"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

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BERGENNOV, S.P.; ZHIRNOVA, N.N.; NOVIKOV, S.I.; [illegible], [illegible]; [illegible], V.F.

Effectiveness of the use of the MAG aerosol [illegible] [illegible] rest. [illegible] vred. i bol. 9 no.11:8-9 '64. [illegible]

1. Institut khimicheskoy kinetiki i goreniya [illegible] AN SSSR.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

1. NOVIKOV, S. K.

2. USSR (600)

4. Steel

7. Kinetics of steel dissolution in sulfuric acid. Uch.zap.Mosk.ped.inst.im.Len. 44, 1947.

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

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

1. BALEZIN, S. A.; NOVIKOV, S. K.

2. USSR (600)

4. Inhibition (Chemistry)

7. Investigation of inhibitors in acids of various concentrations. Uch. zap. Mosk. ped. inst. im. Len. 44, 1947

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

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

Cleaning & Pickling

S

Investigation of Some Pickling Inhibitors. S. A. Balezin and S. K. Novikov. (*Zhurnal Prikladnoy Khimii*, 1951, **24**, 3, 243-244). [In Russian]. The use of formaldehyde, hexamethylene tetramine and thiodiglycol as inhibitors in acid pickling of steel was investigated. V. O.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

CA

9

An investigation of some corrosion inhibitors. [illegible] Balezin and S. K. Novikov. [illegible] 24, 311-17 [illegible]. The study concerns the role of formaldehyde of hexamethylenetetramine of thioglycol in the soln. of [illegible] in 5 N H_2SO_4. Formaldehyde acts simultaneously as an inhibitor and as a promoter of corrosion, being [illegible] by the H evolved during the reaction. Up to [illegible] millimoles l. when the max. inhibition occurs, the first action predominates, beyond this concn. the second action becomes increasingly predominant with the concn. Hexamethylenetetramine exhibits the same general behavior as formaldehyde but its accelerating action is much more accentuated. At concns. of 10-100 millimoles l. the loss of weight is 1.5 times higher than in pure acid. The inhibitor has a very slight effect on the temp. coeff. of the soln. rate. At the initial stages the rate of soln. in pure acid decreases with time while it increases in the presence of the inhibitor. Thioglycol has the same effect as hexamethylenetetramine with respect to temp. coeff. and inhibitive action in H_2SO_4, where at the concn. of [illegible] millimoles l. it decreases the rate of soln. sixteen fold. With HCl the effect of thioglycol is negligible.

S. Gorlowski

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

VORONOV, F.D.; TRIFONOV, A.G.; KHUSID, S.Ye.; DIKSHTEYN, Ye.L.; VAL'PITER, E.V. SHEGIREV, Yu.B.; ANTIPIN, V.G.; Prinimali uchastiye: SMIRNOV, L.A.; KAZAKOV, A.I.; YELIZAROV, A.G.; KULAKOV, A.M.; KORSANOV, M.G.; ZARZHITSKIY, Yu.A.; ARTAMONOV, M.P.; GOL'DENBERG, I.B.; ROMANOV, V.M.; NOVIKOV, S.M.; MAYEVSKIY, A.B.; DMITRIYEV, I.; MANZHULA, M.; BEREZOVOY, I.A.; ZUTS, K.A.; BADIN, S.N.; TATARINTSEV, G.; MITROFANOV, N.G.; GAVRILOVA, K.M.; IVANOV, N.I.

Operating a 400-ton open-hearth furnace on casing-head gas. Stal' 20 no. 7:594-598 Jl '60. (MIRA 14:5)
(Open-hearth furnaces--Equipment and supplies)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, Stepan Malakhiyevich; SLEPCHENKO, Aleksandr Gavrilovich; TIGAREV, Pavel Alekseyevich; SEVAST'YANOV, A.G., red.; KONOVALOVA, Ye.K., tekhn. red.

[Marine piston compressors] Korabel'nye porshnevye kompressory. Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 197 p. (MIRA 14:10)
(Compressors) (Ships--Equipment and supplies)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.M.

Calculations for the water conditions and water cycle of lowland swamps and marshes of the southern part of the West Siberian Plain. Trudy GGI no.105:5-44 '63. (MIRA 16:6)

(West Siberian Plain—Swamps)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

USSR/Telephone Lines - Maintenance and Repair Apr/May 1946
Telephone terminals

"Ruzayev Line-Technical Center," S. M. Novikov, 1 p

"Vestnik Svyazi - Elektro Svyaz'" No 4/5 (73-74)

This article contains much information regarding the duties, region of operation and personnel complement of this particular center located in the Mordovin ASSR.

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

AFANAS'YEV, Vasiliy Vladimirovich; GREYNER, Leonid Karlovich, NOVIKOV, Solomon Mikhaylovich; MAKAROVA, Nina Arkad'yevna; STUKALOVA, Antonina Ivanovna, TARASOV, Viktor Konstantinovich, FILIPPOV, Yuriy Aleksandrovich; PETROVA, T.G.; AFANAS'YEV, V.V., red.; ZABRODINA, A.A., tekhn. red.

[High-frequency switches; training tables] Kommutatsionnye apparaty vysokogo napriazheniia; uchebnye tablitsy. Moskva, Gos. energ. izd-vo, 1957. 43 p. and 15 plates (in portfolio) (MIRA 11:3)
(Electric switchgear)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.M.

Calculating the level regime of undrained raised bogs on the basis of meteorological data. Trudy GGI no.112.5-32 '64. (MIRA 17:7)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.M.

Calculation of the daily groundwater levels on bogs according to meteorological data. Trudy OO. no.126:28-42 '65.

(MIRA 18:8)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

KURANOV, I.N.; NOVIKOV, S.N.; STESHENKO, A.L.

Installing industrial ventilation. Vod. i san. tekh. no.6:37-39 Je '59. (MIRA 12:8)
(Czechoslovakia--Factories--Heating and ventilation)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

16(1) 66155

AUTHOR: Novikov, S.N. SOV/20-128-5-7/67

TITLE: Cohomologies of the Steenrod Algebra

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 823-825 (USSR)

ABSTRACT: Generalizing the results of Adams [Ref 1] the author formulates the following theorem in the case p=2:
Theorem 1: Besides the relations given by Adams the elements h_i satisfy the relations

$$(2) \quad h_i^2 h_{i+3}^2 = 0, \quad h_0^{2^k} h_{k+2}^2 = 0, \quad h_0^{2^{k+1}} h_{k+2} = 0, \quad k=1,2,\ldots$$

and possibly the relations

$$(3) \quad h_i h_{i+k}^2 h_{i+k+3} = 0, \quad h_i^2 h_{i+k+1}^2 h_{i+k+4} = 0, \quad i=0,1,2,\ldots \quad k=3,4,5,\ldots$$

All the relations between the polynomials in h_i with degree ≤ 5 follow from the relations of Adams and (2),(3). The The group $H^2(A)$ is generated by the elements $h_i h_j$. The group $H^3(A)$ is generated by $h_i h_j h_k$ and some elements

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66155

Cohomologies of the Steenrod Algebra SOV/20-128-5-7/67

$m_i \in H^{3,11\cdot 2^i}(A)$, $\lambda_{i,k} \in H^{3,2^i(1+2^{k-1}+2^{k+1})}(A)$, whereby the elements m_i and $\lambda_{i,4}$ are different from zero. The elements

(4) $m_i h_j$, $j \neq i-1, i, i+2, i+3$ and $\lambda_{i,4} h_j$, $j \neq i, i+2, i+3, i+4$

of the group $H^4(A)$ are linearly independent and the subgroup of $H^4(A)$ generated by them has the intersection zero with the subgroup generated by monomials $h_i h_j h_k h_l$. The group $H^4(A)$ has elements different from zero $\beta_i \in H^{4,3\cdot 2^{i+2}}(A)$, $i=1,2,\ldots$ which do not belong to the subgroup generated by (4) and by monomials $h_i h_j h_k h_l$. The groups $H^{5,14}(A)$ and $H^{5,16}(A)$ are different from zero. Theorem 2 contains similar statements for $p > 2$.

Theorem 3: To every r there exist $\alpha \in \pi_q(S^3)$, $\beta \in \pi_{m+q}(S^q)$, [illegible] so that for every $l > 0$ it holds:

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

Cohomologies of the Steenrod Algebra SOV/20-128-5-7/67

$$\Pi^{rm+1}\beta\circ E^{(r-1)m+1}\beta\circ\ldots\circ E^{1}\beta\circ E^{1}\alpha \neq 0.$$

Theorem 4 has already been proved by Toda [Ref 2].
The author thanks M.M.Postnikov.
There are 2 non-Soviet references, 1 of which is Swiss, and 1 Japanese.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

PRESENTED: June 2, 1959, by P.S.Aleksandrov, Academician

SUBMITTED: May 29, 1959

Card 3/3

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.N.

37201

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27 2400

S/560/61/000/011/007/012
E027/E635

AUTHORS: Zhukov-Verezhnikov, N.N., Mayskiy, I.N., Yazdovskiy, V.I., Pekhov, A.P., Gyurdzhian, A.A. Nefed'yeva, N.P., Kapichnikov, M.N., Podoplelov, I.I., Rybakov, N.I., Klemparskaya, N.N., Klimov, V.Yu., Novikov, S.N., Novikova, I.S., Petrov, R.V., Sushko, N.G., Ugryumov, Ye.P., Fedorova, G.I., Zakharov, A.F., Vinogradova, I.N., Chamova, K.G. and Buyko, Ye.A.

TITLE: The results of the first microbiological and cytological experiments in Space in Earth satellites

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. no. 11. Moscow, 1961. Rezul'taty nauchnykh issledovaniy, provedennykh vo vremya poletov vtorogo i tret'yego kosmicheskikh korabley-sputnikov, 44 - 67

TEXT: The authors report the results of their investigations of biological objects which had been exposed to space conditions in satellite vehicles. The first part of the work was devoted to a study of the survival of cells of differing levels of organisation under the influence of radiation and other

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E027/E035

The results of the ---

unfavourable factors, in comparison with control materials which remained in the laboratory over the same period. In experiments with bacteria 2ml. samples of suspensions of Escherichia coli, Aerobacter aerogenes, Staphylococcus aureus and Clostridium butyricum containing 500 million organisms or spores per ml. were sealed in ampoules, and exposed to a space flight of unstated duration; the number of viable individuals after the exposure did not differ significantly from the values for the control samples. A similar experiment was carried out with the T2 phage of E. coli and the 1321 phage of A. aerogenes, which were sent in the second satellite; again, no significant reduction in the titre of the phage preparations could be detected after return from space. Similar results were obtained with preparations of phage sent into space in the fourth and fifth satellites. Two bottles and six tubes of HeLa cells, some of which were saturated with oxygen, were exposed to space flight

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S/560/61/000/011/007/012
D027/D035

The results of the . . .

conditions, after it had first been shown that vibration and acceleration did not detach the cells from the glass. The cultures without oxygen appeared normal on return, whereas in those exposed to oxygen most of the cells had degenerated. Subculture showed that 90% of the cells, whether detached from or remaining on the glass, were dead; however, two tubes gave good growth, and the cells which grew up showed no abnormalities of morphology. No antigenic differences could be detected in the cells in anaphylaxis and desensitization experiments in guinea-pigs. In subsequent space flights fibroblast and human amnion cell cultures were studied, with similar results. Pieces of human and rabbit skin were also used. On August 12th 1960 two pieces of skin 2.5 x 3.5 cm. in size and 0.5 mm. thick were taken from a human donor, placed in Hanks solution and sent into space in the second satellite. On recovery they were regrafted on the original site in the donor and became firmly attached after seven days.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

17

The results of the --- S/560/61/000/011/007/012
D027/D035

Similar results were obtained with two other donors. An apparatus was devised for making a subculture in space, in order to study the ability of bacteria to multiply under space conditions. In experiments with Clostridium butylicum no deviations from the controls were observed. The second part of the work was devoted to a study of possible genetic effects brought about by exposure to space conditions, mainly by looking for the production of auxotrophic mutants and lysogeny in bacteria. The former were detected by inoculation on a layer of minimal medium which was then covered with an overlay of the same medium in order to fix the colonies. When the latter had grown up their position was noted and an overlay of complete medium was then put on, and the colonies which then grew up as a result of the diffusion of essentialnutrients were selected as auxotrophic mutants. No such mutants could be found in suspensions of Escherichia coli recovered from the second satellite. The experiments on the induction of lysogenic bacteria were carried out on a strain of E. coli lysogenized by a λ phage which had been exposed to cosmic

Card 4/5

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

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The results of the --- S/56[illegible]/61/000/011/007/012
E027/E635

radiation in the fifth satellite. Free phage particles were removed by adding phage antiserum; after the end of the latent period the action of the antiserum was cut short by diluting 1:100, streptomycin was added to inhibit the host organisms, and the mixture was plated out on the indicator strain in order to count the phage particles produced. The results obtained, considered in comparison with control experiments, provided no evidence of induction by cosmic radiation during a space flight of ninety minutes. No difference was observed in the plaque morphology. No changes could be detected in the chemical and physical properties of calf thymus deoxyribonucleic acid recovered after a space flight. The results as a whole indicate that no damage was suffered by isolated cells during a brief exposure to space conditions. There are 6 figures and 10 tables.

SUBMITTED: May 23, 1961

Card 5/5

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.N., konstruktor

UTA-3 wide-band antenna amplifier. Vest. sviazi 21 no.8: 6-7 Ag '61. (MIRA 14:9)

(Antennas (Electronics))
(Television--Receivers and reception)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

GOSHCHITSKIY, B.N.; IVBATIEVICH, I.S.; NOVIKOV, S.N.

Effect of the structure of porous bodies on the specific furface value determined by the gas permeability method. Dokl. AN SSSR 155 no. 3:640-643 Mr '64. (MIRA 17:5)

1. Predstavleno akademikom I.K.Kikoinym.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, Semen Nikolayevich; KORNILOVA, M.I., red.; KOROBOVA, N.D., tekhn. red.

[Communal initiative as a principle of communism]Obshchestvennye nachala - nachala kommunizma. Moskva, Profizdat, 1962. 102 p. (MIRA 16:3)

(Labor and laboring classes)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 15397-66 EWT(1)/EWP(m)/EWT(m)/EWA(d)/EWP(j)/T/FCS(k)/ETC(x)-6/EWA(1)

ACC NR: AP5027222 WW/JW/RM SOURCE CODE: UR/0020/65/164/006/1263/1266

AUTHOR: Izrailevich, L. S.; Novikov, S. N.

ORG: none

54
23

TITLE: Experimental study of gas flow through finely-porous media in the intermediate pressure range

1,55

SOURCE: AN SSSR. Doklady, v. 164, no. 6, 1965, 1263-1266

TOPIC TAGS: gas flow, porosity, porous gas flow

ABSTRACT: The authors studied at Kn ≈ 1 the pressure and temperature dependence of specific gas flow through samples made of compressed highly dispersed powders covering a wide range of porosities. Some of the results are shown in Figures 1 and 2.

Card 1/3

UDC: 533.691.1:539.217.5

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 15397-66

ACC NR: AP5027222

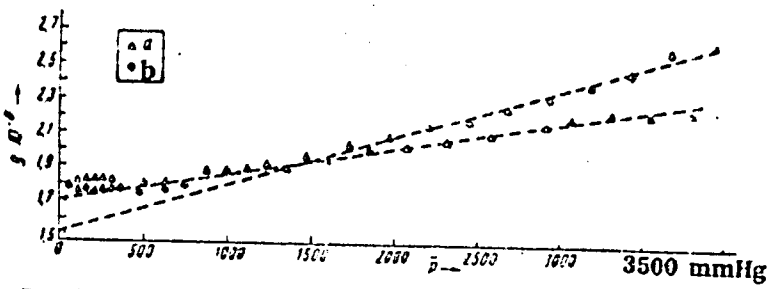

Рис. 1. Зависимость проницаемости образца от среднего различных температурах.
Образец № 7. Аргон. $a - t_1 = 20°$, $б - t_1 = -78{,}5°$

Fig. 1 Sample permeability as a function of average temperature at different temperatures. Sample was made of iron #III, 0.45 cm long, with a porosity $\delta = 0.60$, characteristic geometric diameter $d = 0.055\mu$; and the total specific area (determined by a low temperature nitrogen absorption) S = 16.3. Gas - argon. a - t_1 = 20C; b - t_1 = -78.5C.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 15397-66

ACC NR: AP5027222

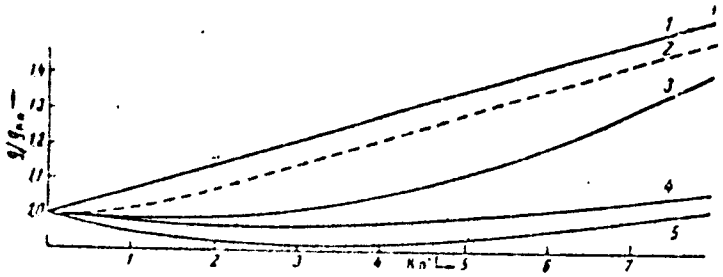


Fig. 2 A comparison of experimental and theoretical relationships g/g_{Kn} on Kn^{-1} (g_{Kn} is the magnitude of permeability for $Kn^{-1} \to 0$). 1 - $G = G_V + G_D$ (G_V - viscous flow, G_D - diffusion flow); 2 - experiment; 3 - according to B. V. Deryagin and S. P. Bakanov (DAN, 115, 267,1957) for $\delta = 0.8$; 4 - according to J. P. Breton and D. Massignon (J. Chim. Phys. et phys-chim. Biol., 60, no. 1-2, 294, 1963) for $\delta = 0.8$; 5 - according to Breton and Massignon for $\delta = 0.5$.

The paper was presented by Academician I. K. Kikoin, 24 Feb. 65. Orig. art. has: 1 formula, 3 figures, and 1 table.

SUB CODE: 20 / SUBM DATE: 13Oct65 / ORIG REF: 002 / OTH REF: 014

Card 3/3

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 03767-67 EWT(m) EWP(j) IJP(c) WW/RM

ACC NR: AP6019540 (A, N) SOURCE CODE: UR/0196/66/008/006/1015/1017

AUTHOR: Novikov, S. N.; Kagan, Ye. G.; Pravednikov, A. N.

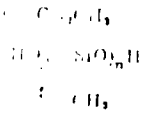
ORG: Physico-Chemical Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut); All-Union Scientific-Research Institute of Synthetic Rubber im. S. V. Lebedeva (Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka)

TITLE: Thermal decomposition of 3,3,3-trifluoropropyl(methyl)siloxanes

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1015-1017

TOPIC TAGS: siloxane, heat resistance, synthetic material, reaction mechanism, thermochemistry, silicon plastic, THERMAL DECOMPOSITION

ABSTRACT: Thermal decomposition of poly-3,3,3-trifluoropropyl (or methyl) siloxanes of the general formula



was studied. Samples were heated in vacuo, to 400°C in a closed system. It was found that during the thermal decomposition of poly-3,3,3-trifluoropropyl(methyl)siloxanes, a depolymerization in the main polymer chain occurs; this is reflected in the splitting off of the 3,3,3-trifluoropropyl groups. It was found that this process is ac-

Card 1/2 UDC: 678.01:54+678.84

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 03767-67

ACC NR: AP6019540

companied by an intramolecular transfer of fluorine from the γ-position in the 3,3,3--trifluoropropyl group to the silicon atom. The rate of this transfer is greater than the rate of splitting off in methyl groups. It was also found that in addition to these processes, there also occurs a decomposition of the 3,3,3-trifluoropropyl group. Orig. art. has: 1 formula.

SUB CODE: 07/ SUBM DATE: 29May65/ ORIG REF: 002/ OTH REF: 007

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

PAPKOV, V.S.; BELOBORODOV, M.G., inzh.; ALEKSANDROVA, G.I.; NOVIKOV, S.P., starshiy normirovshchik. Prinimal uchastiye: FATEYEVA, T.M., inzh.; BURAKOVA, T.K., tekhnik; SHTRUK, G.G., inzh., red.; EL'KIND, V.D., tekhn. red.

[General machinery industry time norms for use in connection with the establishment of engineering norms for electrical work in the manufacture of instruments; lot and small-lot production] Obshchemashinostroitel'nye normativy vremeni dlia tekhnicheskogo normirovaniia elektromontazhnykh rabot v priborostroenii; seriinoe i melkoseriinoe proizvodstvo. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 126 p. (MIRA 14:10)

1. Moscow. TSentral'noye byuro promyshlennykh normativov po trudu. 2. Nachal'nik sektora sborochnykh i montazhnykh rabot normativno-issledovatel'skoy organizatsii Gosudarstvennogo komiteta Soveta Ministrov SSSR po sudostroyeniyu (for Papkov, Beloborodov, Aleksandrova, Novikov).
(Instrument manufacture) (Factory management)

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31696

5500 S/020/[illegible] 05/16/[illegible]

AUTHOR: Novikov, S. P.

TITLE: Some Problems in the Topology of Manifolds, Connected With the Theory of Thom Spaces

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. [illegible], pp. 1031-1034

TEXT: The author considers smooth manifolds W^i in the Euclidean R^{n+i} the normal pencil of which possesses a subgroup G of the group O(n) as structure group. In the set of all W^i the author introduces an equivalence relation. The set $V_n^i(G)$ of the equivalence classes forms an abelian group. The equivalence relation and the group operation are introduced as in the construction of the internal homology groups of Thom-Rokhlin. The author investigates in detail the groups V_n^i (SO(n)) for $i < n - 1$, V_{2n}^i (U(n)) for $i < 2n - 1$ and V_{4n}^i (Sp(n)) for $i < 4n - 4$ independent of n. These groups are denoted with V_{so}^i, V_n^i and V_{sp}^i. Furthermore he defines the direct sums

$$V_{so} = \sum V_{so}^i, \quad V_n = \sum V_n^i, \quad V_{sp} = \sum V_{sp}^i$$

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S/020/60/132/05/16/069

Some Problems in the Topology of Manifolds, Connected With the Theory of Thom Spaces

as graduated rings by means of the relation

$$(1) \quad V^{i}_{n_1}(G_1) \otimes V^{j}_{n_2}(G_2) \to V^{i+j}_{n_1+n_2}(G_1 \times G_2)$$

Theorem 1 states among others that the rings V_{SO}, V_n, V_{Sp} possess no p-torsion for $p > 2$ and that V_n possesses no 2-torsion. Theorem 2 states that the factor ring of V_{Sp} with respect to the 2-torsion is not isomorphic to the polynomial ring, that on the contrary there are such generators $x \in V^4_{Sp}$ and $y \in V^8_{Sp}$ of infinite order that $2^K(x^2 - 4y) = 0$.
The author uses theorem 1 and 2 in order to realize integral cycles of the manifolds as submanifolds.
Altogether there are 3 theorems and 3 lemmata.
L. S. Pontryagin is mentioned; the author thanks M. M. Postnikov for advices.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Embedding of simply connected manifolds into Euclidean space. Dokl. AN SSSR 138 no.4:775-778 Je '61. (MIRA 14:5)

1. Matematicheskiy institut imeni V.A.Steklova AN SSSR. Predstavleno akademikom P.S.Aleksandrovym.

(Topology)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S. P.

"Smooth manifolds with common homotopy type"

report submitted at the Intl Conf of Mathematics, Stockholm, Sweden, 15-22 Aug 62

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P. (Moskva)

Homotopic properties of Thom's complexes. Mat. sbor. 57 no.4: 407-442 Ag '62. (MIRA 15:8)

(Complexes)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Diffeomorphism of simply connected manifolds. Dokl. AN SSSR 143 no.5:1046-1049 Ap '62. (MIRA 15:4)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. Predstavlenо akademikom P.S.Aleksandrovym.
(Topology)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Homotopic properties of a group of diffeomorphisms of a sphere. Dokl. AN SSSR 148 no.1:32-35 Ja '63. (MIRA 16:2)

1. Matematicheskiy institut im. V.A. Steklova AN SSSR. Predstavleno akademikom L.S. Pontryaginym.
(Topology)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Some properties of manifolds of dimensionality $4k+2$.
Dokl. AN SSSR 153 no.5:1005-1008 D '63. (MIRA 17:1)

1. Matematicheskiy institut im. V.A. Steklova AN SSSR.
Predstavleno akademikom L.S. Pontryaginym.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, P.M.

Terrace soils of the middle Volga region, their genesis, and evolution. Trudy Pochvennogo Inst. im. V.V. Dokuchaeva, Akad. Nauk S.S.S.R. 37, 13-241 '52. (MLRA 6:3)
(CA 47 no.21:11626 '53)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, Petr Mikhaylovich , Cand. Geol-Mineralogical Sci.
NOVIKOV, [illegible]

Tes

[illegible]

Monthly List of Russian Accessions, [illegible], November [illegible]

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Homotopically equivalent smooth manifolds. Part 1. Izv. AN SSSR. Ser. mat. 28 no.2:365-474 Mr-Ap '64. (MIRA 17:3)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Foliations of codimension 1 on manifolds. Dokl. AN SSSR 155 no. 5:1010-1013 Ap '64. (MIRA 17:5)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. Predstavleno akademikom L.S.Pontryaginym.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.; PYATETSKIY-SHAPIRO, I.I.; SHAFAREVICH, I.R.

Fundamental trends in the development of algebraic topology and algebraic geometry. Usp. mat. nauk 19 no.6:75-82 N-D '64 (MIRA 18:2)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Smooth strata on three-dimensional manifolds. Usp. mat. nauk 19 no.6:89-91 N-D '64 (MIRA 18:2)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

VISHIK, M.I.; NOVIKOV, S.P.; POSTNIKOV, M.M.

Meetings of the Leningrad Mathematical Society. Usp. mat. nauk 19 no.6:229-236 N-D '64. (MIRA 18:1)

Gorkiy Mathematical Seminar on Homotopic Topology. Ibid.: 237-238

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

New ideas in algebraic topology (K-theory and its applications). Usp. mat. nauk 20 no.3:41-66 My-Je '65.

(MIRA 18:6)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

The Summer Institute of Topology. Usp. mat. nauk 2 no.1:147-170 Ja-F '6[illegible]. (MIRA 18:4)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Differentiable groups of spheres. Izv. AN SSSR. Ser.mat. 29 no.1:71-95 '65. (MIRA 18:4)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Homotopic and topological invariance of some of Pontriagin's rational classes. Dokl. AN SSSR 162 no.6:1248-1251 Je '65. (MIRA 18:7)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. Submitted December 4, 1964.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Topological invariance of rational Pontriagin classes. Dokl. AN SSSR 163 no.2:298-300 Jl '65. (MIRA 18:7)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. Submitted April 19, 1965.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.P.

Rational classes of Pontrjagin. Homeomorphism and the complex type of closed manifolds. Izv. AN SSSR Ser. mat. 29 no. 6: 1373-1388 '65 (MIRA 19:1)

1. Submitted April 3, 1965.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

24.7700
~~24(3), 24(6)~~

67390
SOV/181-1-9-8/3[illegible]

AUTHORS: Ryvkin, S. M., Ivanov, Yu. L., Grinberg, A. A., [illegible]vikov, [illegible]
Potekhina, N. D.

TITLE: A New Longitudinal Magnetostriction Effect and [illegible] Application to the Determination of the Ratio Between the Concentrations of Heavy and Light Holes

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1372 - [illegible]

ABSTRACT: When investigating the diffusion of the nonequilibrium carrier in the magnetic field, the appearance of electrical fields is usually studied (e.g. the photomagnetic Kikoin-Noskov effect). The present paper offers the results obtained from an investigation of the concentration distribution of the minority carrier in the magnetic field, and in particular, the results of an investigation of the longitudinal magnetostriction effect in the longitudinal magnetic field. A plane-parallel semiconductor plate was arranged perpendicularly to a homogenous magnetic field. On the plate, a point light probe exactly faced a point collector. The injected nonequilibrium carriers diffused through the plate and the collector determined the concentration of the minority carrier. The concentration

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67390

A New Longitudinal Magnetostriction Effect and Its Application to the Determination of the Ratio Between the Concentrations of Heavy and Light Holes SOV/181-1-9-8/31

recorded thereby increased with H. Figure 1 shows a schematic representation of the measuring arrangement, a description of which is given. Theoretically, one obtains for the concentration of the injected carrier on the z-axis

$(\vec{H} \| z): \Delta n_H = \frac{i_0 \beta e^{-z/l_D}}{2\pi D_n z\, I(\xi)}$, where $i_0\beta$ is the electron-hole pair production rate, l_D the diffusion length, D_n the electron diffusion coefficient. Figure 2 shows the result obtained by an attempt of experimentally verifying this formula for electron injection into hole-type germanium. The best agreement is obtained with a microscopic drift mobility of the electrons $\mu_n^o = 3650$ cm^2/v.sec. When investigating the hole diffusion in n-type germanium, a considerable divergence between theory and experiment is observed, which, however, can be explained when taking into account the existence of

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67390

A New Longitudinal Magnetostriction Effect and Its Application to the Determination of the Ratio Between the Concentrations of Heavy and Light Holes SOV/181-1-9-8/31

heavy and light holes. The theoretical curve drawn for this case nicely describes the experimental results. The concentration ratio between heavy and light holes is deduced from measuring results as being 57; this value approaches the result (50.0) obtained by an other way (Ref 1). There are 2 figures and 2 references.

SUBMITTED: March 7, 1959

Card 3/3

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

S/181/60/002/04/05/034
B002/B063

24.7700

AUTHORS: Ryvkin, S. M., Grinberg, A. A., Ivanov, Yu. L., Novikov, S. R., Potekhina, N. D.

TITLE: Investigation of the Diffusion of Minority Carriers in a Magnetic Field

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4, pp. 575-590

TEXT: The distribution of the concentration of minority carriers introduced into a magnetic field by "point" injection was theoretically and experimentally studied. A light spot was focused onto a germanium sheet cut out of a single crystal. The occurring emf was measured by means of an ЛВ-9 (LV-9) tube voltmeter. The setup is schematically represented in Fig. 1. Thus, the longitudinal magnetostriction effect (Fig. 5) was measured on p-type and n-type germanium. Such measurements may be used to determine such semiconductor parameters as the microscopic drift mobility of carriers and the concentration ratio between carriers of equal sign but different effective mass. The concentration ratio between light and heavy holes in germanium was about 2 per cent. Mention is made of

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81947

Investigation of the Diffusion of Minority Carriers in a Magnetic Field

3/181/60/002/04/05/034
B002/B063

I. K. Kikoin, Noskov, and Pikus. There are 7 figures and 18 references: 7 Soviet, 1 American, 9 British, and 1 French.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Physicotechnical Institute of the AS USSR)

SUBMITTED: July 24, 1959

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

86425

S/181/60/002/011/009/042
B006/B056

24.2200 (1138,1160,1162)

AUTHORS: Grinberg, A A and Novikov, S R

TITLE: Investigation of the Longitudinal and Transverse Magnetic Concentration Effects for the Purpose of Determining the Coefficients of Magnetic Conductivity in Anisotropic Crystals of Cubic Symmetry

PERIODICAL: Fizika tverdogo tela, 1960, Vol 2, No 11, pp. 2715 - 2717

TEXT: This paper is a continuation of two earlier ones, in which the authors investigated these problems for isotropic crystals and showed that the minority-carrier mobility may be determined also from the relations between the concentrations of heavy and light holes As, however, directional dependence of the concentration effects in Ge was experimentally found, these effects are now investigated in anisotropic cubic crystals, proceeding from the phenomenological equation of Seitz $\vec{j} = \sigma\vec{E} + \alpha[\vec{E}\vec{H}] + \beta\vec{E}H^2 + \gamma\vec{H}(\vec{E}\vec{H}) + \delta T\vec{E}$ for the charge current T is a matrix with the elements $T_{ik} = H_i^2\delta_{ik}$; σ_0 is the electrical conductivity at H=0;

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

86425

Investigation of the Longitudinal and Transverse Magnetic Concentration Effects for the Purpose of Determining the Coefficients of Magnetic Conductivity in Anisotropic Crystals of Cubic Symmetry

S/181/60/002/011/009/042
B006/B056

u/σ_0 is the approximate Hall mobility; β/σ, γ/σ_0 and δ/σ_0 are material constants (in the case of isotropy, $\delta=0$ and $\beta=\gamma=0$). The coefficients may be experimentally determined by two methods mentioned in publications. The Seitz equation, however, holds only for weak fields up to about $1.5\cdot10^3$ oersteds. As, however, no other equation taking the anisotropy of holes in Ge into account, and which is also valid for strong magnetic fields, the authors endeavor to obtain a solution by way of a compromise, which may be looked upon as a useful approximation also in the case of strong fields. This is possible for the cases in which $\vec{H}\parallel[111]$ and $\vec{H}\parallel[110]$. The coefficients β/σ, γ/σ and δ/σ were determined on n-type Ge specimens with a resistivity of 2.3 and 10 ohm cm by measurement of the longitudinal and transverse magnetic concentration effects (at $H=1.1\cdot10^4$ oe). The results are given in a table and compared with the values obtained in Refs 4 and 5. The following experimental values were obtained for the three parameters: $1.4\cdot10^{-9}$, $0.6\cdot10^{-9}$ and $0.55\cdot10^{-9}$

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Investigation of the Longitudinal and Transverse Magnetic Concentration Effects for the Purpose of Determining the Coefficients of Magnetic Conductivity in Anisotropic Crystals of Cubic Symmetry

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B006/B056

The corresponding values for heavy holes were found to be $-0.75 \cdot 10^{-9}$, 0, and $0.64 \cdot 10^{-9}$. S. M. Ryvkin, Doctor of Physical and Mathematical Sciences, is thanked for advice and interest. There are 1 figure, 1 table, and 6 references: 2 Soviet and 4 US

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad (Institute of Physics and Technology of the AS USSR, Leningrad)

SUBMITTED: May 27, 1960

Card 3/3

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

S/089/61/011/006/011/014
B102/B138

26.2244

AUTHORS: Konopleva, R. F., Novikov, S. R.

TITLE: Semiconductor transmitters for measuring the relative fast neutron flux distribution in a ВВР-М (VVR-M) reactor

PERIODICAL: Atomnaya energiya, v. 11, no. 6, 1961, 546 - 547

TEXT: Besides the threshold indicator method, neutron flux in the experimental channels of a reactor can also be determined by semiconductor devices. This method is based on the fact that fast neutron bombardment produces lattice defects and thus causes increased carrier concentration. The integral flux, which is proportional to the increase in conductivity (cf. Fig. 1), can be determined by measuring Δ. The authors tested this method while determining the fast neutron flux in the channels of the VVR-M reactor of the Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute imeni A. F. Ioffe AS USSR). As neutron flux transmitters, n-type germanium samples were used (size 10·1·1 mm, resistivity 1 ohm·cm), which were placed in 0.5 mm thick cadmium containers. As the thermal-to-fast-neutron ratio was not more than 10, this

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21414
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B102/B138

Semiconductor transmitters...

Cd shield was thick enough to reduce to ~10% the thermal-neutron contribution to the change in conductivity. A constant voltage was applied to the germanium cells and the neutron flux distribution was determined from the variation in current. The method yields good results for neutron energies above 300 ev. There are 4 figures and 5 references: 4 Soviet and 1 non-Soviet. The reference to English-language publications reads as follows: Phys. Rev. 98, No. 6, 1742 (1955); Phys. Rev. 99, No. 4, 1171 (1955).

SUBMITTED: February 13, 1961

Card 2/8

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

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89611

9.4160 (also 1137, 1043, 1143)
26.2421
26.2360

S/020/61/136/002/015/034
B019/B056

AUTHORS: Grinberg, A. A., Novikov, S. R., and Ryvkin, S. M.

TITLE: The New Effect of Negative Photoconductivity in a Magnetic Field

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 2, pp. 329-331

TEXT: Fig. 1 shows a scheme of the experimental order, by means of which the authors carried out their experiments. By means of this device they were able to transmit light pulses to the semiconductor in the case of the existence or non-existence of a magnetic field. The photoconductivity without a magnetic field corresponded to the "positive" conductivity, that with magnetic field corresponding to the "negative" conductivity. The effect produced by the photo-emf of the specimen could be inhibited. The explanation of this effect proceeds from the fact that in the motion of the carriers in a magnetic transversal field their trajectory is curved, whereby the resistance is increased. The Hall field formed in this connection partly aligns the trajectories again, and thus decreases the

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

89611

The New Effect of Negative Photoconductivity in a Magnetic Field

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B019/B056

growth of the resistance in a magnetic field. Thus, by some decrease of the Hall field, the resistance of the semiconductor is increased. By irradiation with light from the absorption band, electron-hole pairs are produced, and the increase of the electron concentration leads to a decrease of the Hall field. A formula is derived for calculating the negative change in the photoconductivity in n-type germanium, and further, two inequalities are given, by means of which it is possible to determine when no negative photoeffect may be observed in n-type or p-type material. There are 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of Physics and Technology of the Academy of Sciences USSR)

PRESENTED: August 1, 1960, by A. F. Ioffe, Academician

SUBMITTED: July 28, 1960

Card 2/4

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

The New Effect of Negative Photoconductivity in a Magnetic Field

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B019/B056

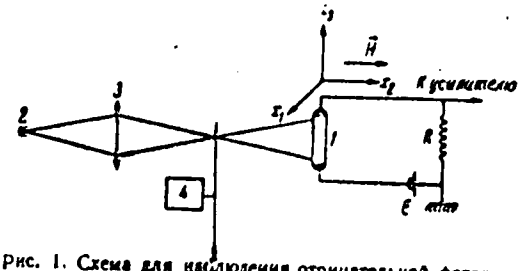

Рис. 1. Схема для наблюдения отрицательной фотопроводимости в магнитном поле. 1 — образец, 2 — источник света, 3 — объектив, 4 — модулятор света

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

89611

The New Effect of Negative Photoconductivity in a Magnetic Field

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Legend to Fig. 1: 1) Specimen. 2) Source. 3) Objective. 4) Light modulator.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 14266-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD
ACCESSION NR: AP3003879 S/0181/63/005/007/1842/1851

61
56

AUTHOR: Konopleva, R. F.; Novikov, S. R.; Ryzkin, S. M.

TITLE: Energy levels in Ge due to fast neutron bombardment 19

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 1842-1851

TOPIC TAGS: fast-neutron irradiation, neutron irradiation, neutron bombardment, defect energy level, defect level, defect state

ABSTRACT: An experimentally obtained temperature dependence of the Hall constant was utilized in determining the defect-energy-level spectrum of n-type Ge with a concentration of Sb of 2×10^{15} cm^{-3}. Electrical conductivity and Hall effect were measured before and after irradiation by integrated fast-neutron fluxes varying from 4.7×10^{14} to 4.2×10^{16} fast neutrons/cm^2. The measurements were conducted in the 77—300K temperature range. The energies of the five levels found in the forbidden band of Ge and the initial and relative rates of formation of impurity centers determined from the experimental data are given in the Enclosure. Analysis of the data obtained shows that, in contradiction to the Lark-Horowitz model, there are three acceptor levels (the three lowest energy levels).

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L 14266-63
ACCESSION NR: AP3003879

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The fact that the rate of formation and the rate of annealing of the three lower levels differ very little indicates that all three are probably vacancy levels. "The authors express their gratitude to coworkers of the Physicotechnical Institute reactor crew, who made it possible to carry out the present work. The authors also thank N. A. Vitovskiy, B. M. Konovalenko, T. V. Mashovets, and I. D. Yaroshetskiy for valuable discussion." Orig. art. has: 10 formulas, 6 figures, and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut imeni A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute)

SUBMITTED: 01Feb63 DATE ACQ: 15Aug63 ENCL: 01

SUB CODE: PH NO REF SOV: 003 OTHER: 010

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

NOVIKOV, S.R.; RUBINOVA, E.E.; RYVKIN, S.M.

Photoconductivity of germanium irradiated by fast neutrons. Fiz. tver. tela 6 no.3:896-898 Mr '64. (MIRA 17:4)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR, Leningrad.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

ACCESSION NR: AP4028430 S/0181/64/006/004/1062/1067

AUTHOR: Konopleva, R. F.; Novikov, S. R.

TITLE: Electrical properties of germanium irradiated at 77 K with fast neutrons

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1062-1067

TOPIC TAGS: neutron irradiation, radiation effect, radiation damage, germanium, neutron irradiated germanium, Hall effect, donor formation

ABSTRACT: The formation of donors and their stability were investigated in germanium samples irradiated in a reactor by fast neutrons at a temperature of 77 K. Both n-type (1 and 10 ohm·cm resistivity) and p-type (1 and 6 ohm·cm) specimens were bombarded with total doses of up to $5 \cdot 10^{15}$ fast neutrons per cm^2. The removal of samples and the initial measurement of their electrical conductivity and Hall constant were performed without heating. The samples were then annealed at temperatures varying from 100 to 600 K. After each annealing stage the samples were cooled to 77 K and the electrical conductivity and the Hall constant were remeasured. Analysis of the experimental data shows the existence of the following annealing stages, associated with different processes in the

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ACCESSION NR: AP4028430

irradiated samples: 1) a defect-"maturing" stage, which occurs at temperatures below 150 K; 2) a donor-annealing stage (150-230 K); and 3) two acceptor-annealing stages (230-400 K and 500-600 K). The activation energies for defect maturing and donor annealing were found to be 0.17 and 0.55 ev, respectively. The limiting position of the Fermi level was determined to be located near the center of the forbidden band. The difference in the position of the Fermi level determined in this work and that of Cleland, Crawford, and Pigg (Phys. Rev., v. 98 and 99, 1955, pp. 1742 and 1170) was attributed to the presence of another type of donor, observed only in the latter experiments.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 14Oct63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: PH, NS NO REF SOV: 003 OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

RYVKIN, S. M.; KONOPLEVA, R. F.; NOVIKOV, S. P.; [illegible]

"Ripening [illegible]

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 6971-65 EWT(1)/EWG(k)/EWT(m)/EPF(c)/EPF(n)-2/EEC(t) Pr-4/Pu-4/Pz-6 IJP(c)/
SSD/AS(mp)-2/APWL/ESD(gs)/ESD(t)/RAEM(t) CG/AT

ACCESSION NR: AP4019855 S/0181/64/006/003/0896/0898

AUTHORS: Novikov, S. R.; Rubinova, E. E.; Ryzvkin, S. M.

TITLE: Photoconductivity of germanium irradiated with fast neutrons 19 B

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 896-898

TOPIC TAGS: spectral distribution, photoconductivity, fast neutron, Fermi level, germanium, germanium bombardment, neutron bombardment /IKS 12 spectrometer

ABSTRACT: The spectral distribution in the photoconductivity of n-type Ge irradiated with fast neutrons in a reactor at +70C has been obtained. An IKS-12 spectrometer was used with a 10cps frequency modulation and a resonance amplifier tuned to this frequency. Several energy levels were obtained and displayed graphically, showing a stepwise (7 steps) transition in the Fermi level from top to bottom. Energy levels E_c = -0.32 ev and E_v = +0.3 ev show no connection, nor do the levels E_c = -0.21, E_v = +0.18 ev. The absence of transitions on E_c -0.21 at p-type free level E_v -0.18 and the absence of transitions on E_v -0.18 at free level E_v -0.08 are assumed to point to an interconnection between these levels. Orig. art. has: 2 figures.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 6971-65

ACCESSION NR: AP4019855

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physico-technical Institute AN SSSR)

SUBMITTED: 14Oct63 ENCL: 00

SUB CODE: OP, NP NO REF SOV: 001 OTHER: 000

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 7035-65 EWT(m)/EPF(c)/EPF(n)-2/EWP(q)/EWP(b) Pr-4/Pu-4 IJP(c)/AFWL/SSD/ASD(a)-5/AS(mp)-2/ESD(gs)/ESD(t)/RAEM(t) JD/GG

ACCESSION NR: AP4034910 S/0181/64/006/005/1328/1332

AUTHORS: Novikov, S. R.; Rubinova, E. E.

TITLE: Photoconductivity in germanium irradiated by fast neutrons at 77K

SOURCE: Fizika tverdogo tela, v. 6, no. 5, 1964, 1328-1332

TOPIC TAGS: photoconductivity, semiconductor, semiconductor band structure, defect formation, photoconductivity spectrum, germanium

ABSTRACT: The authors' purpose was the determination of the energy positions of donor and acceptor levels arising during irradiation by fast neutrons. Measurements were made at 77K and an integrated flux of $5 \cdot 10^{15}$ cm^{-2} by the method described in the paper of R. F. Konoplev, S. R. Novikov, and S. M. Ry*vkin (FTT, 5, 1842, 1963). Variations in spectral curves of photoconductivity of annealed samples clearly indicate an entire spectrum of allowed states within the forbidden band at the mature stage of defect formation. Arrangement of levels is illustrated in Fig. 1 on the Enclosure. The course of variations in the spectral curves of n- and p-type germanium confirms the view that the Fermi level is displaced toward the middle of

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tral curves obtained at various stages of annealing permits identification of

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L 7035-65

ACCESSION NR: AP4034910

2

levels as acceptor or donor. "In conclusion, the authors express their thanks to S. M. Ryvkin, Doctor of physical and mathematical sciences, for his interest in the work and for discussing the results." Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physico-technical Institute AN SSSR)

SUBMITTED: 04Nov63

ENCL: 01

SUB CODE: EC, SS

NO REF SOV: 004

OTHER: 000

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 7035-65

ACCESSION NR: AP4034910

ENCLOSURE: 01

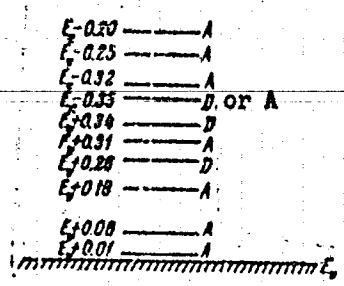

Fig. 1. Sketch of levels in germanium irradiated by fast neutrons, from electrical and photoelectric measurements.

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L 8431-65 EWT(m)/EPF(c)/EPF(n)-2/EWP(q)/EWP(b) Pr-4/Pu-4 IJP(c)/AFWL/BSD/ASD(a)-5/SSD/ESD(gs)/ESD(t) GG/JD

ACCESSION NR: AP4041703 S/0181/64/006/007/2022/2025

B

AUTHOR: Konopleva, R. F.; Novikov, S. R.; Ryavkin, S. M.

TITLE: Defect levels produced in germanium by monoenergetic neutrons

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 2022-2025

TOPIC TAGS: defect energy level, radiation effect, radiation defect, radiation damage, neutron bombardment, neutron irradiation, germanium

ABSTRACT: The energy spectrum of defect levels of Ge irradiated with monoenergetic neutrons with energies of 14 and 4-5 Mev has been investigated. The donor concentration of n-type samples was $3 \cdot 10^{13}$ and $2 \cdot 10^{15}$ cm^{-3}. The inverse temperature dependence of the Hall effect measured between 77 and 300K revealed the presence of the $E_c - 0.2$, $E_c + 0.18$, and $E_v + 0.07$ ev defect levels. These levels correspond to three of the four upper defect levels produced in Ge irradiated with fast neutrons in a reactor, which were determined in the authors' earlier paper (Fizika tverdogo tela, v. 5, no. 7, 1963, 1842-1851). The formation rate of defects per incident neutron was found to be ~2 for all three defect levels. The rate of introduction and the dimensions of the disordered regions and their contribution to the initial

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L 8431-65
ACCESSION NR: AP4041703

rate of removal of charge carriers from the conduction band were also calculated. It was concluded that basically the defect-level energy spectrum produced in Ge by neutrons is probably independent of the energies of the neutrons. Orig. art. has: 8 formulas, 2 figures, and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physico-Technical Institute, AN SSSR)

SUBMITTED: 21Jan64 ATD PRESS: 3102 ENCL: 00

SUB CODE: IC, NP NO REF SOV: 002 OTHER: 003

Card 2/2

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17091-65 EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EWP(b) Pr-4/Pu-4 IJP(c)/SSD/
ESD(n)-3/AFWL/ASD(a)-5/AFETR/ESD(gs)/ESD(t) GG/JW/JD
ACCESSION NR: AP4048398 S/0181/64/006/011/3263/3265

AUTHOR: Konopleva, R. F.; Novikov, S. R.; Ry*vkin, S. M.

TITLE: High-temperature annealing of defects produced in germanium by fast neutro

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3263-3265

TOPIC TAGS: germanium, neutron irradiation, fast neutron, radiation defect, annealing, electric conductivity, Hall coefficient

ABSTRACT: This is a continuation of earlier investigations (FTT v. 5, 1843, 1963 and v. 6, 896, 1964) of the spectrum of energy levels produced in germanium by fast neutrons, and deals with high-temperature annealing of the defects produced by the neutrons. The samples previously investigated were subjected to isochronous and isothermal annealing in the temperature range 70—400C. The annealing was in air and the temperature was maintained constant within

Card 1/3

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L 17091-65

ACCESSION NR: AP4048398

2

1.0C. The electric conductivity and the temperature dependence of the Hall coefficient were measured after each annealing. The measurements disclosed the presence of two stages of annealing, one in the temperature region near 150C, when about 15% of the defects are annealed, and one above 250C, when the remaining defects are annealed. The corresponding activation energies are 1.2 and 2.6 ev. These activation energies are characteristic of the diffusion of single and double vacancies in germanium. Therefore, it can be concluded that 85% of the defects produced by neutron irradiation are in the form of double vacancies which are annealed at temperatures above 250C, and the remainder are the less stable single vacancies which are annealed at about 150C. Earlier deductions by the authors that the defects have an acceptor character are also confirmed. Orig. art. has: 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 17091-65

ACCESSION NR: AP4048398

SUBMITTED: 18May64 ENCL: 00 SUB CODE: NP, SS

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

L 07057-67 EWT(m) JE
ACC NR: AP6021633

SOURCE CODE: UR/0089/66/020/003/0275/0277

AUTHOR: Novikov, S. R.; Konopleva, R. F.; Kruglikov, A. N.; Nazarenko, A. N.

ORG: none

TITLE: Low temperature channel of the VVR-M reactor of the Physicotechnical Institute, AN SSSR

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 275-277

TOPIC TAGS: LIQUID NITROGEN, NUCLEAR REACTOR COOLANT, NUCLEAR REACTOR, nuclear reactor component, irradiation apparatus, research reactor/ VVR-M reactor

ABSTRACT: The authors describe a through channel in which the samples are cooled with cold gaseous nitrogen. This makes it possible to employ ordinary commercial liquid nitrogen, and also to reload the samples and to vary their temperature in simple fashion. The reason why liquid nitrogen cannot be used for this purpose is briefly discussed. The cold nitrogen is fed from a liquid-nitrogen evaporator outside the reactor, flows through the cryostat channel, and is drawn out by a ventilating system. If the liquid nitrogen contains 0.1% of argon, the activity of the radioactive Ar^{41} does not exceed 5 millicurie/hr at a reactor power of 10 MW. The construction of the installation (Fig. 1) and the method of manipulating the samples are described. The channel described was installed in the VVR-M reactor in March 1964, and apart from accidental loss of hermeticity, which was later eliminated, it withstood many tests with large temperature differentials. Besides the simplicity of construction and

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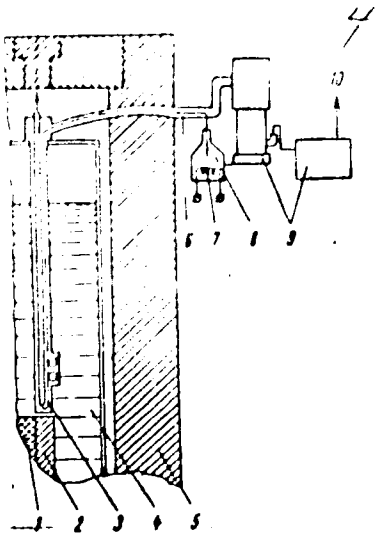

Fig. 1. Equipment for low-temperature irradiation. 1 - Active zone, 2 - beryllium reflector, 3 - cryostatic channel, 4 - water in reactor tank, 5 - shield, 6 - nitrogen pipe, 7 - heater, 8 - evaporator vessel, 9 - vacuum pumps, 10 - special ventilation.

possibility of using commercial liquid nitrogen, another advantage is the wide range of variation of the temperature. A shortcoming is the large consumption of liquid nitrogen when temperatures of the order of 100K are obtained. The authors thank the operating crew of the reactor for help, and are especially indebted to designers A. L. Voinov and L. D. Baranova for participating in the development of units of the apparatus, and mechanics G. I. Pastalak and A. F. Klement'yev for installing the apparatus in the reactor. Orig. art. has: 3 figures.

SUB CODE: 18/ SUBM DATE: 04Sep65/ OTH REF: 005

Card 2/2

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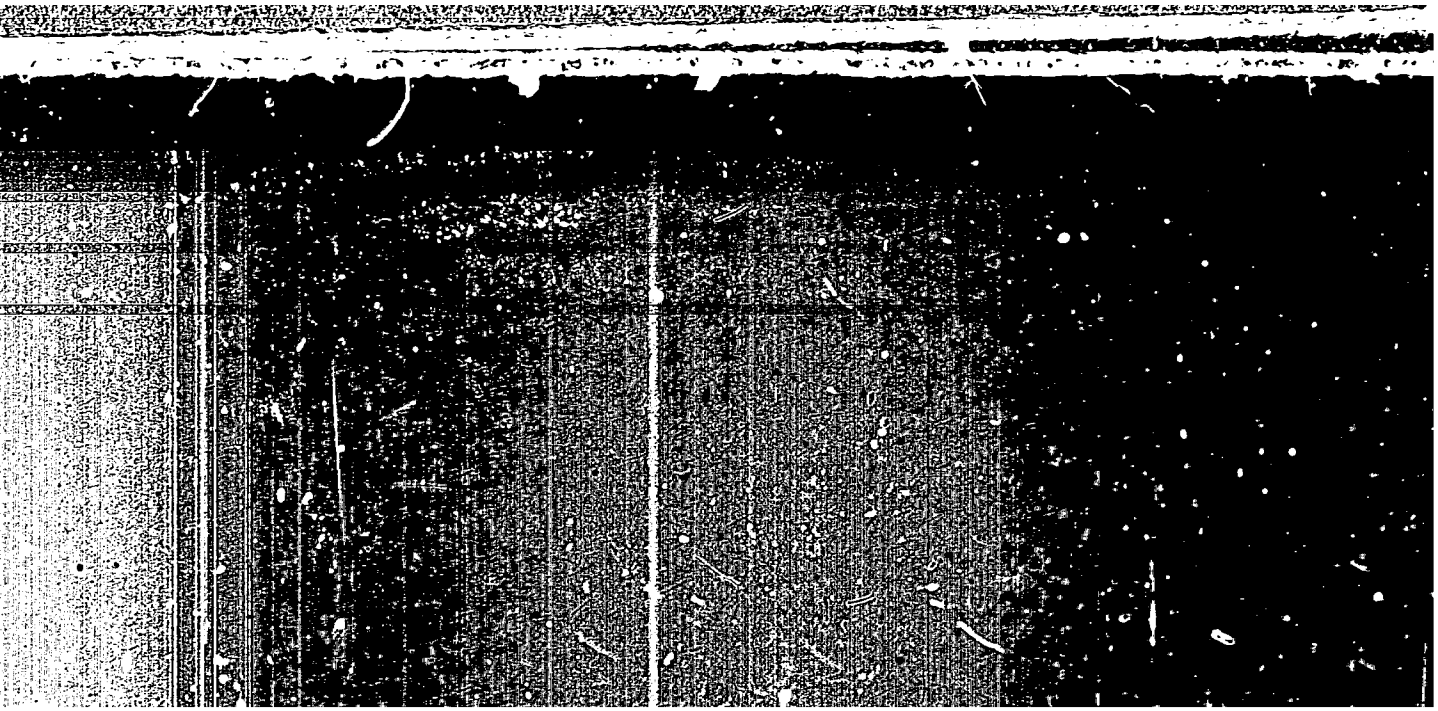

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S/207/61/000/006/009/025
A001/A101

AUTHORS: Novikov, S.S., Ryazantsev, Yu.S. (Moscow)

TITLE: Acoustic conductivity of a stable burning surface

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961, 73 - 77

TEXT: The authors consider the plane front of burning, which coincides with the surface of the condensed phase (assumed to be incompressible), under conditions of mass, momentum and energy conservation. They derive an expression for acoustic conductivity, being the ratio of the normal component of acoustic velocity to acoustic pressure, taking into consideration perturbations in the combustion products (which are assumed to be a perfect gas) composed of incident and reflected waves of pressure and entropy wave. Conclusions are drawn as follows: 1) if the stationary law of burning is fulfilled under unstationary conditions, the stable burning surface is acoustically stable; 2) the region of acoustic stability changes essentially when entropy waves, arising in an interaction of acoustic waves with the burning surface, are taken into account. 3) amplification of a weak pressure wave in interaction with a stable burning surface is possible

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Card 1/2

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A001/A101

Acoustic conductivity of a stable burning surface

only if the non-stationary combustion law satisfies certain requirements. The authors are of the opinion that existent attempts to establish this law have been unsatisfactory and formulate demands on such a law. The following Soviet-built personalities are mentioned: Ya. B. Zel'dovich and A. F. Belyayev. The authors thank A. D. Margolin for a discussion of the present work. There are 11 references, 13 of which are Soviet-built.

SUBMITTED: April 19, 1961

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137430011-0

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B101/B201

11,7200

AUTHORS: Novikov, S. S. and Ryazantsev, Yu. S.

TITLE: Interaction of weak pressure waves with the flame front

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1409-1412

TEXT: This is a gas-dynamic study of the non-relaxing interaction of weak pressure waves with the flame front on a change of the thermodynamic parameters of the burning mixture in the weak wave. A) If the pressure wave catches up with the flame front, a pressure wave and an entropy wave are reflected after interaction with the flame, while the wave that has passed through the flame goes on propagating. For the conservation of mass, momentum, and energy at the front of flame the following relations are written: $\rho_1 U = \rho_2(u_1 - u_2 + U)$; $p_1 + \rho_1 U^2 = p_2 + \rho_2(u_1 - u_2 + U)^2$; $w_1 + U^2/2 = w_2 + (u_1 - u_2 + U)^2/2$ (1). By retaining the terms of zeroth and minus first order with respect to U/c_1 (U = propagation rate of flame, c_1 = sound velocity) the following is written.

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$\varrho_1\delta U + U\delta\varrho_1^{pass} = \varrho_2(\delta u_1^{pass} - \delta u_2^{inc} - \delta u_2^{refl} - \delta U + (c_2^2/c_1^2)(\delta\varrho_2^{inc} + \delta\varrho_2^{refl}$
$+ \delta\varrho_2^{entr})$; $\delta p_1^{pass} + 2\varrho_1 U\delta U = \delta p_2^{inc} + \delta p_2^{refl} + \varrho_2 U(c_2^2/c_1^2)(\delta u_1^{pass} - \delta u_2^{inc}$
$- \delta u_2^{refl} + \delta U)$; $\delta w_1^{pass} + U\delta U = \delta w_2^{inc} + \delta w_2^{refl} + \delta w_2^{entr} + U(c_2^2/c_1^2)(\delta u_1^{pass}$
$- \delta u_2^{inc} - \delta u_2^{refl} + \delta U)$ (2). Here, inc means incident pressure wave; pass: passed pressure wave, refl: reflected pressure wave, entr. entropy wave. The following relations holds: incident pressure wave
$\delta S_2^{inc} = 0$; $\delta u_2^{inc} = \delta p_2^{inc}/\varrho_2 c_2$; $\delta w_2^{inc} = \delta p_2^{inc}/\varrho_2$; $\delta\varrho_2^{inc} = \delta p_2^{inc}/c_2^2$ (3);
reflected pressure wave: $\delta S_2^{refl} = 0$; $\delta u_2^{refl} = \delta p_2^{refl}/\varrho_2 c_2$;
$\delta w_2^{refl} = \delta p_2^{refl}/\varrho_2$; $\delta\varrho_2^{refl} = \delta p_2^{refl}/c_2^2$; passed pressure wave
$\delta S_1^{pass} = 0$; $\delta u_1^{pass} = \delta p_1^{pass}/\varrho_1 c_1$; $\delta w_1^{pass} = \delta p_1^{pass}/\varrho_1$; $\delta\varrho_1^{pass} = \delta p_1^{pass}/c_1^2$ (5);

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for the entropy wave: $\delta p_2^{entr} = 0$; $\delta u_2^{entr} = 0$; $\delta w_2^{entr} = T_2 \delta S_2^{entr} = -c_2^2 \delta \varrho_2^{entr}/\varrho_2(\gamma - 1)$ (6). The change δU of the propagation velocity of the flame is, under the assumption that $U = f(p_1, T_1)$ be known, found from: $\delta U = (\partial f/\partial p_1)_{T_1} \delta p_1 + (\partial f/\partial T_1)_{p_1} \delta T_1 = A \delta p_1$; $A = (\partial f/\partial p_1)_{T_1} + \left[(\gamma - 1)/\gamma\right](T_1/p_1)(\partial f/\partial T_1)_{p_1}$ (7). Introducing Eqs. (3)-(7) into (2) and eliminating $\delta \varrho_2^{entr}$ gives:

$$\left[(\varrho_1 - \varrho_2)A + U/c_1^2 + (\gamma - 1)U/c_2^2 - \varrho_2/\varrho_1 c_1\right] \delta p_1^{pass} = (\gamma U/c_1^2)(\delta p_2^{inc} + \delta p_2^{refl}) - (\delta p_2^{inc} - \delta p_2^{refl})/c_2;$$

$$\delta p_1^{inc} = (1 + 2U/c_1)(\delta p_2^{inc} + \delta p_2^{refl}) - (2Uc_2/c_1^2)(\delta p_2^{inc} - \delta p_2^{refl}) \quad (8).$$

Thence, for the acoustic conductivity of the flame front, is found:

$$\zeta = \varrho_2 c_2/\varrho_1 c_1 - (\varrho_1 - \varrho_2)c_2 A + (\gamma - 1)(1 - c_1^2/c_2^2)Uc_2/c_1^2 + 2(\varrho_1 - \varrho_2)A\left[c_1 - (\varrho_1 - \varrho_2)Ac_2^2\right]Uc_2/c_1^2 \quad (9).$$

Between the reflection factor

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$k = \delta p_2^{refl}/\delta p_2^{inc}$ and ζ holds the relation $k = (1 - \zeta)/(1 + \zeta)$. The refractive index l results from Eq. (2)

$l = \left[2/(1 + \zeta_0)\right]\left[1 + 2(\varrho_1 - \varrho_2)\right]AUc_2^2/c_1^2 - BU/(1 + \zeta_0)c_1$ (10), where

$\zeta_0 = \varrho_2 c_2/\varrho_1 c_1 - (\varrho_1 - \varrho_2)c_2 A$; $B = \left\{(\gamma - 1)(1 - c_1^2/c_2^2) + 2(\varrho_1 + \varrho_2)A\left[c_1 - (\varrho_1 - \varrho_2)Ac_2^2\right]\right\}c_2^2/c_1^2$. It follows from equation (9) that the acoustic conductivity of the flame constitutes in first approximation a sum, the individual terms of which correspond to different physical factors. B) If the incident wave moves toward the flame front, the following relations hold:

$\zeta' = \varrho_1 c_1/\varrho_2 c_2 - (\varrho_1 - \varrho_2)c_2 Ac_2/c_1 + (\gamma - 1)(1 - c_1^2/c_2^2)(Uc_2/c_2^2)(c_2/c_1)$
$- 2(\varrho_1 - \varrho_2)AU(c_2/c_1)^3$ (11); $l' = \left[2/(1 + \zeta_0')\right]\left[1 + 2(\varrho_1 - \varrho_2)\right]AUc_2^2/c_1^2$
$- B'U/(1 + \zeta_0')c_1$ (12). Here as well, a discussion of the equations leads

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to the following conclusions: 1) in zeroth approximation (A = 0) the flame has an acoustic conductivity being equal to the acoustic conductivity of the density discontinuity; 2) the physicochemical constant A takes account of the flame reaction to small perturbations. For $\varrho_1 > \varrho_2$, corresponding to the surface of burning condensed fuels, the acoustic conductivity of the flame is always negative: $\zeta_c = -(\varrho_1 - \varrho_2)c_2 A$ (13). The reflected wave is thus amplified. Eqs. (9)-(13) hold only for small values of A. With large A and under the action of weak waves, waves of finite intensity may arise in the flame, and the task is no more linear. A is the coefficient of the velocity of flame propagation with adiabatic pressure change in the combustible mixture. A may be calculated by the equation by Zel'dovich and Frank-Kamenetskiy (ZhFKh, 12, 1, 100 (1938)). For a methane-air mixture (10% CH_4), T_0 = 20°C, P = 1 atm; T_{burn} = 2100°C, $\Delta U/\Delta T$ = 0.2 cm/sec·deg the change in the velocity of flame propagation would amount to about 0.5%. In some cases, this change may, however, rise to some percents; this may have a considerable effect if the pressure wave, in consequence of reflections, passes through the flame front several times. There are 1 figure and

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9 references: 8 Soviet-bloc and 1 non-Soviet-bloc

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, USSR)

PRESENTED: December 7, 1960 by V. N. Kondrat'yev, Academician

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AUTHORS: Novikov, S. S. and Ryazantsev, Y. S.

TITLE: Interaction of the weak entropy wave with the flame front

PERIODICAL: Akademiya nauk SSSR. Doklady, v. [illegible], n. [illegible], [illegible]

TEXT: Contrary to the hypothesis that the propagation velocity of the flame remains unchanged on interaction of a flame front with the contact burst (G. M. Bam Zelikovich, Teoreticheskaye gidromekhanika, sb. rn. (Theoretical hydromechanics, Collection), No. [illegible], [illegible]; Boa Te Chu, Sb. rn. Voprosy goreniya i detonatsionnykh voln (Collection, Problems of burning and of detonation waves) M., 1958, str. [illegible]) it was confirmed experimentally (S. M. Kogarko, ZhTF, 30, [illegible] (1960)) that on interaction of a flame front with compression waves the latter may be intensified. This is explained by a change of the flame velocity during interaction (S. M. Kogarko, V. I. Skobelkin, DAN, 120, No. 6, 1280 (1958)). The interaction of a flame front with the entropy wave was studied [illegible] the propagation velocity of the flame due to the entropy wave. The authors assumed the entropy wave to be weak [illegible]

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Interaction of the weak [illegible]

tion. The system formed by interaction of waves is shown in Fig. [illegible] perturbation in a combustible mixture [illegible] an arriving entropy wave $\delta\varrho_1^e$ and the resultant pressure wave δp_1. The [illegible] formed in the products of combustion. The entropy wave [illegible] and the pressure wave δp_2. These perturbations are interrelated by the [illegible] conservation of mass, momentum and energy at the flame front. [illegible] values of an order of $(U/c_1)^2$ and more, U being the propagation velocity of the flame, and [illegible] the sonic velocity [illegible] one obtains: [illegible] $+ \varrho_1/\varrho_2 U\delta\varrho_2^e$; $\delta p_1 = \delta p_2 + 2\varrho_1 U\delta u_1 - \delta u_2$; [illegible] $+ \varrho_1/\varrho_2 U(\delta u_1 + \delta u_2 + \delta U)$ [illegible] Besides, the following interrelations hold for waves: The falling entropy wave: [illegible]; the pressure wave in the combustible mixture: [illegible]

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