L.] (Kaunas)

Classification and terminology of tumor processes of the hemato-
poietic system (hematoklastomatosis). Arkh. pat. 25 no.3:26-29 '63.
(MIRA 17:12)

1. iz kafedry patologicheskoy anatomii (zav. - dr. med. nauk Ya.I.
Lashene) Kaunasskogo meditsinskogo instituta.

STALIORITYTE, Ye. I. Cand Med Sci -- (diss) "Paraspecific
Changes in ^{the} Testes ⁱⁿ ~~at~~ Tuberculosis ^{in Relation To Age} ~~Distribution by Age.~~"
Vil'nyus, 1957. 16 pp 21 cm. (Academy of Sciences Lithuanian
SSR, Inst of Experimental Medicine), 200 copies (KL, 18-57, 98)

LASHENE, Ya.I., [~~Lashene~~, J.], prof.; STALIORAYTITE, Ye.I. [Stalioraityte, E.]

Fourth Republic Scientific Conference of Pathoanatomists of
the Lithuanian S.S.R. Arkh. pat. 25 no.4:91-93 '63 (MIRA 17:4)

1. Predsedatel' Litovskogo Respublikanskogo obshchestva patologo-
anatomov (for Lashene). 2. Uchenyy sekretar' Litovskogo Respub-
likanskogo obshchestva patologoanatomov (for Stalioraytite).

STALIVONENKO, I.; DROZDOV, V.

More concern for service industries. Sov.profsoiuzy 7 no.20:
47-48 0 '59. (MIRA 12:12)

1. Zaveduyushchiy zhilishchno-bytovym otdelom Belsovprofa
(for Stalivonenko). 2. Instruktor zhilishchno-bytovogo
otdela Belsovprofa (for Drozdov).
(White Russia--Service industries)

STALIVONENKO, I.

Under control of the masses. Sov.profsoiuzy 7 no.1:50-52
Ja '60. (MIRA 12:12)

1. Zaveduyushchiy zhilishchno-bytovym otdalom Belorusskogo
respublikanskogo soveta profsoyuzov.

(White Russia--Retail trade)

(White Russia--Restaurants, lunchrooms, etc.)

STALIVONENKO, I.; DROZDOV, V.

Seven million dollars cheaper. Sov.profsoliuzy 16 no.17:36-37
S '60. (MIRA 13:8)

1. Zaveduyushchiy zhilishchno-bytovym otделom Belorusskogo respublikanskogo soveta profsoyuzov (for Stalivonenko).
2. Instruktor zhilishchno-bytovogo otдела Belorusskogo respublikanskogo soveta profsoyuzov (for Drozdov).
(White Russia--Restaurants, lunchrooms, etc.)

STALIVONENKO, I.

Increase public control over the construction of housing and buildings serving cultural and public needs. Sov. profsoiuzy 17 no.7:32-34 Ap '61. (MIRA 14:3)

1. Zaveduyushchiy zhilishchno-bytovym otделom Belorusskogo respublikanskogo soveta profsoyuzov.
(White Russia--Construction industry--Auditing and inspection)
(Trade unions)

STAL'KOV, Grigoriy Alekseyevich; IGNAT'YEVA, A.V., redaktor; DZHATIYEV,
S.G., tekhnicheskiy redaktor.

[Mental arithmetic] Ustnyi schet; posobie dlia uchashchikhsia
srednei shkoly. Moskva, Gos.uchebno-pedagog. izd-vo Ministerstva
prosveshchenia RSFSR, 1955. 126 p. (MLRA 8:5)
(Arithmetic, Mental)

CHICHIGIN, Vasilii Grigor'yevich; PRINTSEV, V.V., dotsent, retsenzent;
LAPIN, zasluzhennyi uchitel', retsenzent; SPAL'KOV, G.A.,
retsenzent; ZETEL', S.I., dotsent, retsenzent; KARASEV, P.A.,
dotsent, retsenzent [deceased]; DUBNOV, Ya.S., prof., retsenzent
[deceased]; PAZEL'SKIY, S.V., red.; TATURA, G.L., tekhn.red.

[Method for teaching geometry; plane geometry. Textbook for
high-school teachers] Metodika prepodavaniia geometrii; planimetriia.
Posobie dlia uchitelei srednei shkoly. Moskva, Gos.uchebno-pedagog.
izd-vo M-va prosv.RSFSR, 1959. 391 p. (MIRA 13:3)
(Geometry--Study and teaching)

STALKOWSKI, A.

STALKOWSKI, A. The application of surface beton sheeting in hydraulic construction.
p. 537. Vol. 16, no. 12, Dec. 1956. GOSPODARKA WODNA. Warszawa, Poland.

SOURCE: EAST EUROPEAN ACCESSIONS LIST (EEAL) VOL 6 NC 4 APRIL 1957

STALLA, Andrzej

Charles Dickens; the 150th anniversary of his birth. Problemy
18 no.6:386-391 '62.

STALMACH, Jan, inz.

Segmental hammerhead of the cutter loader KSV 60 E proved efficient in brown coal cutting. Uhli 3 no.11:376-380 N '61.

1. Velkobana, Handlova.

SHEVCHIK, V.S.

AUTHOR SHEVCHIK, V.N., STAL'MAKHOV, V.S. PA - 2579

TITLE Regarding the effect of special charge upon interaction between the electronic flow and the travelling magnetic wave.
(O vliyaniy prostranstvennogo zaryada na vzaimodeystviye elektronogo potoka s begushchey elektromagnitnoy volnoy. Russian)

PERIODICAL Radiotekhnika i Elektronika, 1957, Vol 2, Nr 2, pp 230-236
(U.S.S.R.)
Received 4/1957 Reviewed 6/1957

ABSTRACT Here a further development of the kinematic analysis of energy exchange between the electronic flow and the propagated wave is concerned which had been carried out by V.N. Shevchik in his earlier works (reports 1956, 1955). The influence of the space charge field on the magnitude of electron efficiency is determined. First, the differential equation for the variable velocity component of the electrons is derived. Next, the relation for the first approximation of the relative angle of flight of the electrons in the field of the propagated wave is found. In the next chapter computation of the current grouped in the field of the propagated wave and the efficiency of electron interaction is carried out. From the equations obtained for the active and reactive components of efficiency of electronics the following important conclusion may be drawn: the interaction of the electronic flux and the propagated wave is determined by the electronic angle of flight ϕ_0 with respect to the wave. This angle is

Card 1/2

ZAMOROZKOV, B.M.; STAL'MAKHOV, V.S.

~~Theory of the electron beam diode with pre-modulation.~~ Uch.zap. Sar.
un. Vyp.fiz. 56:3-21 '57. (MIRA 12:11)
(Diodes)

ZAMOROZKOV, B.M.; STAL'MAKHOV, V.S.

Problem of calculating the efficiency of the electronic components
of a klystron. Uch.zap. Sar.un. Vyp.fiz. 56:22-29 '57. (MIRA 12:11)
(Klystrons)

SCV/109-3-10-2/12

AUTHORS: Stal'makhov, V.S. and Golubentsev, A.F.

TITLE: On the Analysis of Multi-frequency Bunching in a Reflex Klystron-multiplier (K analizu mnogochastotnoy gruppirovki v otrazhatel'nom klistrone-umnozhitele)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 10, pp 1243 - 1253 (USSR)

ABSTRACT: The system considered is shown diagrammatically in Figure 1. It is assumed that, in general, the various, generated frequencies are in a ratio ω_m/ω , such that the ratio can be any number, rational or irrational; in particular, it can be an integer. It is assumed that the resonator connected with the grids of the klystron (Figure 1) resonates at frequencies $\omega_1, \omega_2, \dots, \omega_n$, so that the instantaneous voltage across the grids can be expressed by:

$$U = \sum_{m=1}^n U_m \sin(\omega_m t + \phi_m) \quad (1)$$

where ϕ_m is the initial phase. By substituting this

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SOV/109-3-10-2/12

On the Analysis of Multi-frequency Bunching in a Reflex Klystron-multiplier

expression into the equation of motion of the electrons, the expression for the transit angle at the output of the grids is in the form of Eq.(2), where the various coefficients are expressed by Eq.(3). In the above equations, the following notation is adopted: v_0 is the initial velocity, φ_0^* is the instant, free-transit angle in the intergrid space, φ_0 is the full, free-transit angle, θ_0 is the full, free-transit angle in the braking region, $\omega_m/\omega = N_m/N_1$ is the ratio of the m-th frequency and the fundamental, μ_m is a small parameter, M_m is the coefficient of electron coupling at the m-th frequency, and X_m is the bunching parameter. The bunched current can be expressed as a Fourier series and is given by Eq.(4). The coefficients A_k of the series can be expressed by Eq.(5) and if $l_1 = 0$,

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SOV/109-3-10-2/12

On the Analysis of Multi-frequency Bunching in a Reflex Klystron-multiplier

$\lambda_2 = 0, \lambda_k = 1 \dots \lambda_n = 0$, the bunched current $i(t_3)$ can be expressed by Eq.(7). The induced current is given by Eq.(8), where the coefficients K_k and L_k are expressed by Eq.(9). The electron admittance of the grid system is expressed by Eq.(10), where G_{ek} is the electron admittance at the k-th frequency, when the system is simultaneously excited at n frequencies. In the simplest case of two excitation frequencies, the corresponding electron admittances are expressed by Eqs.(11). These two equations were used to plot a number of graphs showing the electron admittances for various values of k. The resulting curves are given in Figures 2, 3 and 4. The transient process in the klystron can be described by Eqs.(12). On the basis of these equations, by employing the Lyapunov criterion, the stability conditions in the case of two-frequency excitation are expressed by the first two equations on p 1251; the equalities have to be satisfied simultaneously. The results of the analysis for the case of two-frequency operation are summarised by Eqs.(14), (16), (17) and (19).

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On the Analysis of Multi-frequency Bunching in a Reflex Klystron-multiplier

Eqs.(14) give the values of the electron admittances at the fundamental and the k-th frequencies. Eqs.(16) express the steady state amplitudes of the oscillations. Eqs.(17) define the starting currents, while Eqs.(18) give the overall efficiency of the system.

There are 5 figures and 7 references, 5 of which are Soviet, 1 English and 1 French.

SUBMITTED: February 4, 1957

Card 4/4 1. Klystrons--Performance

06501

SOV/141-58-4-17/26

AUTHORS: Stal'makhov, V.S., Shevchik, V.N. and Zharkov, Yu.D.

TITLE: Analysis of the Operation of the Backward-Wave Oscillator by Employing a Cosinusoidal Approximation of the Field (Analiz raboty LOV v kosinusoidal'nom priblizhenii polya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 4, pp 131-136 (USSR)

ABSTRACT: The exact linear theory of backward-wave oscillators (Ref 6), which is based on the simultaneous solution of the field and electron equations, shows that the distribution of the field amplitude during the start regime of the tube can be approximately described by the cosinusoidal law (Ref 11). The longitudinal component of the high frequency electric field in the interaction space can, therefore, be written as:

$$E_1 = E_0 \cos \frac{\pi z}{2L} e^{j(\omega t - \beta z)} \quad (1)$$

Card 1/4 where E_0 is the amplitude of the field at $z = 0$, $\beta = \omega/v$ and v is the propagation constant.

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Analysis of the Operation of the Backward-Wave Oscillator by
Employing a Cosinusoidal Approximation of the Field

Eq (1) can also be written as Eq (2). The electron beam has an average velocity v_0 in the direction of the axis z and its average space charge density is ρ_0 . The basic equations describing the electron beam can be written as

$$i = \rho v + \frac{1}{4\pi} \left[\frac{\partial E_1}{\partial t} + \frac{\partial E_2}{\partial t} \right];$$

$$\frac{\partial E_2}{\partial z} = 4\pi\rho \quad (3)$$

$$\frac{\partial v}{\partial t} + v \frac{\partial v}{\partial z} = \frac{e}{m} [E_1 + E_2]$$

where E_2 is the field of the space charge. By
Card 2/4 employing the notation defined by Eq (4), the

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Analysis of the Operation of the Backward-Wave Oscillator by
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alternating velocity component of the electrons can be found from Eq (5) where ω_e is the plasma frequency, ωt_1 is the input phase and φ is the absolute transit angle in the interaction space. By carrying out the double integration of Eq (5), it is shown that φ is given by Eq (6). By employing the space charge conservation law, the density of the bunched electron current is given by Eq (7). The real interaction power is, therefore, given by Eq (8) where $\Phi_0 = \varphi_0(1 - v_0/v_\phi)$ is the so-called relative transit angle for the interaction space, $\xi = E_0 L/v_0$ and $\theta_0 = \omega_e L/v_0$. The variations of the real power P_{ea} are plotted in Fig 1 as a function of Φ_0 . The function Φ_0 is plotted in Fig 2 against θ_0 . The above analysis permits the evaluation of the starting current for the oscillator tube. This current is expressed by:

$$I_{st} = \frac{8V_0}{Z_0(2\pi N)^3} F(\theta_0) \quad (9)$$

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Analysis of the Operation of the Backward-Wave Oscillator by
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where $F(\theta_0)$ is a function reciprocal to Eq (8). The start-current characteristic of the system can also be written as Eq (10), where $C^3 = Z_0/4V_0$ and $N = L/\lambda$. Eq (10) is plotted in Fig 3 (the solid curve); the dashed curve in Fig 3 was evaluated by using the formula from Ref 3. It is seen that the results obtained by either formula do not diverge appreciably. The results obtained from Eq (10) are also compared with values obtained by Johnson (see Fig 4) and by Walker (see Fig 5); the works of Johnson and Walker are mentioned in Ref 7 and 9 respectively. There are 5 figures and 13 references, 9 of which are Soviet and 4 English.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet
(Saratov State University)

SUBMITTED: 8th January 1958

Card 4/4

S/194/62/000/004/086/105
D271/D308

9,4210

AUTHORS: Shevchik, V. N. and Stal'makhov, V. S.

TITLE: On the theory of magnetrons

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika,
no. 4, 1962, abstract 4zh122 (Uch. zap. Saratovsk.
un-t, 1960, 69, 91-94)

TEXT: Two methods used for the analysis of split-anode magnetron operation are compared: "method of travelling wave" and "method of cascade bunching". It is noted that the first method describes adequately the hyper-critical operation of the magnetron ($H = 2 + 3 H_{crit}$), whereas the second method gives a good approximation of the near-critical operation. By means of the first method, the authors consider the operational mechanism of the magnetron in near-critical conditions, from the point of view of the theory of travelling waves. A characteristic equation is obtained for the oscillations (dependence of the wavelength on the parameters, mode of operation and the geometry of the magnetron); this equation
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S/194/62/000/004/086/105
D271/D308

On the theory of magnetrons

coincides with the corresponding formula of Postumus and the relation of Slater and Hartree, with an accuracy extending to the coefficient. Experimental values of this coefficient approximately agree with those obtained analytically. It is pointed out that the discussed method yields, in a simpler manner, the principal conclusions of the split-anode magnetron theory based on the concept of cascade bunching of electrons. [Abstracter's note: Complete translation.]

Card 2/2

STAL'MAKHOV, V.S.; KOSTENKO, A.I., nauchnyy red.; ALEKSANDROVA, A.A.,
red.; BELYAYEVA, V.V., tekhn. red.

[Fundamentals of the electronics of superhigh frequency cross-
sed-field devices] Osnovy elektroniki sverkhvysoko-chastotnykh
priborov so skreshchennymi poliami. Moskva, Sovetskoe radio,
1963. 365 p. (MIRA 1616)
(Microwaves) (Microwave tubes)

L 45829-66 EWT(1) JM

ACC NR: AR6015968

SOURCE CODE: UR/0275/65/000/011/A025/A025

69
B

AUTHOR: Gurzo, V. V.; Stal'makhov, V. S.

TITLE: Amplifiers of the magnetron type with premodulation of the electron flow

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 11A155

REF SOURCE: Sb. Vopr. elektron. sverkhvysok. chastot. Vyp. I. Saratov, Saratovsk.
un-t, 1964, 68-80

TOPIC TAGS: magnetron, backward wave amplifier, traveling wave tube, beam modulation

ABSTRACT: The authors consider an amplifier in which the electron flow is premodulated by interaction with an auxiliary decelerating system. The input signal is split into two signals, one of which is fed to the input of the modulator decelerating system while the other goes to the input of the amplifier decelerating system. Since interaction may take place on both the forward and reverse harmonics, there are four possible cases: BWA-BWA, TWT-TWT, TWT-BWA and BWA-TWT (where BWA is the backward-wave amplifier). Analysis of the simplest case--linear operating conditions, low space charge and no losses--shows that it is feasible to use premodulation for backward-wave amplifiers (TWT-BWA and BWA-BWA). M. R. [Translation of abstract]

SUB CODE: 09

Card 1/1 10

UDC: 621.385.632

PHASE I BOOK EXPLOITATION

SOV/6463

Stal'makhov, V. S.

Osnovy elektroniki sverkhvysokochastotnykh priborov so skreshchennymi polyami (Fundamentals of Electronics of Crossed-Field Microwave Devices) Moscow, "Sovetskoye radio", 1963. 365 p. Errata slip inserted. 16,000 copies printed.

Scientific Ed.: A. I. Kostiyenko; Ed.: A. A. Aleksandrova;
Tech. Ed.: V. V. Belyayeva.

PURPOSE: This book is intended for technical personnel working in the field of SHF electronics and for students in advanced courses of schools of higher education.

COVERAGE: The book is based on a series of lectures delivered by the author at the Department of Radiophysics of the Saratov State University from 1957 to 1962. It discusses the physical fundamentals of electronics and the elements of the theory of crossed-field SHF devices with emphasis on the physical

Card 1/12

Fundamentals of Electronics (Cont.)

SOV/6463

aspects of the described phenomena. The author thanks V. S. Lukoshkov for his advice. References are given at the end of each chapter.

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PART ONE. PERIODIC DELAY SYSTEMS USED IN CROSSED-FIELD SHF DEVICES	
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1. Comb structure in a waveguide	19

Card 2/12

L 25129-65 EPA(w)-2/EWT(1)/EEC(t)/EWA(m)-2
ACCESSION NR: AP5002335

Pub-10
S/0141/64/007/005/1002/1004

32
31
A B

AUTHORS: Kulikov, M. N.; Stal'makhov, V. S.

TITLE: Calculation of the interaction between an electron beam and a traveling-wave field in crossed fields and in an interaction space of finite dimensions

SOURCE: IVUZ. Radiofizika, v. 7, no. 5, 1964, 1002-1004

TOPIC TAGS: traveling wave field, electron field interaction, slow wave system, space charge density, field theory, perturbation theory

ABSTRACT: A field-theoretic method in the linear approximation was used to determine the interaction between straight-line electron beams of finite thickness and of low space-charge density and the field of a slow-wave system, with account taken of the finite dimensions of the interaction space and of the position of the electron beam in the space. The derived formulas are claimed to be more

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L 25129-65

ACCESSION NR: AP5002335

general than the perturbation-theory formulas published in the literature, since they take into account both the thickness of the beam and its position in the interaction space. They also make it possible to determine the initial amplitudes of the partial waves, which are needed for the calculation of the characteristics of real traveling wave or backward wave tubes. Furthermore, the results can be used for an analysis of devices consisting of more than one stage. Orig. art. has: 4 figures and 10 formulas.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State University)

SUBMITTED: 15Feb64

ENCL: 00

SUB CODE: EC, NP

NR REF SOV: 002

OTHER: 006

Card

2/2

ACCESSION NR: AP4017595

S/0109/64/009/002/0252/0261

AUTHOR: Kulikov, M. N.; Stal'makhov, V. S.

TITLE: Calculating an electron-wave M-type amplifier with a thin beam

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 252-261

TOPIC TAGS: M type tube, M type amplifier, electron wave amplifier, diocotron amplifier, thin beam M type amplifier

ABSTRACT: Based on R. W. Gould's theory of a thin beam (J. Appl. Phys., 1957, 28, 5, 599), formulas are developed for a few particular cases of calculating the overall gain of a crossed-field M-type (diocotron) amplifier. The design procedure developed involves not only parameters of the electron beam and the drift space but also parameters of matching devices employed with the M-tube. The problem of gain determination is solved in these three steps:
(1) Determining wave-propagation constants in the matching and drift regions;

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ACCESSION NR: AP4017595

(2) Determining boundary conditions in the input and output matching devices and in the drift region; (3) Determining initial amplitudes of partial waves in the matching devices and in the drift region. It is claimed that a numerical case computed by the new formulas was in good agreement with experimental results obtained by P. Guénard, et al. (Ann. radioélectr., 1952, 7, 30, 252). Orig. art. has: 4 figures and 30 formulas.

ASSOCIATION: none

SUBMITTED: 19Jan63

DATE ACQ: 18Mar64

ENCL: 00

SUB CODE: GE

NO REF SOV: 001

OTHER: 005

Card 2/2

ANDRUSHKEVICH, V.S.; BUDNIKOVA, N.P.; GRIGOR'YEV, M.A.; ZHARKOV,
Yu.D.; SIMITSYN, N.I.; STAL'MAKHOV, V.S.; TRUBETSKOV, D.I.;
SHVEDOV, G.N.; SHEVCHIK, V.N.; NOSKOVA, R.F., red.

[Electronic superhigh-frequency devices] Elektronnye pribory
sverkhvysokikh chastot. Saratov, Izd-vo Saratovskogo univ.,
1964. 187 p. (MIRA 18:4)

L 02239-67 EWT(1)

ACC NR: AR6013692

SOURCE CODE: UR/0058/65/000/010/H033/H033

AUTHOR: Gurzo, V. V.; Stal'makhov, V. S.

TITLE: Amplifiers of the magnetron type with preliminary modulation of the electron beam

SOURCE: Ref. zh. Fizika, Abs. 10Zh225

REF SOURCE: Sb. Vopr. elektron. sverkhvysok. chastot. Vyp. 1. Saratov, Saratovsk. un-t, 1964, 68-80

TOPIC TAGS: magnetron, traveling wave amplifier, backward wave amplifier, electron beam, beam modulation, space charge

ABSTRACT: The authors investigate linear operating modes of traveling-wave and backward-wave amplifiers (TWT and BWA) with preliminary modulation of the electron beam as a result of interaction with an additional slow-wave system. The input signal is split into two parts, one of which is fed to the input of the slow-wave system of the modulator, and the other to the input of the slow-wave system of the amplifier. They can interact either with the direct or with the backward harmonic, so that four cases of two-stage type-M amplifier circuits with preliminary modulation are possible:

1/2

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B

L 02239-67

ACC NR: AR6013692

BWA-BWA, TWT-TWT, TWT-BWA, and BWA-TWT. On the basis of an analysis of the simplest case (linear mode, small space charge, and absence of losses), it is concluded that it is advantageous to use preliminary modulation for backward-wave amplifiers (the case TWT-BWA and BWA-BWA). M. R. (Translation of Abstract)

SUB CODE: 09

2/2 bdh

L 33573-66 EWT(1) IJP(c) AT

SOURCE CODE: UR/0058/65/000/011/H026/H026

ACC NR: AR6016251

72
B

AUTHOR: Kulikov, M. N.; Stal'makhov, V. S.

TITLE: On the calculation of the interaction between an electron beam of finite thickness and a traveling-wave field in beam devices with crossed fields

SOURCE: Ref. zh. Fizika, Abs. 11Zhl80

REF SOURCE: Sb. Vopr. elektron. sverkhvysok. chastot. Vyp. I. Saratov, Saratovsk. un-t, 1964, 81-94

TOPIC TAGS: electron beam, traveling wave interaction, electromagnetic field, wave propagation, adiabatic approximation, electron motion, space charge

ABSTRACT: Results are presented of a calculation of the propagation constants (PC) for an electron beam of finite thickness in devices with crossed fields, with allowance for the distance from the cold cathode to the slow-wave system. Certain results are also given of an analysis of the influence of the beam position in the interaction space on PC of the waves in the system. The problem is solved in the adiabatic approximation. It is assumed that the electron trajectories are straight lines, and that the space-charge density is small and is homogeneous over the section of the beam. An equation is obtained for the PC; the results of its numerical solution are given for the case of small signals, together with the corresponding plots. An analysis of certain particular cases shows that allowance for the geometry of the interaction space and for the position of the electron beam in it can greatly change the PC of the waves

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L 33573-66

ACC NR: AR6016251

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in the system. The character of variation of the PC is closely connected with the variation of the PC of space-charge waves. If the modulation waves at the upper and lower limits turn out to be uncoupled to each other for a given thickness of the electron beam and for a given beam position in interaction space, then the modulation wave at the lower limit turns out to be practically uncoupled with the slow-wave system, too, so that only two waves are excited in the system in lieu of three. Certain ways of simplifying this general solution are indicated. A. Roshal'. [Translation of abstract]

SUB CODE: 20, 09

Card 2/2

PP

KULTEOV, M. N.; STALINBAKHOV, V. J.

Calculation of the interaction between an electron stream and a traveling wave field in cross fields with finite dimensions of the interaction space. Izv. vys. ucheb. zav.; radiofiz. 7 no.5:1002-1004 '62. (MIRA 18:2)

1. Saratovskiy gosudarstvennyy universitet.

GURZO, V.V.; STAL'MAKHOV, V.S.; TRUBETSKOV, D.I.

Contribution to the theory of parametric amplification of
cyclotron waves in beam devices with crossed fields.

Radiotekh. i elektron. 10 no.12:2251-2254 D '65.

(MIRA 19:1)

1. Submitted July 13, 1964.

L 20653-66 EMT(1)/EWA(h) IJP(a) AT/JM

ACC NR: AP6007638

SOURCE CODE: UR/0141/66/009/001/0146/0154

AUTHOR: Gurzo, V. V.; Kulikov, M. N.; Stal'makhov, V. S.

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ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

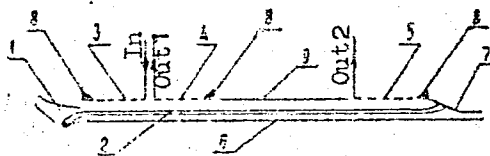
B

TITLE: Investigation of the instability (of diocotron amplification) of thin electron beams moving in crossed fields

SOURCE: IVUZ. Radiofizika, v. 9, no. 1, 1966, 146-154

TOPIC TAGS: electron tube, ¹²cross field tube / ~~M-type tube~~

ABSTRACT: The results are reported of an experimental investigation of the instability of thin electron beams moving in crossed fields in a region free from external r-f fields. Unlike other works (L. A. Harris, Proc. IRE, B-105, Suppl., 645, 1958) where gain per unit current or beam length was reported, this article gives the total gain in the drift region. An M-type electron-wave amplifier (see figure) was used for experiments. The diocotron gain (over 6 db) was determined as the difference between the total gain and that of the matching



Experimental amplifier for diocotron gain measurements

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I. 20653-66

ACC NR: AP6007638

devices. The experimental amplifier comprised: 1 - electron gun, 2 - electron beam, 3 - first coupling element, 4 - second coupling element, 5 - third coupling element, 6 - base (negative electrode), 7 - collector, 8 - absorber, 9 - drift. A gain of 15-18 db was obtained when an r-f signal was applied to the first and taken from the third coupling element. It was found that: (1) broadband operation of the diocotron amplifier is possible, even with dispersing coupling elements, if the latter are short enough; an amplification band of 8% was achieved in the experiments; (2) practical application of such an amplifier is limited by its low efficiency and high internal noise level. Orig. art. has: 9 figures and 6 formulas. [03]

SUB CODE: 09 / SUBM DATE: 08Jul65 / ORIG REF: 002 / OTH REF: 005

ATD PRESS: 4224

Card 2/2 BK

STAL'MAKHOVA, I.P.; FINKEL', A.G.; SVERDLOV, I.M.

Experimental and theoretical study of the absolute intensities of
infrared spectra of hydrocarbons in the gaseous phase. Part 5.
Propane. Opt. i spektr. 18 no.6:1083-1086 Je '65.
(MIRA 18:12)

STAL'MAKHOVA, L.S.

USSR/ Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis

B-9

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11216

Author : III. A.D. Stepukhovich and G.I. Kats
IV. A.D. Stepukhovich and G.P. Vorob'yeva
V. A.D. Stepokhovich and L.V. Derevenskikh
VI. Stepukhovich A.D., Stal'makhova L.S., Yeregin V.V.
VII. Stepukhovich A.D., Derevenskikh L.V.Title : Kinetics and Mechanism of Decomposition of Hydrocarbons.
III. Kinetics and Mechanism of Thermal Decomposition of Divinyl at Low
Temperatures.
IV. Kinetics and Mechanism of Decomposition of Isobutane in the Pre-
sence of Isobutylene and Propylene as Inhibitors
V. Kinetics of Thermal Decomposition of Gaseous Paraffins in the Pre-
sence of Added Divinyl
VI. Kinetics of Thermal Decomposition of Gaseous Paraffins in the Pre-
sence of Acetylene
VII. Kinetics and Mechanism of Decomposition of Gaseous Alkanes in the
Presence of AlleneOrig Pub : Zhurnal fiz. khimii, 1954, 28, No 7, 1174-1185; No 8, 1361-1370; No 10,
1720-1724; No 11, 1878-1881; 1955, 29, No 12, 2129-2132

1/4

Sarator State U. in N.G. Chernyshev.

USSR/ Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis

B-9

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11216

Abstract : III. The velocity constant of divinyl decomposition, calculated in accordance with the equation of the reactions of second order, varies linearly, at 570-620° and 2-30 mm Hg pressure, depending on $1/p_0$ (p_0 -- initial pressure). Calculated were mean duration of life of divinyl molecule in activated state, $5 \cdot 10^{-8}$ seconds, the number of kinetically active degrees of freedom 20, and dissociation energy of divinyl $E = 79.4 \pm 1.9$ kcal/mole. Decomposition of divinyl conforms to the Dintsess-Frost equation and is interpreted as a chain reaction undergoing spontaneous inhibition by decomposition products. Additions of divinyl accelerate decomposition of C_2H_6 at 620°. Accelerative action of divinyl reaches a limit at 12%.

IV. By the method of inhibiting additives (RZhKhim, 1953, 8215) a study was made of thermal decomposition of isobutane at pressure of 10 mm Hg and temperatures of 548 and 573°. Addition of 0.5% slows down the decomposition sharply, on increase of the addition from 1 to 7% effectiveness of its action decreases, and with 7-10% saturation is reached (first order velocity constant acquires constant value). Under the same conditions inhibition by isobutylene is more effective than by propylene.

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USSR/ Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis

B-9

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11216

Experimental data on inhibiting action of additives fit the equation: $1/W - W_0 = A + BC$ (1), wherein W -- reaction velocity, W_0 -- residual velocity, A and B -- constants, $C(\text{add})$ -- concentration of additive, which proves the chain nature of the decomposition. The primary effect is decomposition of isobutane molecule at C-C bond. Inhibiting action of olefins is explained by removal of H atom by active radical from molecule of additive with formation of inactive unsaturated radicals. By means of equation (1) were calculated velocity constants of the reaction of chain termination at the wall and at molecules of additive. Activation energy of inhibiting reactions brought about by isobutylene and propylene is, respectively, 5.6 and 8.5 kcal/mole, that of the reaction of termination at wall, 14.7 kcal/mole.

V. Study of kinetics of thermal decomposition of propane, butane and isobutane, in the presence of divinyl, with initial pressure of decomposing hydrocarbons ~ 10 mm Hg, and at temperatures of 510-593°. Additions of divinyl, which is a product of cracking of hydrocarbons, do not inhibit decomposition of these hydrocarbons. Absence of inhibiting

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USSR/ Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis

B-9

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11216

action of divinyl is correlated with greater durability of C-H bond, in CH₂ groups, at the double bond carbon, in comparison with durability of C-H bond in methyl groups of propylene of isobutylene.

VI. Study of kinetics of thermal decomposition of propane and butanes in the presence of 1-20% C₂H₂ at pressure of decomposing hydrocarbons ~10 mm and temperatures of 500-600°. Additions of C₂H₂ do not inhibit rate of decomposition. Increased values of decomposition velocity constant of propane at pressures below 10 mm, in the presence of C₂H₂, are due to the fact that that C₂H₂ impedes diffusion of active centers to the walls. Thermal calculations have shown the possibility of a reaction between atomic hydrogen and C₂H₂, with formation of highly reactive vinyl radical which is stable under cracking conditions.

VII. Additions of allene inhibit cracking of C₃H₈ and iso-C₄H₁₀, but do not affect decomposition of C₄H₁₀. Mechanism of inhibition resides in addition of H atoms to allene molecule with formation of little active allyl radicals. Absence of inhibition in the case of C₄H₁₀ is due to the fact that increase of latter occurs essentially with formation of CH₃ radical. Communication II, see RZhKhim, 1957, 393.

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S/051/62/013/006/005/027
E039/E120

AUTHORS: Sidorov, N.K., Stal'makhova, L.S., and Bratanova, L.I.

TITLE: Contours and intensities of the Raman lines of xylenes

PERIODICAL: Optika i spektroskopiya, v.13, no.6, 1962, 783-790

TEXT: Contour measurements of the Raman lines of o-, m- and n-xylene are made using a ДФС-4 (DFS-4) diffraction grating spectrometer. The lines are excited by the 4358 Å mercury line. Data are presented graphically and also tabulated, full comparison being made with the work of other authors. Methods of calculating the intensity standard S are discussed. This is characterised by an invariant tensor α' derived from the polarisation of the molecules. As values of S for the xylenes have not been so far calculated, a comparison of experimental and theoretical values of S for toluene is given. It is shown that the formula for S derived by H.J. Bernstein and G. Allen (J. Opt. Soc. Amer., 45, 1955, 237) :

Card 1/2

Contours and intensities of the ...

S/051/62/013/006/005/027
E039/E120

$$S = \frac{(5b'^2 + 7g'^2) \Delta\nu}{(5b'^2 + 7g'^2)_{802}} = \frac{Q}{Q_{802}} \frac{n^2}{n_{C_6H_{12}}^2} \frac{\sigma}{\sigma_{802}} \frac{R(n)}{R_{C_6H_{12}}(n)} \frac{M}{d} \left(\frac{d}{M}\right)_{C_6H_{12}} \frac{\Delta\nu}{802} \left(\frac{\nu - 802}{\nu - \Delta\nu}\right)^4 \times$$

$$\times \left[\frac{1 + \rho_{802}}{1 + \rho} \right]_{\text{observ}} \frac{1 - \exp(-1.44 \Delta\nu/T)}{1 - \exp(-1.44 \cdot 802/T)} \quad (1)$$

(where b' and g' are components of the tensor α' ; M is the molecular weight; d the density), gives values in good agreement with the data of N.I. Rezayev (Kand. Diss. MGU, M., 1958). The experimental data obtained forms a basis for the further development of theoretical work on the intensities of the Raman spectra of the xylenes. There are 2 figures and 2 tables.

SUBMITTED: October 10, 1961

Card 2/2

SIDOROV, N.K.; STAL'MAKHONA, L.S.

Selection of a scale of absolute intensity of Raman scattering lines.
Izv. vys. ucheb. zav.; fiz. 8 no.3:162-163 '65. (MIRA 18:9)

1. Saratovskiy gosudarstvennyy universitet imeni N.S.Chernyshevskogo.

L 63380-65 EWT(1)/EWT(m)/EPP(c)/EWP(j)/T IJP(c) RM

ACCESSION NR: AP5019753

UR/0051/65/019/002/0206/0212

535.375.096

AUTHOR: Sidorov, N. K.; Bratanova, L. I.; Stal'makhova, L. S.

TITLE: Main parameters of Raman lines of monohalides of benzenes and their dependence on the temperature and on the solvent

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 206-212

TOPIC TAGS: Raman scattering, benzene, halide, line width, line intensity, depolarization, thermal effect, solvent action

ABSTRACT: The measurements, claimed to be the first performed on the substances in question, were made by a procedure described in detail earlier (Opt. i spektr. v. 13, 783, 1962). The quantities measured were the absolute intensities and the true values of degree of depolarization and width of Raman line of chlorobenzene, bromobenzene, and iodobenzene. The results are presented in the form of a table, which lists also the trace and the anisotropy of the derivative polarizability tensor. Studies were also made of the effect of the temperature on the absolute intensities of the lines belonging to different vibrations of the chlorobenzene and bromobenzene molecules, and the effect of various solvents (carbon tetrachloride, hexane, ethyl alcohol, acetone) on the absolute intensity and width of Raman lines of ben-

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ACCESSION NR: AP5019753

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zene halides. All solvents decrease the scattering ability of the molecule, but no correlation is found between the properties of the solvent and the deviation of the scattering ability from its value in the pure liquid. An attempt is made to reconcile the experimental data on the Raman line width with the existing theories, and it is concluded that none of the theories are satisfactory. "Undergraduate students N. A. Petrushkina and L. P. Epina participated in the work. The authors thank M. A. Kovner for a discussion of the work, and also M. L. Kats and A. G. Finkel for interest in the work." Orig. art. has: 1 figure, 1 formula, and 2 tables. [02]

ASSOCIATION: none

SUBMITTED: 04 May 64

ENCL: 00

SUB CODE: OP

NO REF SOV: 017

OTHER: 008

ATD PRESS: 4079

Card 2/2

L 31134-66 EWP(1)/ENT(1)/EWT(m)/EWP(e) RM/WH

ACC NR: AP6012859

SOURCE CODE: UR/0368/66/004/0351/0353

AUTHOR: Berezin, V. I.; Zubov, V. A.; Kats, M. L.; Kovner, M. A.; Sidorov, N. K.;
Stal'makhova, L. S.; Sushchinskiy, M. M.; Turbin, Yu. P.; Shubalov, I. K.

ORG: none

TITLE: Intensities and line thresholds of stimulated Raman scattering

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 351-353

TOPIC TAGS: laser, stimulated emission, Raman scattering, stimulated Raman scattering

ABSTRACT: The relative values for the threshold I for the intensity of the exciting light necessary to attain stimulated Raman scattering in toluene, chlorobenzene, and pyridene have been measured. Using a theory of SRS developed by P. A. Apanasevich and B. I. Stepanov (Zhurnal prikladnoy spektroskopii, v. 1, 1964, p. 202), the authors derived the following formula

$$I_B/I = (I_m/\delta\gamma(\tau_m/\delta))_B v_{\beta B}^3/v_{\beta}^3 n_B^3/n^3, \quad (1)$$

where I is the integral intensity of the SRS line, δ is the line width, v_{β} is the frequency of the scattered light, n is the index of refraction, and the subscript B identifies these quantities for benzene. The experimental values of

Card 1/2

UDC: 535.22/36

L 31134-66

ACC NR: AP6012859

2

Table 1. Main parameters and oscillation thresholds for SRS

Substance	$\Delta\nu, \text{cm}^{-1}$	ν, cm^{-1}	θ, cm^{-1}	$\frac{I_a}{I_B}$	$\frac{I_a/I_B}{(n^2/\nu)^2}$	n_D	exp. I	cal. I
benzene	992	13411	1.8	1	1	1.50	1	1
1,3-pentadiene	1655	12748	16	1.6	0.2	1.43	0.8	0.25
3-methyl-1,3-butadiene	1638	12765	7	1.3	0.3	1.42	0.8	0.40
carbon disulfide	656	13747	1	1.6	3	1.63	1.6	2.24
styrene	998	13405	2	0.7	0.6	1.55	0.8	0.55
styrene	1802	12801	3	0.9	0.6	1.55	1	0.59
styrene	1634	12769	3	1.6	0.9	1.55	0.9	0.90
toluene	1003	13400	1.6	0.37	0.4	1.60	0.8	0.42
chlorobenzene	1002	13401	1	0.45	0.8	1.52	1	0.78
bromobenzene	1001	13402	1	0.50	0.9	1.56	1.1	0.81
pyridine	992	13411	1.2	0.46	0.8	1.51	1	0.82

1/I for substances investigated in the present paper and in an earlier paper by three of the authors (Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, 1964, p. 784) are compared with the theoretical values derived by using formula (1) (see Table 1). The value of 1/I for the line $\Delta\nu = 992 \text{ cm}^{-1}$ in benzene was taken to be unity. Since the values of $n(\nu_0)$ for a ruby laser source were unavailable, the values of n for the D-line of sodium (n_D) were used in the calculations. Orig. art. has: 17 formulas and 1 table. [CS]

SUB CODE: 20/ SUBM DATE: 17Mar65/ ORIG REF: 004/ ATD PRESS: 4240
 Cord 2/2 AC

STAL'MAKOVA, G.A.

Hydrobiological characteristics of the central course of the Ural
River and of the adjoining bottom-land ponds. Trudy Zool. inst.
16:499-516 '54. (MIRA 8:6)
(Ural Valley--Fresh-water fauna)

STAL'MAKOVA, G.A.

Silt macrofauna of glacial lakes of the northwestern R.S.F.S.R.
depending on the degree of their silting. Trudy Lab. ozeroved. 5:
198-269 '57. (MLRA 10:9)

(Fresh-water fauna) (Lakes)

KALESNIK, S.V.; ARKHANGEL'SKIY, A.M., prof.; MALININA, T.I., kand.nauk;
PASPOPOV, I.M., kand.geograf.nauk, master sporta SSSR po turizmu;
SEMENOVICH, N.I.; kand.nauk; SMIRNOV, L.Ye.; kand.nauk; SMIRNOVA,
N.P., kand.nauk; STAL'MAKOVA, G.A., kand.nauk; YEVGENOV, D.N., kand.
nauk; MATYUSHIN, V.P.; PASPOPOV, O.M.; SLOBOZHAN, I.I., red.; TI-
KHONOVA, I.M., tekhn.red.

[For you, hikers!] Vam, turisty; kak provodit' nabliudeniia nad
prirodoi v turistskom pokhode. Leningrad, Lenizdat, 1960. 246 p.
(MIRA 13:6)

1. Chlen-korrespondent AN SSSR (for Kalesnik).
(Tourism) (Nature study)

SPAL'MANOVA, N.A.

A contribution to the study of benthos in the sherry section of
Lake Ladoga. Trudy Lab. ozeroved. 12:267-280 '61. (MIRA 15:3)
(Ladoga, Lake--Benthos)

L 49781-65 EPF(c)/EWT(m)/EWP(j)/EWA(c)
ACCESSION NR: AR5012233

Pc-4/Pr-4 RM
UR/0058/65/000/003/D015/D015

SOURCE: Ref. zh. Fizika, Abs. 3D98

26
B

AUTHORS: Kovner, M. A.; Berezin, V. I.; Bratanova, L. I.; Stal'makhova, L. S.;
Sidorov, N. K.

TITLE: Vibrational spectra of certain heterocyclic and halide-substituted aromatic compounds

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 106-113

TOPIC TAGS: vibrational spectrum, deuterio-substitute, force constant, influence coefficient, Raman scattering, aromatic compound

TRANSLATION: A calculation is made and an interpretation is presented for the vibrational spectra of diazines, s-triazine, s-tetrazine, and some of their deuterio-substitutes, and also N-oxide of pyridine. Systems of force constants and influence coefficients are obtained, and the role of the position and number of hetero-atoms is ascertained. A measurement is made of the true integral intensities and

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L 49781-65

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widths of Raman-scattering lines of chloro-, bromo- and iodo-benzene and pyridine, and also the degree of depolarization of these lines. Some electro-optical parameters of the pyridine ring are determined.

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L 2719-66 EWT(1)/T IJP(c)

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AUTHOR: Sidorov, N. K.; Stal'makhova, L. S. ^{44, 55}

TITLE: Concerning the choice of an absolute-intensity scale for Raman lines ³³
³²
^{21, 44}

SOURCE: IVUZ. Fizika, no. 3, 1965, 162-163

TOPIC TAGS: Raman scattering, Raman spectroscopy, line intensity

ABSTRACT: The authors state that if the vessel containing the scattering substance is uniformly illuminated in a plane perpendicular to its axis (as in the case when a standard elliptical illuminator is used), then a better scale for the determination of the absolute intensities of Raman lines is not the one proposed by Bernstein and Allen (J. Opt. Soc. Amer. v. 45, 237, 1955), but a scale $R = (5b'^2 + 13g'^2) \Delta v / (5b'^2 + 13g'^2)_{\text{SO}_2}$ which can be readily obtained without measuring the degree of depolarization (b' and g' are respectively the trace and the anisotropy of the tensor of the derivative of the polarizability with respect to the normal coordinate). A brief justification for this statement is presented. Knowing the experimental value of R , it is possible to determine the absolute intensity of the Raman line by means of the formula $(5b'^2 + 13g'^2) \Delta v = R \cdot 26 \times 10^{-8} \text{ cm}^4/\text{g}$. Orig. art. has: 1 formula.

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OTHER: 002

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