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[Sub-Kirmaki series of the eastern part of Apsheron Province and its oil bearing possibilities] Podkirmakinskaia svita vostochnoi chasti Apsheronskoi oblasti i ee neftenosnost'. Baku, Azerbaidzhanskoe gos.izd-vo neft. i nauchno-tekhn. lit-ry, 1957. 215 p. (MLRA 10:9)

(Apsheron Province--Petroleum geology)

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(Apsheron Peninsula--Oil field brines)

ALIKHANOV, E.N.

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Development of oil production in Azerbaijan offshore areas. Azerb. neft.khoz. 36 no.11:22-25 N '57. (MIRA 11:2)
(Azerbaijan---Oil well drilling, Submarine)

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[Development of the petroleum and the gas industries in Azerbaijan] Razvitie neftianoi i gazovoi promyshlennosti Azerbaidzhana za semiletie, 1959-1965 gg. Baku, Azerneftneshr, 1959. 93 p. (MIRA 13:8)
(Azerbaijan--Petroleum industry)
(Azerbaijan--Gas industry)

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New problems of the Azerbaijan petroleum industry. Azerb. neft. khoz. 38 no.8:1-3 Ag '59. (MIRA 13:2)
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(Oil well drilling) (Wages)

ALIKHANOV, E.N.; KULIYEV, I.P.; SAMEDOV, F.I.

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(Azerbaijan--Oil well drilling, Submarine)

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IUsif Geidarovich Mamedaliev; obituary. Dokl. AN Azerb. SSR 17 no.12:1123-1126 '61. (MIRA 15:2)
(Mamedaliev, Iusif Geidarovich, 1905-1961)

ALIKHANOV, E.N.

[Forty years of Azerbaijani industry; 1920-1960]Promyshlennost' Azerbaidzhana za 40 let; 1920-1960 gg. Baku, Azerbaidzhanskoe gos. izd-vo neftianoi i nauchno-tekhn. lit-ry, 1960. 133 p. (MIRA 16:1)

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ALIKHANOV, E.N.; ARUSHANOV, N.A.; AKHUNDOV, V.Yu.; ALIZADE, M.A.; AZIZBEKOV, Sh.A.; BAGIROV, M.A.; VEZIROV, S.A.; VOLOBUYEV, V.R.; VEKILOV, F.M.; GADZHIYEV, N.M.; GUSEYNOV, D.M.; GUSEYNOV, I.A.; DADASHEV, K.K.; DADASHZADE, M.A.; DALIN, M.A.; ISKENDEROV, M.A.; KAZIYEV, M.A.; KARAYEV, A.I.; KASHKAY, M.S.; KEL'DYSH, M.V.; KERIMOV, A.G.; LEMBERANSKIY, A.D.; MAMEDOV, G.K.; MEKHTIYEV, M.R.; MIRZOYEV, S.A.; NAGIYEV, M.F.; NASRULLAYEV, N.I.; OGUDZHEV, A.K.; RADZHABOV, R.A.; RUDNEV, K.N.; SADYKHOV, R.N.; SEMENOV, N.N.; TOPCHIYEV, A.V.; TOPCHIBASHEV, M.A.; TAIROVA, T.A.; KHALILOV, Z.I.; EFENDIYEV, G.Kh.; SHUKYUROVA, Z.Z.

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(MIRA 15:5)
(Mamedaliev, IUsif Geidarovich, 1905-1961)

ALIKHANOV, E.N.; MIRCHINK, M.F., red.; AKHMEDOV, G.A., red.

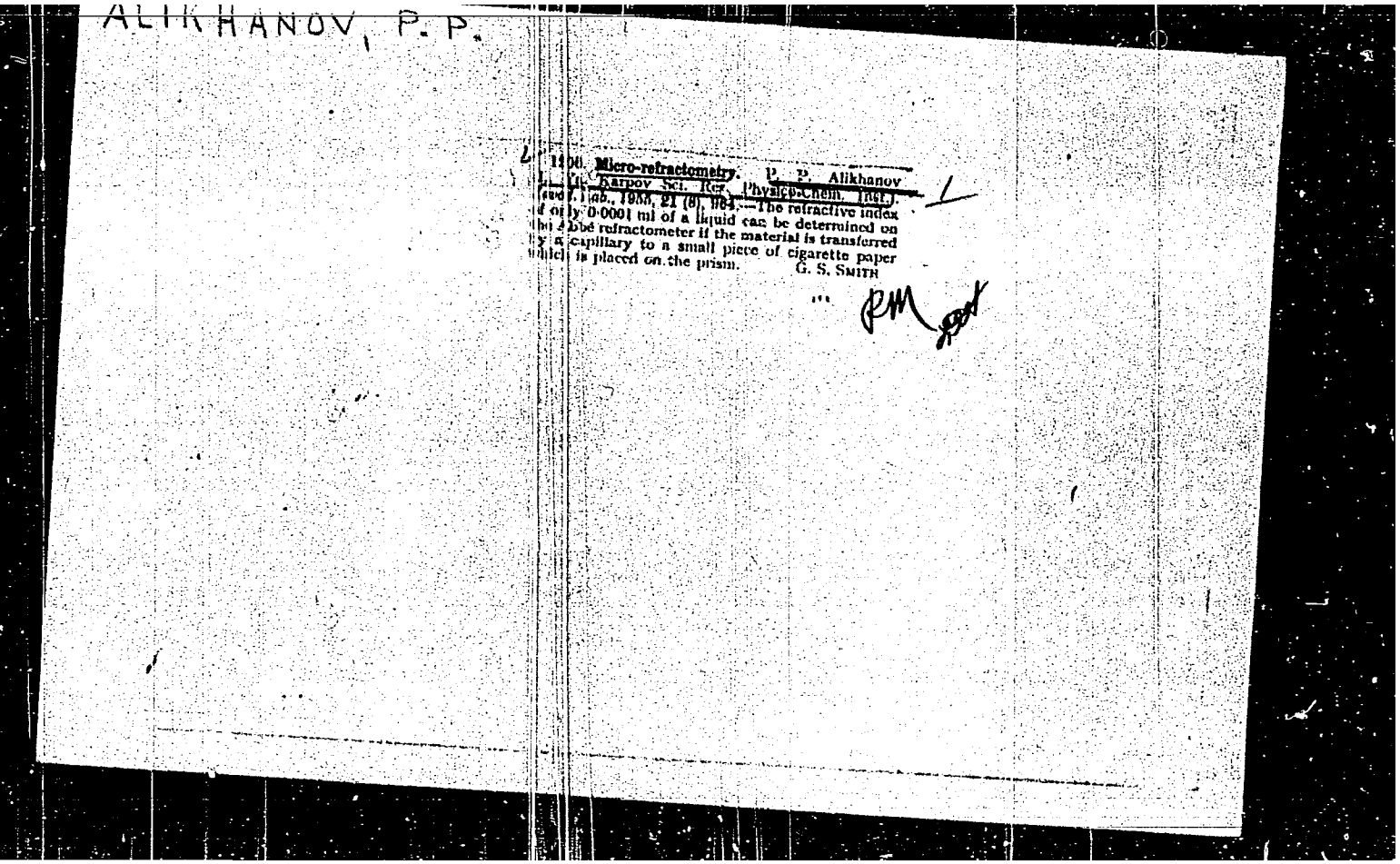
[Oil and gas fields of the Caspian Sea] Neftianye i gazovye mestorozhdeniia Kaspiiskogo moria. Baku, Azerneshr, 196[illegible]. 382 p. (MIRA 17:10)

ALIKHANOV, E.N.; ASAN-NURI, A.O.; KULIYEV, I.P.; MAMEDOV, B.M.; ORUDZHEV, S.A.; TIMOFEYEV, N.S.

Off-shore oil of the U.S.S.R. Neft. khoz. 42 no.9/10: 46-51 S-O '64. (MIRA 17:12)

ALIYEVANOV, E.K., kand. geol.-mineral. nauk (Baku)

Treasures of Azerbaijan; oil and gas from Mesozoic deposits. Priroda 54 no.4:64-70 Ap '65. (MIRA 18:5)



ALIKHANOV, P. P.

1100. **Micro-refractometry.** P. P. Alikhanov (Karpov Sci. Res. Physico-Chem. Inst.). Zavod. Lab., 1955, 21 (8), 984.—The refractive index of only 0·0001 ml of a liquid can be determined on the Abbé refractometer if the material is transferred by a capillary to a small piece of cigarette paper which is placed on the prism. G. S. SMITH

ALIKHANOV P.

USSR/Organic Chemistry. Theoretical and General Questions of Organic Chemistry. E-1

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26613.

Author : Kololev, A.; Shatenshteyn, A.; Yurygina, Ye.; Kalinachenko, V.; Alikhanov, P.

Inst :

Title : Isomerization of Monodeuteronaphthalenes.

Orig Pub : Zh. obshch. khimii, 1956, 26, No. 6, 1666 - 1672.

Abstract : The question of the possibility of transposition of α-H and β-H in the naphthalene molecule was investigated by the method of deuterium interchange. It is shown that if vapors of α-deuteronaphthalene, as well of β-deuteronaphthalene (I and II) in a flow of nitrogen are passing above silica gel at 420°,

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USSR/Organic Chemistry. Theoretical and General Questions of Organic Chemistry. E-1

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26613.

transposition of D and the formation of a mixture consisting of approximately equal amounts of the two isomers will be observed. Dueterium was not transposed in the naphthalene molecule at a heating of I and II at 400° for 52 hours in absence of silica gel. The method of investigation is based on the difference in speeds of hydrogen interchange between I or II with liquid HBr. The speed constants C were determined basing on experiments of interchange of I and II with HBr at 25°: C in sec-1 is 2 to 3 x 10^{-3} for I and 5 x 10^{-5} for II. It is shown at the same time, that α-methylnaphthalene, as well as β-methylnaphthalene (III and IV) are converting mutually one into the

Card 2/3

AUTHORS: Shatenshteyn, A. I., Vedeneyev, A. V., Alikhanov, P. P. SOV/79-28-10-3/60

TITLE: Hydrogen Reaction of Phenol, Its Ethers and of the Aromatic Amines With Liquid DBr (Vodorodnyy obmen fenola, yego efirov i aromaticheskikh aminov s zhidkim DBr)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2638 - 2644 (USSR)

ABSTRACT: Shatenshteyn and his collaborators had earlier found the rules governing the deutero reaction in hydrocarbons dissolved in liquid DBr (Refs 1,2). In this paper the results are given which were obtained in the hydrogen reaction with liquid DBr in aromatic compounds that contain substituents with an oxygen or nitrogen atom. The free electron pairs of oxygen or nitrogen of the substituents are in mesomeric relation to the π-electrons of the aromatic nuclei, which fact causes an increase of the electron density in the ortho and para-atoms (Ref 4). The affiliation of the proton (deuteron) to the electron pair of the nitrogen or oxygen atom causes its transition to the quaternary or ternary ion

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with simple positive charge. These characteristic features of the compounds mentioned above are the decisive characteristics in their deutero reaction with acids. The hydrogen reaction on phenol and its ethers ($C_6H_5OCH_3$, $C_6H_5OC_6H_5$) and on aromatic amines ($C_6H_5N(CH_3)_2$, $(C_6H_5)_2NH$, $(C_6H_5)_3N$) with liquid DBr as well as with $DBr+AlBr_3$ were investigated at 25°. In all compounds of the first group the ortho and para-atoms react immediately whereas in the second group this rapid reaction takes place only with $(C_6H_5)_3N$, with all others only slowly or not at all. $AlBr_3$ causes the reaction of the meta-atoms in the phenol ethers and delays the reaction in $(C_6H_5)_3N$. The different behaviour of compounds containing oxygen and nitrogen in the hydrogen reaction with $DBr+AlBr_3$ depends on their different relation to the proton and on the different coordination capability of oxygen and nitrogen atoms.

Hydrogen Reaction of Phenol, Its Ethers and of the Aromatic Amines With Liquid HBr SOV/79-28-10-3/60

There are 3 tables and 17 references, 10 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut imeni L.Ya.Karpova (Physical Chemical Institute imeni L.Ya.Karpov)

SUBMITTED: August 20, 1957

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66428

~~5(4)~~ 5.2400(H), 5.3200 SOV/20-128-6-33/63

AUTHORS: Alikhanov, P. P., Varshavskiy, Ya. M.

TITLE: Equilibrium Distribution of Deuterium on Hydrogen Exchange With Liquid Deuterium Iodide

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1214-1216 (USSR)

ABSTRACT: This paper belongs to a series of investigations of the isotope equilibria in various systems of hydrogenous compounds (Refs 1-4). An investigation is made of the exchange reaction between the aromatic C-H bond and the deuterium-containing HJ. Benzene, which would be well suited for this investigation because of the equivalence of all H atoms, reacts too slowly so that diphenyl had to be used. In the dissolution of diphenyl in liquid hydrogen iodide the 6 H-atoms in ortho- and para-position are easily exchanged while the 4 H-atoms in meta-position virtually did not react. The deuterium concentration in HJ was determined by analysis of the water obtained by decomposition of HJ in the nitrogen current over CuO at 350 - 400°. The reaction with diphenyl took place in sealed glass tubes at a pressure of 4 - 15 atm. After equilibration had been reached, the HJ was evaporated, the diphenyl in the oxygen current was burnt, and

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Equilibrium Distribution of Deuterium on Hydrogen Exchange With Liquid Deuterium Iodide

the deuterium content of the water obtained was determined. The resulting distribution coefficient α was checked by the counter-reaction of I-substituted diphenyl in ortho- and para-position with HJ. The experimental data on α are compared in the table with the values calculated by means of the formulas contained in reference 8. The values coincide well. As is shown in figure 1, good agreement was also obtained for the other hydrogen halides (Refs 2-4). In the present paper the following values are given for the equilibrium coefficient α: $\alpha_{0^\circ} = 4.07$, $\alpha_{25^\circ} = 3.47$ and $\alpha_{50^\circ} = 3.13$. There are 1 figure, 1 table, and 9 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy fizikokhimicheskiy institut im. L. Ya. Karpova (Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov)

PRESENTED: June 19, 1959, by S. S. Medvedev, Academician

SUBMITTED: April 13, 1959

SHATENSHTEYN, A.I.; SANNIKOV, A.P.; ALIKHANOV, I.P.

Deuterium exchange method for studying the catalytic activity of systems consisting of hydrogen acid and aprotic acid-like substance. Acetic acid stannichloride-system. Zhur. ob. khim. 35 no.3:419-425 Mr '65. (MIRA 18:4)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

5.2000

78298
SOV/79-30-3-52/69

AUTHORS: Shatenshteyn, A. I., Alikhanov, P. P.

TITLE: Concerning Catalytic Action of Iodine in the Deuterium Exchange in Liquid Hydrogen Iodide

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 992-999 (USSR)

ABSTRACT: Rate of deuterium exchange of monodeuteriotoluene (I) and monodeuteriobiphenyl (II) with HI was studied in the presence of iodine as a catalyst. HI was synthesized in a quartz apparatus described previously (V. R. Kalinachenko and others, ZhFKh, 30, 1140, 1956). A test tube containing a thin-walled glass ampoule filled with the investigated compound and catalyst (iodine) was attached to the apparatus to fill it with the HI obtained (-45°). After filling with HI, the test tube was detached from the apparatus and kept at 25 ± 0.2°. The glass ampoule inside the test tube was imploded by the HI vapor, and the exchange

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reaction started. The reagents used were prepared by Ye. N. Yurygina. Results of the experiments are shown in Table 1. Absorption spectra of iodine in liquid HI were taken at room temperature according to a previously described method (A. I. Shatenshteyn, Ye. A. Izrailevich, ZhFKh, 26, 377, 1952). SF-4 spectrophotometer and a quartz cell (0.11 cm) were used. Specific electric conductivity of liquid HI was measured at -44° and found to be equal to $2 \cdot 10^{-8}$ $ohm^{-1}cm^{-1}$. The measurements were taken in a cell with nonplatinized platinum electrodes using an alternate current bridge constructed under the supervision of V. Ye. Kazakevich. There was no noticeable increase in the conductivity of the solution after the addition of iodine, mesitylene, or hexamethylbenzene. Catalytic action of iodine is due to the polarization of the bond H-I in the complex formed in the ternary system: aromatic hydrocarbon-hydrogen iodide-iodine:

Concerning Catalytic Action of Iodine in the Deuterium Exchange in Liquid Hydrogen Iodide

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Comparison of the rates of deuterium exchange is given in Table 2. The authors express their gratitude to Ye. N. Yurygina for the deuterium-containing hydrocarbons. There are 2 figures; 3 tables; and 45 references, 15 U.S., 7 U.K., 1 German, 24 Soviet. The 5 most recent U.S. and U.K. references are: G. Olah, S. Kuhn, A. Puvlath, Nature, 178, 693 (1956); E. L. Mackor, P. J. Smit, J. H. van der Waals, Trans. Farad. Soc., 53, 1309 (1957); V. Gold, D. P. Satchell, J. Chem. Soc., 1927, 3904, 3910 (1958); H. H. Hyman, M. Kilpatrick, J. J. Katz, J. Am. Chem. Soc., 79, 3668 (1957); W. G. Schneider, "Hydrogen Bonding," ed. Hadzi, Pergamon Press, N. Y., 54 (1959).

ASSOCIATION: L. Ya. Karpov Scientific Research Institute of Physical Chemistry (Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L. Ya. Karpova)

SUBMITTED: April 10, 1959

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Table 1. Results of experiments on deuterium exchange with liquid HI.

№	a $C_{ArD} \cdot 10^4$	b $C_{J_2} \cdot 10^4$	c C_H^0	d C_H	e τ	f $k \cdot 10^4$	g $k' \cdot 10^4$	h i
1	1.4	—	10.80	5.86	45	4.0	—	—
2	1.4	—	10.80	5.90	45	4.0	—	—
3	1.7	—	5.50	3.05	43	4.0	—	—
4	1.7	—	5.50	3.02	43	4.0	—	—
5	1.6	0.6	5.60	3.43	28	5.2	8.7	270
6	1.9	1.2	5.60	2.86	22	9.2	7.7	160
7	1.8	2.0	5.60	3.16	14	12	6.0	90
8	1.8	3.5	5.50	2.88	8	24	6.9	51
9	1.7	5.0	5.50	2.70	5	43	7.3	29
10	1.9	6.9	5.60	3.23	3	55	8.0	28
11	1.8	10	5.60	3.02	2	92	9.1	18
12	2.2	12	5.60	2.94	1.5	130	10.8	18

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(Table 1 cont'd on Card 5/8)

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Nr	a	b	c	d	e	f	g	h
				j				
13	1.6	—	5.50	3.05	64	2.1	—	—
14	1.6	1.7	5.50	2.96	50	4.0	3.6	150
15	1.9	2.9	5.50	3.09	30	6.4	2.9	86
16	1.6	2.6	5.50	3.32	23	7.1	2.7	62
17	1.9	3.9	5.50	2.43	24	12	3.1	49
18	1.6	5.5	5.50	2.76	12	19	3.3	26
19	1.5	11	5.50	2.68	5	47	4.3	14
20	1.8	14	5.50	3.18	3	61	4.4	13
21	1.8	25	5.50	2.21	2	160	6.4	7
				k				
22	0.75	—	8.10	4.27	45	4.2	—	—
23	0.63	0.8	8.10	3.97	28	8.6	10.8	79
24	0.67	2.1	8.10	4.44	12	15	7.2	32
25	0.86	3.8	8.10	4.93	6	25	6.6	23
26	0.71	12	8.10	5.08	1.5	91	7.6	6
				l				
27	0.71	1.8	7.80	4.76	45	3.5	2.0	39
28	0.82	3.4	7.80	5.19	23	5.6	1.7	24
29	0.75	5.2	7.80	4.27	25	7.9	1.5	14
30	1.1	7.8	7.80	4.76	12	14	1.8	14
31	0.24	11	7.80	5.12	6	20	1.8	2
32	0.83	12	7.80	5.40	5	23	1.9	7
33	0.82	17	7.80	5.01	4	36	2.1	5

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(Key to Table 1 on Card 6/8)

Key: (a) $C_{ArD} \cdot 10^2$ is the number of hydrocarbon moles per mole of HI; (b) C_{J_2} is the iodine concentration in moles per mole of HI; (c) C_B^o is the deuterium concentration in water after the precipitation of the compound before the experiment (in atom %); (d) C_B, after the end of the experiment; (e) τ is duration of the experiment in hours; (f) k is constant of the rate of deuterium exchange; (g) $k' = k/C_{J_2}$ is the specific rate constant in reference to the concentration of iodine in the solution; (h) $C = C_{ArD}/C_{J_2}$; (i) p-D-toluene; (j) o-D-toluene; (k) p-D-biphenyl; (l) o-D-biphenyl.

Concerning Catalytic Action of Iodine in the Deuterium Exchange in Liquid Hydrogen Iodide

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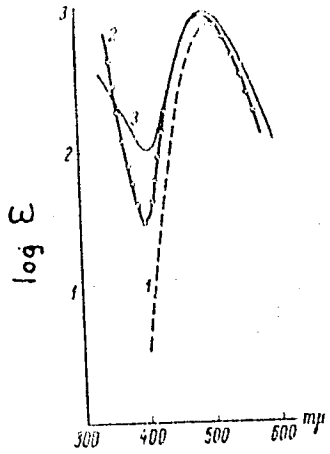

Fig. 2. Absorption spectra of iodine solutions; (1) in CCl_4; (2) in C_6H_6; (3) in liquid HI.

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Table 2. Comparison of the constants of deuterium exchange rate with different hydrogen halides at 25° (sec $^{-1}$).

a	HI	HBr	HF
b	$2 \cdot 10^{-6}$	$5 \cdot 10^{-5}$	$> 2 \cdot 10^{-2}$
c	$4 \cdot 10^{-6}$	$2 \cdot 10^{-4}$	--
d	$1 \cdot 10^{-6}$	$3 \cdot 10^{-5}$	--
e	$4 \cdot 10^{-6}$	$1 \cdot 10^{-4}$	--
f	$(5 \cdot 10^{-5})$	$2 - 3 \cdot 10^{-3}$	--

Key: (a) Hydrocarbon; (b) o-D-toluene; (c) p-D-toluene; (d) o-D-biphenyl; (e) p-D-biphenyl; (f) α-D-naphthalene.

Card 8/8

AUTHORS: Yurygina, Ye. N., Alikhanov, P. P., Izrailevich, Ye. A., Manochkina, P. N., Shatenshteyn, A. I. (Moscow)

S/076/60/034/03/015/038
B115/B016

TITLE: The Kinetics of Deuterium Exchange of the Isomers of Monodeutero-toluene, Monodeutero-diphenyl, and Monodeutero-naphthalene With Liquid Hydrogen Bromide and a Solution of Potassium Amide in Liquid Ammonia

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 587 - 593 (USSR)

TEXT: The aim of the investigation under review was the determination of the factors of the partial rate f in the hydrogen isotopic exchange of the substances mentioned in the title with the reagents likewise mentioned in the title. The synthesis of monodeuterated hydrocarbons, the deuterium concentration in water on combustion of the hydrocarbons, and the carrying out of experiments are described. The rate constant of the deuterium exchange is calculated by an equation and, when using ammoniacal solutions, by a simplified form of this equation. The results of the measurements made with liquid HBr are given in table 1, those of the experiments with ammoniacal solutions in table 2, and the mean values of the constants of the deuterium exchange rate

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The Kinetics of Deuterium Exchange of the Isomers of Monodeutero-toluene, Monodeutero-diphenyl, and Monodeutero-naphthalene With Liquid Hydrogen Bromide and a Solution of Potassium Amide in Liquid Ammonia

S/076/60/034/03/015/038
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in table 3. The activation energy of deuterium exchange is also given. Table 4 presents the factors of the partial rate f of the deuterium exchange of isomeric monodeuterated hydrocarbons with a KNH_2 solution in NH_3, and with HBr.

The order of the partial rate factors in the isotopic exchange between non-equivalent deuterium atoms in the toluene and diphenyl molecule differs in reactions with acids and with lyes, which is due to the different mechanism of these reactions in which the conjugative and the inductive effect considerably manifest themselves in the mutual action of the atoms in the hydrocarbon molecule. The rules in the deuterium exchange in toluene and diphenyl indicate that the inductive effect of the methyl group has the reverse sign compared to that of the phenyl group. Finally, it can be said that the acid and the base react in the deuterium exchange with the carbon atoms of the CH-bonds and the base with the hydrogen atoms of the CH-bonds, and protonize these atoms. A method is described for obtaining isomeric monodeutero-diphenyls. It is described exactly how the authors divided this work among themselves. There are 4 tables and 19 references, 12 of which are Soviet.

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The Kinetics of Deuterium Exchange of the Isomers of Monodeutero-toluene, Monodeutero-diphenyl, and Monodeutero-naphthalene With Liquid Hydrogen Bromide and a Solution of Potassium Amide in Liquid Ammonia

S/076/60/034/03/015/038
B115/B016

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Institute of Physical Chemistry imeni L. Ya. Karpov)

SUBMITTED: June 13, 1958

Card 3/3

ALIKHANOV, P. P.

Cand Chem Sci - (diss) "Investigation of reactions of deutero-exchange of some aromatic compounds with liquid hydrogen halides." Moscow, 1961. 15 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Lenin Chemical-Technological Inst imeni D. I. Mendeleyev); 150 copies; price not given; (KL, 5-61 sup, 175)

SHATENSHTEYN, A.I., prof.; VYNSKIY, Yu.P., kand. khim. nauk; PRAVIKOVA, N.A., kand. tekhn. nauk; ALIKHANOV, P.P., kand. khim. nauk; ZHDANOVA, K.I., kand. khim. nauk; IZYUMNIKOV, A.L., mlad. nauchn. sotr.; LEVINSKIY, Yu.V., red.

[Practical laboratory manual on the determination of the molecular weights and molecular weight distribution of polymers] Prakticheskoe rukovodstvo po opredeleniiu molekuliarnykh vesov i molekuliarno-vesovogo raspredeleniia polimerov. [By] A.I.Shatenshtein i dr. Moskva, Khimiia, 1964. 188 p. (MIRA 18:2)

USSR/Physics - Heat of evaporation of O_2 FD-3283

Card 1/1 Pub. 146 - 42/44

Author : Alikhanov, R. A.

Title : Heat of evaporation of oxygen in the interval of temperatures 80-106°K

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 902-903

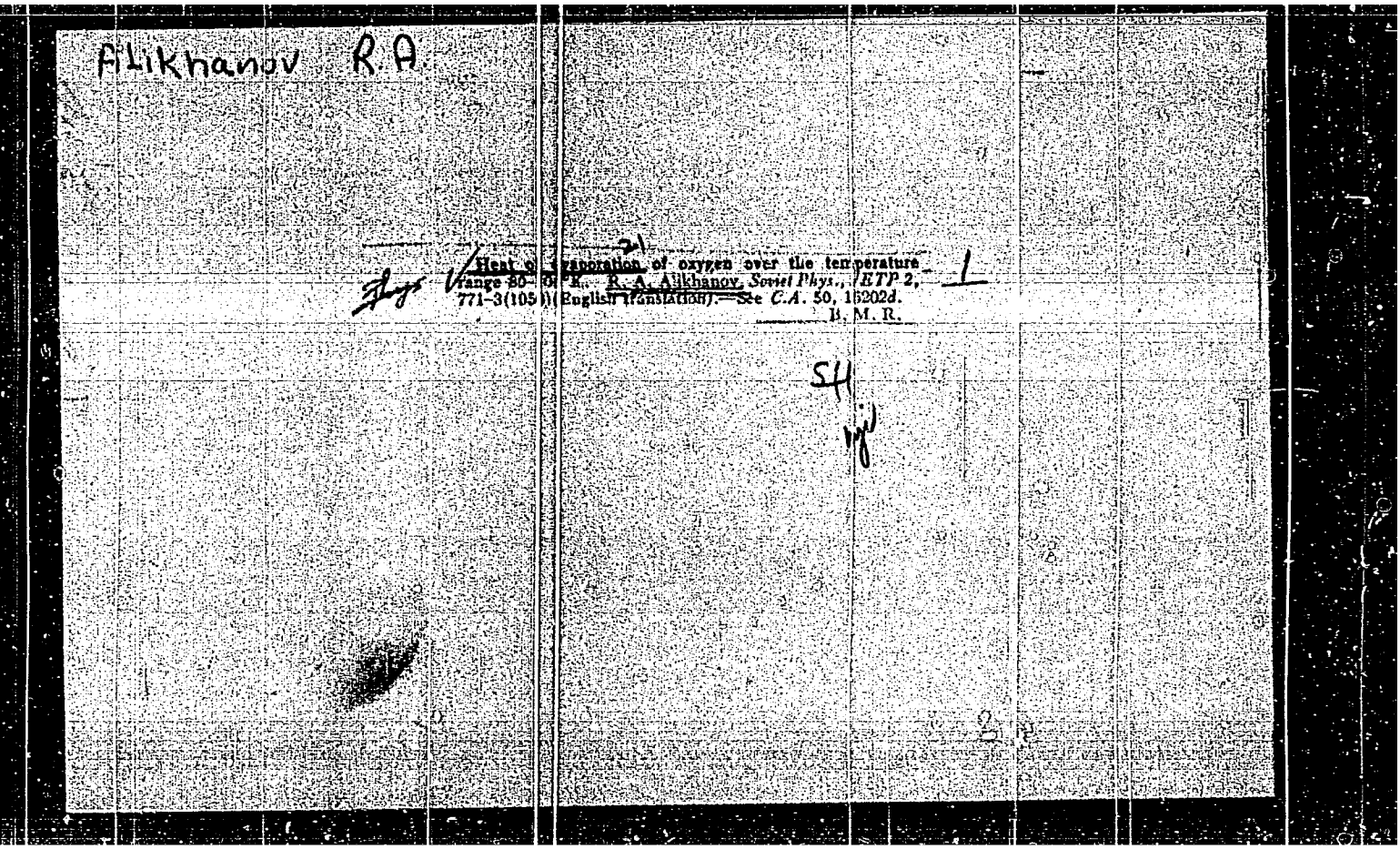
Abstract : The author made 35 measurements of the heat of evaporation of O_2 for 7 different temperatures, obtaining values different from those of other researchers; e.g. he obtained L (cal/mole) = 1628.7±1.3 at T°K = 90.19. He gives the other values of L for 6 other temperatures and the empirical expression relating L to T; e.g.

$$L^2 = 67208.68(T_{cr}-T) - 555.221(T_{cr}-T)^2 + 2.32505(T_{cr}-T)^3.$$

The author thanks P. G. Strelkov for his attention and interest. Five references.

Institution: Institute of Physical Problems, Academy of Sciences USSR

Submitted : July 21, 1955



Filikhanov R.A.

Heat of evaporation of oxygen over the temperature range 80- [illegible] K. R. A. Alikhanov, *Soviet Phys., JETP* 2, 771-3(1056)(English translation).—See *C.A.* 50, 16202*d*.
B. M. R.

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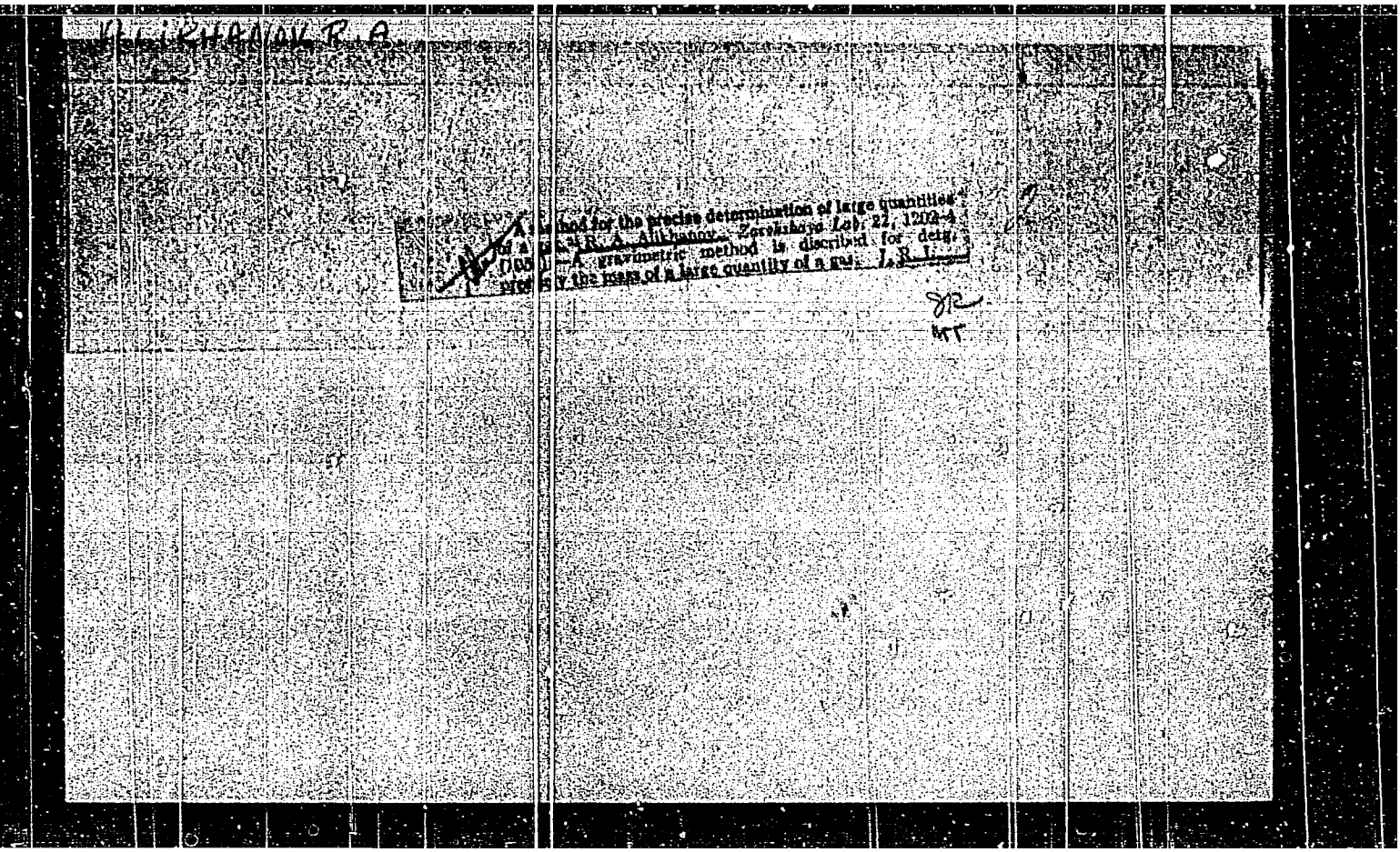

ALIKHANOV, R. A., Cand Phys-Math Sci — (diss) "Neutronographic study of antiferromagnetism $MnCO_3$, $FeCO_3$ and NiF_2."
Mos, 1959. 10 pp (Acad Sci USSR. Inst of Physical Problems).
150 copies. Bibliography at end of text (10 titles)
(KL, 39-59,100)

-2-

24(0) SOV/30-59-2-42/60

AUTHOR: Khalatnikov, I. M., Doctor of Physical and Mathematical Sciences

TITLE: Investigations of Low-temperature Physics (Issledovaniya po fizike nizkikh temperatur)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 98-100 (USSR)

ALKHANOV, R.A.

ABSTRACT: The 5th All-Union Conference on this problem took place in Tbilisi from October 27 to November 1, 1958. It was attended by physicists from Moscow, Khar'kov, Leningrad, Tbilisi, Sverdlovsk, and Kiyev. 4 fields of low-temperature physics were discussed: superliquidity of liquid helium II, supraconductivity, antiferromagnetism, magneto-resistive effect. The following reports and communications were heard: A. A. Abrikosov, L. P. Gor'kov reported on the investigation of the properties of supraconductive alloys. A. A. Abrikosov, L. P. Gor'kov, I. M. Khalatnikov spoke of properties of supraconductors in the high-frequency magnetic field. D. V. Shirkov and Chen' Chun'-yan' and Chzhou Si-shin', two young Chinese scientists working at Moscow University, described investigations for determination of the influence exercised by the Coulomb (Kulon) interaction

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of charges on supraconductivity. V. V. Tolmachev explained the nature of the so-called collective excitations of the Bose type in supraconductors. D. N. Zubarev, Yu. A. Tserkovnikov spoke of the thermodynamics of supraconductors and B. T. Geylikman, V. Z. Kresin of the thermal conduction of supraconductors. Yu. V. Sharvin, V. F. Gantmakher reported on experimental work with supraconductors. N. V. Zavaritskiy spoke of the measurement of the anisotropy of thermal conductivity in the supraconductive state. In a series of reports problems of the superliquidity of helium were discussed, which was discovered in 1938 by P. L. Kapitsa and the theory of which was set up in 1941 by L. D. Landau. E. L. Andronikashvili and his collaborators investigated the properties of rotating helium. V. P. Peshkov spoke of the effect of the formation of the boundary between superliquid and non superliquid helium. Guan Vey-yan', collaborator of the Institut fizicheskikh problem (Institute of Physical Problems) investigated the properties of the so-called jump in temperature of Kapitsa. I. M. Lifshits, V. D. Peschanskiy investigated galvanomagnetic phenomena in strong magnetic fields for metals with open Fermi surfaces. N. Ye. Alekseyevskiy, Yu. P. Gaydukov experimentally investigated the resistance anisotropy of gold monocrystals in the

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magnetic field. L. S. Kan, B. G. Lazarev combine the presence of a temperature minimum with the structural state of the metal. M. Ya. Azbel' reported on the quantum theory of metallic conductivity in the alternating electromagnetic and constant magnetic field. A. S. Borovik-Romanov reported on the weak ferromagnetism in antiferromagnetic samples of $MnCO_3$. N. M. Kreynes, Ye. A. Turov investigated the magnetic anisotropy of the antiferromagnetic monocrystals $CuSO_4$ and $CoSO_4$. R. A. Alikhanov reported on neutronographic investigations of antiferromagnetics. Ye. I. Kondorskiy and collaborators reported on the susceptibility of nickel and nickel-copper alloys at low temperatures. M. I. Kaganov, V. M. Tsukernik reported on kinetic phenomena in ferromagnetics at low temperatures. A. I. Akhiyezer, V. G. Bar'yakhtar, and S. P. Peletminskiy spoke of computations of the relaxation of the magnetic moment in ferromagnetic dielectrics at low temperatures. T. I. Sanadze spoke of observation results of paramagnetic resonance of terbium in the $TbNO_3 \cdot 6H_2O$ nitrate. G. R. Khutsishvili gave a theoretical analysis of the orientation of the nuclear spin in the Overhauser (Overkhauzer)

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effect in nonmetals. B. N. Samoylov, V. M. Reynov and collaborators reported on obtaining orientated nuclei. R. F. Bulatova, V. S. Kogan and B. G. Lazarev showed that hydrogen isotopes in solid state have different structures. I. A. Gindin, B. G. Lazarev, Kh. D. Starodubov and V. I. Khotkevich detected polymorphism in a number of metals at low temperatures. E. L. Andronikashvili, V. P. Peshkov and M. P. Malkov reported on the stage of development of foreign scientific research work in the field of low-temperature physics. At the end of the Conference P. L. Kapitsa spoke of his successful development of investigations in the field of low-temperature physics. The participants of the Conference visited the Institut fiziki Akademii nauk Gruzinskoy SSR (Physics Institute of the Academy of Sciences of the Gruzinskaya SSR) and the Physics Faculty of Tbilisi University as well as the building of the new research atomic reactor near Tbilisi.

24(3)

SOV/56-36-6-10/66

AUTHOR: Alikhanov, R. A.

TITLE: Neutronographic Investigation of the Antiferromagnetism of the Carbonates of Mn and Fe (Neytronograficheskoye issledovaniye antiferromagnetizma karbonatov Mn i Fe)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1690 - 1696 (USSR)

ABSTRACT: Borovik-Romanov and Orlova (Ref 1) already investigated the magnetic properties of polycrystalline $MnCO_3$ and $CoCO_3$, and I. Ye. Dzyaloshinskiy (Ref 2) published a theory on this subject. Dzyaloshinskiy pointed out the connection between weak ferromagnetism and crystal symmetry: In Mn-, Fe-, and Co-carbonates 3 forms of magnetic symmetry are distinguished: 1) the spins are in the direction of the rhombohedral axis, 2) the spins are in the basis plane and are aligned along the axis of the second order, 3) the spins are in the basis plane and in the symmetry plane. In the first-mentioned case no weak ferromagnetism can be observed, whereas in the two latter cases such a weak ferromagnetism is found to exist. In

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the present paper the author investigates $MnCO_3$ and $FeCO_3$ by means of the neutron diagram method with respect to Dzyaloshinskiy's theory. A crystal powder was exposed to a monochromatic neutron beam (λ = 1.37 A), and the scattered neutrons were recorded by a spectrometer constructed by Yu. G. Abov (Ref 5). The neutrons originated from the heavy water reactor of the ITEF AN SSSR. Figure 1 shows the neutron diffraction pictures obtained of $MnCO_3$ powder at room temperature and at hydrogen temperature. The latter is between the background curve and that recorded at room temperature, and has two additional maxima before the maximum of the room temperature neutron diffraction picture. The lattice constants were determined as amounting to a= 5.84 Å and $\alpha = 47^{\circ}15'$; further data are given by table 1. The structure of $FeCO_3$ was investigated in a siderite sample found at Bakal (USSR). Figure 2 shows the neutron diffraction picture at hydrogen temperature. The nuclear scattering amplitudes of Fe^{++} are double those of Mn^{++}. Table 2 contains the calculated and measured relative

intensities for the first group of peaks. It was found that in $MnCO_3$ the spins in the antiferromagnetic state are in the basis plane and symmetry plane; in $FeCO_3$ the spins are aligned along the rhombohedral axis. According to Dzyaloshinskiy this would mean that $MnCO_3$ has a weak ferromagnetism, whereas with $FeCO_3$ this is not the case. The author finally thanks Academician P. L. Kapitsa for his interest in this investigation, A. S. Borovik-Romanov for his valuable advice, I. Ye. Dzyaloshinskiy for discussions, Yu. G. Abov for his advice in connection with the neutronoscopic part of the work, and Yu. V. Sharvin for placing a special thermometer at his disposal. There are 6 figures, 2 tables, and 11 references, 5 of which are Soviet.

ASOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute for Physical Problems of the Academy of Sciences, USSR)

SUBMITTED: February 11, 1959

ALIKHANOV, R.A.

Antiferromagnetism of NiF_2. Zhur.eksp.i teor.fiz. 37 no.4: 1145-1147 O '59. (MIRA 13:5)

1. Institut fizicheskikh problem Akademii nauk SSSR.
(Ferromagnetism)
(Nickel fluoride--Magnetic properties)

S/056/60/038/03/15/033
B006/B014

AUTHOR: Alikhanov, R. A.

TITLE: A Cryostat for Neutronographic Investigations //

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 3, pp. 806-808

TEXT: The present paper described a low-temperature (including the temperature of liquid helium) cryostat employed for investigating the scattering of thermal neutrons on polycrystalline samples. This apparatus, which offers the possibility of investigating neutron diffraction within a wide range of Bragg angles (up to about $\theta_B \approx 45^\circ$, corresponding to a rotation of the detector through 90°), is described in the introduction. Inside, it has a Dewar designed by P. L. Kapitsa (cf. Fig. 1). As was shown by a number of neutronographic investigations, this apparatus operates satisfactorily. The background due to the aluminum casing of the samples amounts to 20% of the counter background and does not disturb the neutron diffraction picture. In this instrument samples can be kept at the temperature of liquid helium for

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A Cryostat for Neutronographic Investigations

S/056/60/038/03/15/033
B006/B014

48 hours. The amount of helium required is 7.5 liters. Fig. 2 shows a typical evaporation curve of helium from the cryostat (1.3 l). A thermometer supplied by Yu. V. Sharvin and exhibiting a resistance which strongly depends on temperature in the low-temperature range was used for measuring the temperature of the samples. Fig. 3 shows the calibration curve of this thermometer, which is 1•2•3.5 mm large. In some cases, sample temperatures were also checked during the experiment, for which purpose a recording potentiometer of the type EPP-09 was used. The author finally thanks Academician P. L. Kapitsa for his interest and Yu. V. Sharvin for the thermometer supplied. There are 3 figures and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems of the Academy of Sciences, USSR)

SUBMITTED: October 10, 1959

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86929

24.2200 1144, 1395, 1160, 2209

S/056/60/039/005/048/051
B006/B077

AUTHOR: Alikhanov, R. A.

TITLE: The Antiferromagnetism of $CoCO_3$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1481 - 1483

TEXT: The author reports on the investigation of hydrothermically produced finely crystalline $CoCO_3$ samples with the help of neutron reflection experiments at low temperatures. He received these samples from I. Yu. Ikornikova of the Institut kristallografii AN SSSR (Institute of Crystallography AS USSR). Fig.1 shows a neutron reflection diagram taken at 4.2°K. The position of the magnetic moments was computed from these results. The direction of antiferromagnetism with regard to the rhombic axis was determined from the magnetic intensity ratios and it was found that the moments and the [111] axis enclose an angle of $(46 \pm 4)^\circ$. The magnetic reflections (111) and (100) (see diagram) and also (110) and (211) showed a decrease in intensity on transition from 20.4 to 4.2°K.

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The Antiferromagnetism of $CoCO_3$

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The results are briefly discussed applying the thermodynamic theory by I. Ye. Dzyaloshinskiy. Fig.2 illustrates the position of the magnetic moment in $CoCO_3$ as determined experimentally. Among other things it was found that the magnetic moments of the ions fall out of the symmetry plane by the angle γ; an estimate of this angle resulted in $(15 \pm 5)^\circ$, and a calculation of this angle using the data from absolute measurements (Ref.8) gave $\gamma = 7^\circ$. The author thanks Academician P. L. Kapitsa for his interest, A. S. Borovik-Romanov and I. Ye. Dzyaloshinskiy for discussions, and N. Yu. Ikornikov and N. N. Mikhaylov for preparing and sorting the samples and I. P. Karpikhin for his experimental assistance. S. D. Chetverikov, P. V. Kalinin, M. G. Spiridonova, B. M. Shrakin, M. P. Orlova, and V. I. Ozhogin are mentioned. There are 2 figures and 8 references: 4 Soviet and 4 US.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems of the Academy of Sciences USSR)

SUBMITTED: August 26, 1960

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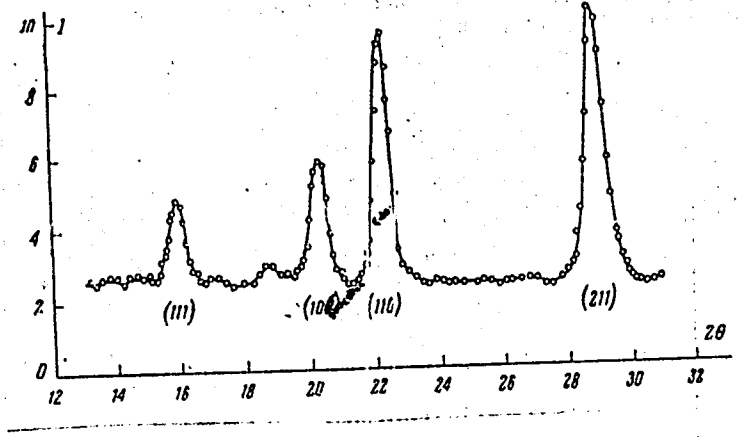

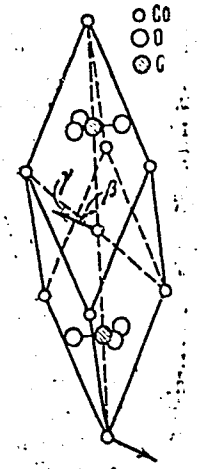

Fig. 2

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ALIKHANOV, R. A., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR, Moscow - "Neutronographic study of $NiCO_3$" (Section J-2)

BELOV, N. V., Associate Director, Institute of Crystallography, Academy of Sciences USSR, Moscow - "Magnetic (ferromagnetic) space group symmetry" (C-6)

BELOV, N. V., NERONOVA, N. N., Both Institute of Crystallography, Academy of Sciences USSR, Moscow, DONNAY, J. D. H., Johns Hopkins University, Baltimore, Md., and DONNAY, G. H., Geophysical Laboratory, Carnegie Institution, Washington, D. C. - "Tables of magnetic space groups, II. Special positions" (C-6)

BOROVIK-ROMANOV, A. S., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR - "Antiferromagnetic resonance in carbonated of transition elements" [sic] (M-16)

BOROVIK-ROMANOV, A. S., ALEKSANYAN, G. G., RUDASHEVSKIY, G. Ye. - "Piezomagnetic effect in antiferromagnets" (M-18)

KONDORSKIY, Ye. I., Head, Magnetism Laboratory, Moscow State University - (1) "The electrical and galvanomagnetic properties of thin films at very low temperatures" (M-5); (2) "On the connection between the spontaneous magnetization of current carriers and the Nernst-effect in ferromagnetic [illegible] "The exchange interaction and magneto-effects in [illegible]"

[illegible], B., and VAYNSHTEYN, B., Institute of Crystallography, Moscow - "Electron diffraction study of thiourea CO $(NH_2)_2$"

LYASHENKO, B. G., Central Scientific Research Institute of Metallurgy, Moscow - "The problem of the influence of spontaneous magnetization on crystal structure and phase state of alloys" (M-8)

LYASHENKO, B. G., LIVITIN, D. F., PUZEY, I.M., APOV, Yu G. Central Scientific Research Institute of Metallurgy, Moscow - "Neutron diffraction investigation of order-disorder in the alloys 'Ferrum-nickel and ferrum-cobalt'" (J-1)

OZEROV, R. P., KOGAN, V. S., ZHDANOV, G. S., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, Moscow - "Neutron diffraction study of the structure of solid hydrogen and deuterium" (C-8)

PINSKER, Z. G., Institute of Crystallography, Academy of Sciences USSR, Moscow - "Results and progresses of electron diffraction analysis" (C-11)

PUZEY, I. M., Scientific Research Institute of Metallurgy, Moscow - "Magnetic anistropy in monocrystals of Ni-Fe-Co alloys" (M-9)

SHUR, Yakov S., Scientific Research Institute of Metallurgy, Moscow - "Some problems of the physics of high coercive materials" (M-17)

SMOLENSKIY, G. A., Institute of Semiconductors, Leningrad - "Some investigations of non-metallic ferro and antiferromagnetics" (M-13)

VAYNSHTEYN, B. K., Institute of Crystallography, Academy of Sciences USSR - "Development of electron diffraction method" (C-11)

YAMZIN, I. I., BELOV, N. V., NOZIK, Y. Z., Institute of Crystallography, Moscow - "Atomic and magnetic structures of magnese ferrite" (J-2)

VONSOVSKIY, S. V., Institute of the Physics of Metals, Academy of Sciences USSR, Sverdlovsk. A member of the IUPAP Commission on Magnetism. See paragraph 1 of Comment for a complete listing of members of the Commission. "Some investigations of Soviet physics on the theory of ferromagnetism for the last years" (Invited paper. Section M-11)

paper to be submitted for the IUPAP Intl. Conference on Magnetism and Crystallography, Kyoto, Japan, 25-30 Sep 1961

65

ALIKHANOV, R.A.

Neutron diffraction study of solid oxygen. Zhur. eksp. i teor. fiz. 45 no.3:812-814 S '63. (MIRA 16:10)

1. Institut fizicheskikh problem AN SSSR.
(Neutron diffraction examination)
(Solid oxygen)

ALIKHANOV, R. A.

Third International Conference on Low-temperature Physics and Technology. Atom. energ. 17 no.1:72-73 Jl '64. (MIRA 17:7)

L 6029[illegible]-65 EPF(c)/EPF(n)-2/EWG([illegible])/EEC(k)-2/EWA(h)/EWT(d)/EWT(l)/EWT(m)/T/EWP(b)/EWP(t) Pr-4/Ps-4/Pu-4/Pe[illegible] IJP(c)/ Z/0000/64/000/000/0127/0131

ACCESSION NR: AT5009419 RPL WW/JW/JD

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51
6+1

AUTHOR: Alikhanov, R. 19

TITLE: Neutronographic investigations of solid oxygen 21

SOURCE: Conference on Low Temperature Physics and Techniques. 3d, Prague, 1963. Physics and techniques of low temperatures; proceedings of the conference. Prague, Publ. House of the Czechosl. Academy of Sciences, 1964, 127-131

TOPIC TAGS: neutron diffraction, solid oxygen, crystal structure, phase transition, low temperature research 16

ABSTRACT: Neutron-diffraction studies of solid oxygen were made with an aim at assessing the applicability of neutron-diffraction techniques to measurements of crystalline and magnetic properties of oxygen at low temperatures. Some of the earlier studies are reviewed and the difficulties of the research are mentioned. The technique used was described by the author earlier (ZhETF v. 36 (1959) 1690), with

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exception of the method used of working with condensed gases. This entailed the use of a Kapitsa-Dewar, the application of which was also described by the author (ZhETF v. 38, 806, 1960). The cryostat is illustrated in Fig. 1 of the Enclousre. An important feature of the new cryostat is that an additional radiation screen having the same temperature as the bath, is used to ensure that the temperature of the sample assumes in stable fashion the temperature of the bath. The measurements of the neutron diffraction from oxygen were performed with the bath filled with liquid neon, hydrogen, and helium. The positions of the obtained diffraction lines are described well by a rhombohedral lattice with parameters a = 4.210 and $\alpha = 46.16^{\circ}$. Diffraction patterns obtained at various temperatures showed similar behavior, but differed from the observations made in the β phase. This indicates that these patterns belong to the α phase and implies that the crystal lattice changes in the β -- α transition. It also indicates that α oxygen is antiferromagnetic. 'I am deeply grateful to Academician P. L. Kapitsa for attention and constant interest and to A. S. Borovik-Romanov and I. Ye. Dzyaloshinskiy for fruitful

L 60294-65
ACCESSION NR: AT5009449

discussions. Orig. art. has: 2 figures

ASSOCIATION: Institut fizicheskikh problem AN SSSR, Moscow (Institute of Physical Problems, AN SSSR)

SUBMITTED: 0000064 ENCL: 01 SUB CODE: SS, NP

NR REF SOV: 003 OTHER: 010

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ACCESSION NR: AT5009449

ENCLOSURE: 01

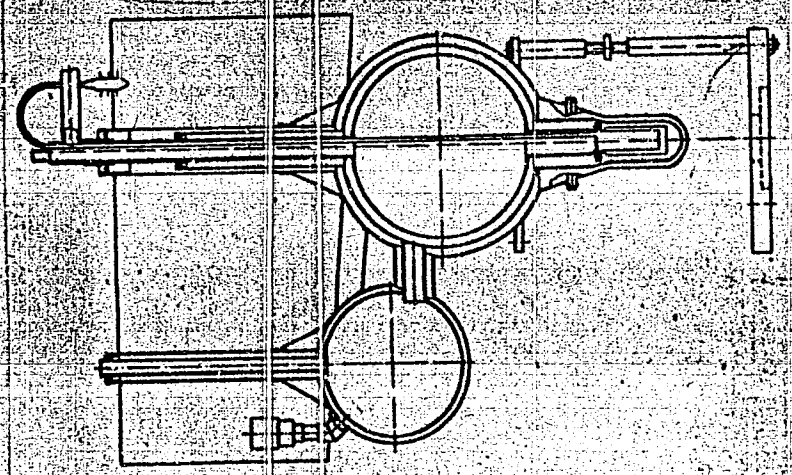

Fig. 1. Cryostat for neutronographic study of condensing media.

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L 01239-67 EWT(1)/EWP(k) JGS/ND

ACC NR: AT6031144 SOURCE CODE: UR/3138/65/000/355/0001/0020

39
30
B+1

AUTHOR: Alikhanov, R. A.

ORG: none

19

TITLE: Inelastic scattering of neutrons by hematite

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy i eksperimental'noy fiziki. Doklady, no. 355, 1965. Neuprugoye rasseyaniye neytronov gematitom, 1-20

TOPIC TAGS: neutron scattering, inelastic scattering, inelastic neutron scattering, hematite neutron scattering, tricrystal spectrometer, hematite spin wave, magnon moment

ABSTRACT: A three-crystal spectrometer was used to investigate the spectrum of spin in hematite (αFe_2O_3) originating from the Shabra deposits. The experiment was conducted over the $0.64A^{0-2}$ to 5.3^{-3} ev range of transmitted magnon moment and energy. Two branches with energy gaps characterized by magnetic anisotropy were observed. Values of $(1.3 \pm 0.7)10^{-3}$ ev and $(0.4 \pm 0.15)10^{-3}$ ev were observed for the gap, and $(1.3 \pm 0.7)10^{6}$ cm/sec and $(4.6 \pm 0.5)10^{5}$ cm/sec

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L 01239-67

ACC NR: AT6031144

9

for spin wave velocity for the branches. The author thanks Academicians P. L. Kapitsa and A. I. Alikhanov for their continuous attention to this work, I. Ye. Dzyaloshinskiy and L. K. Fal'kovskiy for their helpful discussions. The author thanks Professor G. P. Barsanov, and Yu. B. Orlov, V. V. Yakulovskiy, and M. A. Smirnov of the Museum of Mineralogy AN SSSR for their many years of assistance in the study of hematite monocrystals, and staff members of the Analytical Chemistry Laboratory of the Institute of Geochemistry AN SSSR. Orig. art. has: 1 table and 6 figures. [Author's abstract] [SP]

SUB CODE: 20/ SUBM DATE: 05Jun65/ ORIG REF: 006/ OTH REF: 019/

Card 2/2 awm

L 09882-67 EWT(1)/EWA(h)/EWA(t)/ETI IJP(c) JD/HW

ACC NR: AT6033191 SOURCE CODE: UR/3138/65/000/393/0001/0015

AUTHOR: Alikhanov, R. A., Smirnov, L. S.

ORG: none

TITLE: Neutronographic investigation of the low-temperature magnetic transition in chromium

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy eksperimental'noy fiziki. Doklady, no. 393, 1965. Netronograficheskiye issledovaniya nizkotemperaturnogo magnitnogo prevrashcheniya v khrome, 1-15

TOPIC TAGS: chromium, cryostat, magnetic transition, low temperature magnetic transition, crystal spin structure, chromium crystal, neutron scattering, magnetic scattering

ABSTRACT: A neutronographic study was made of the low-temperature magnetic transition in samples of crystalline chromium and polycrystalline chromium containing equal amounts of impurities but subjected to different thermomechanical treatment. A miniature cryostat (weight 530 g, height 200 mm) was used. The

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study showed that the transition temperature T_m increases with an increase in metal plasticity, and that the spin density modulation period and its temperature dependence are a universal property of chromium. The authors thank P. L. Kapitsa for his interest in this work and I. O. Panasyuka, D. D. Abanin, T. I. Kostin, and T. I. Kozlov for their assistance. Orig. art. has: 5 figures. [Authors' abstract]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 009/

Card 2/2 blp

ALIKHANOV, S.G.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1656
AUTHOR ALICHANOV,S.G.
TITLE A New Impulse Method for Measuring Ion Masses.
PERIODICAL Žurn.eksp.i teor.fis,31,fasc.3, 517-518 (1956)
Issued: 12 / 1956

By the focussing method suggested here it is possible to increase the resolving power of the spectrometer considerably. The mass spectrometer consists of a drive tube which is limited on both sides by slowing-down fields with linear potential distribution. The whole device is in a weak longitudinal field. The condensed ions produced in an impulse-like source are "injected" into the tube, and at the same time the slowing-down field is switched on. The condensed ions inciding into the potential well begin to move from one reflector to the other, on which occasion the time gained by the fastest ions with given e/M in comparison with slow ions is compensated by the loss of velocity during motion in the slowing-down field. The ions with equal e/M and different energies then gather at a certain point in the drive tube. After a sufficient number of cycles, when the ions with approximately equal e/M separate, the shift of the time of arrival in the focus exceeds the time needed for condensation. Hereby the latter are deflected and annihilated. In order that the condensations of ions with different masses oscillate in the tube, it is necessary to connect a voltage on to the deflecting plates which is switched on only on the occasion of the passing of the ions with the masses to be measured. For the duration T of a complete cycle

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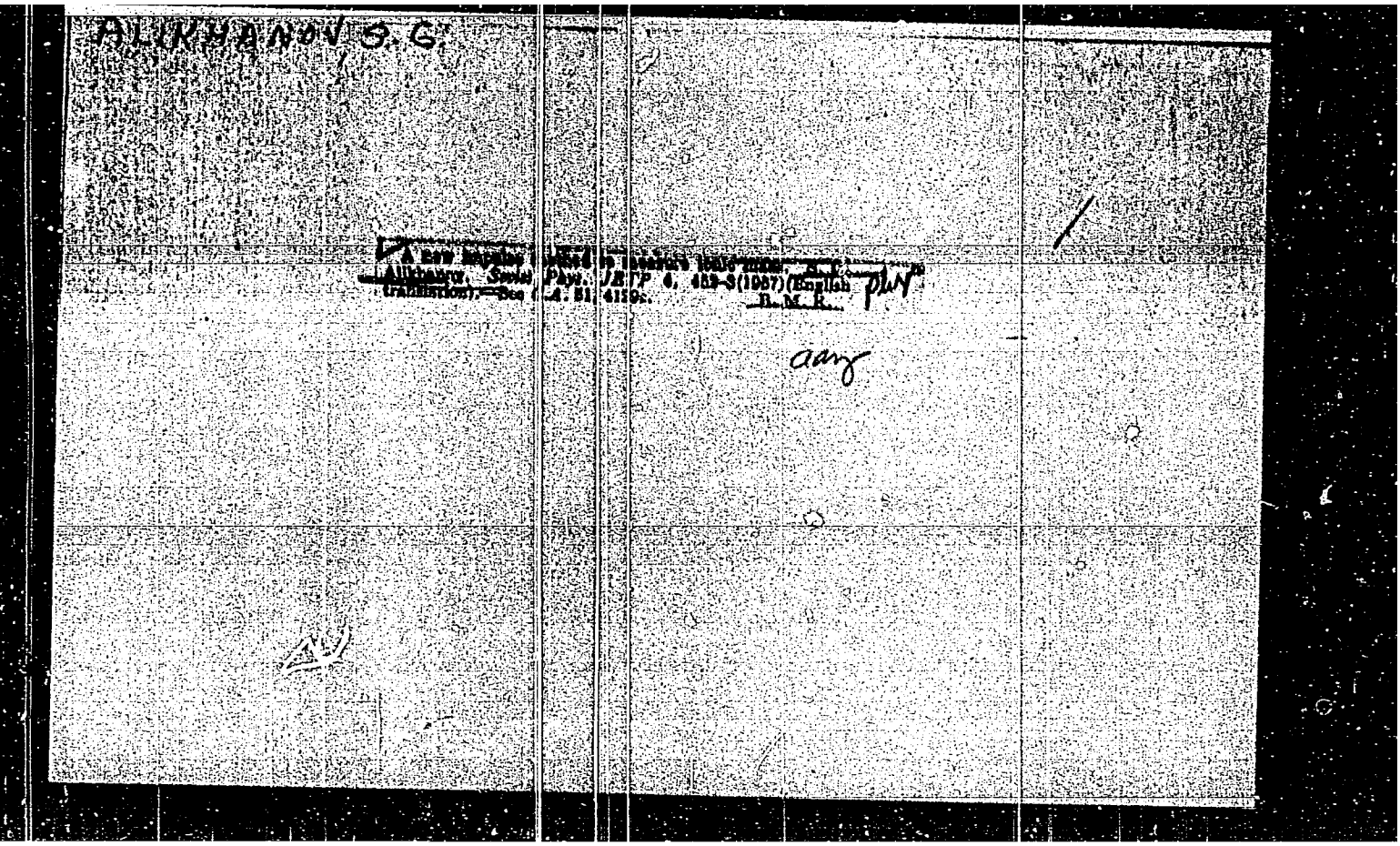
$T = l\sqrt{2\,M/UZe} + 2((1/E_1)+(1/E_2))\sqrt{2UM/Ze}$ is found with the slowing-down fields E_1 and E_2. Here M denotes the mass, Ze - the charge, and U - the energy (in volts) of the ions, and l - the length of the drive tube. The condition $\partial T/\partial U$ results in $(1/E_1) + (1/E_2) = 1/2\ U_o$. If the suitably selected quantities U_o, l, E_1 and E_2 satisfy the latter equation, a grouping in time and in space (focussing) of the first order of ions of different energies is attained. However, the focussing condition of the second order is not satisfied and the washing out in time of the cycle for ions with the same mass is $\Delta T_U \sim (1/2)\sqrt{M/2ZeU_o^5}\ (\Delta U)^2$. The limiting value of the resolving power is $\Delta M/M = (1/4)(\Delta U/U_o)^2$. The accuracy of measurements depends on the duration and the linear dimensions of ion condensation. The ratio (duration of ion condensation / time needed for passage) must be smaller than the limiting value of the resolving power. In order to improve accuracy it is necessary either to increase the length of the tube or the ions must perform the necessary number of cycles. The field strength of the longitudinal magnetic field is selected in such a manner that the resolving power of the device is not diminished by an increase of light intensity.

INSTITUTION:



ALIKHANOV, S G

Reports presented at the 5th Intl. Conference on Ionization Phenomena in Gases. Munich, 28 August - 1 September 1961.

a. G A Lazilevskaya, A M Andrianov, V F Demichev and V I Vasilyev

"Investigation of a Pulse Discharge in a Hollow Cylindrical Gas Sheath"

b. B G Brezhnev Yu G Maksimov

"Energy Measurements of Fast Electrons Formed During a Powerful Pulse Discharge" Chamber

c. A B Berezin, A N Zaydel, and G M Malyshev

"On a Method of Spectroscopic Investigation of the Hydrogen Discharge Chamber Walls Interactions"

d. V F Kitayeva N N Sobolev

"On the Hydrogen Lines Broadening Under the Carbon Arc and Detonation Wave Conditions"

e. S G Alikhanov R A Demirkhanov, A V Komin, G D Podlesnyy, G L Khotsyanov

" An Investigation of Plasma Diffusion in the Magnetic Field"

f. V S Komelkov, Yu V Skvortsov V N Tereshchenko S S Tserevitinov

"Dynamical Current Cord"

g. N N Sobolev

"A Spectroscopically Studied State of Gases Following the Detonation Wave"

h. B N Ilin, Ye S Solovyev N V Fedorenko

"Molecular Hydrogen Ionization by Gas Hydrogen Atoms"

i. I P Flaks, G N Ogurtsov

"Ionization of Gases Induced by Multi-charged Ions"

j. P M Morozov, L B Pilonov

"The Source for Molecular Hydrogen Ions Formation at the Ogra Device"

k. A L Bezbatchenko V V Kuznetsov N P Malakhov N N Semashko

"Injection of an Ionic Beam into the Ogra Magnetic Trap"

l. V Ye Yurasova

"On Directed Emission of Particles from a Copper Single Crystal Sputtered by Bombardment with Ions"

33

ALIKHANOV, S. G.; ZAKHAROV, V. Ye.; KHORASANOV, G. L.

Plasma diffusion in a magnetic field caused by Coulomb collisions. Atom. energ. 14 no.2:137-142 F '63. (MIRA 16:1)

(Magnetic fields) (Plasma(Ionized gases))
(Collisions(Nuclear physics))

BR

ACCESSION NR: AP4022655

S/0207/64/000/001/0101/0104

AUTHOR: Alikhanov, S. G. (Novosibirsk)

TITLE: Investigations of weakly ionized helium plasma diffusion in a magnetic field

SOURCE: Zhurnal prikład. mekhan. i tekhn. fiz., no. 1, 1964, 101-104

TOPIC TAGS: helium plasma, plasma diffusion, magnetic field, anomalous diffusion coefficient, turbulent diffusion, ion drift

ABSTRACT: The decay time of a helium plasma in a 0-5000 oersted magnetic field has been investigated in a thin tube with R = 0.8 cm, L = 80 cm, at pressures p = 0.05 to 0.2 mm Hg, and electron concentrations of 10^8 to 10^{10} cm^{-3}. The diffusion coefficient in the plasma is determined by measuring the decay time τ according to the expression

$$\frac{1}{\tau} = \frac{D_0}{p}\left(\frac{\pi}{L}\right)^2 + \frac{D_0}{p(1+\omega_i\omega_e/\nu_i\nu_e)}\left(\frac{2.4}{R}\right)^2 + D_a\left(\frac{2.4}{R}\right)^2$$

($D_0 = 540$ cm^2 sec^{-1} mm pr. st., $\nu_e = 2.1\cdot10^9 p$, sec^{-1} mm pr. st.$^{-1}$, $\nu_i = 2.0\cdot10^7 p$, sec^{-1} mm pr. st.$^{-1}$)

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ACCESSION NR: AP4022655

where D_s, D_o - coefficient of anomalous diffusion and diffusion in absence of magnetic field at 1 mm pressure respectively. The results obtained experimentally show a significant departure from the classical H^{-2} diffusion law. To explain this discrepancy D_s is calculated on the basis of binary collisions and is compared to the experimental data. The result shows D_s to be related to the magnetic field by the law $D_s \sim 1/H$ independent of the plasma pressure (0.05 - 0.2 mm Hg). This effect corresponds to the turbulent plasma diffusion theory on drift waves of Sagdeyev and others. "The author is grateful to P. Z. Sagdeyev and S. S. Moiseyev for evaluating the results and their helpful discussions, and to G. L. Khorasanov and G. G. Podlesnyy for their help in the experiments." Orig. art. has: 5 formulas and 4 figures.

ASSOCIATION: none

SUBMITTED: 08Jun63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: GP NO REF SOV: 007 OTHER: 004

Card 2/2

L 4094-65 EPF(n)-2/EPA(w)-2/EWT(l)/EWG(m) Pl-4/Po-4/Pz-6/Pab-10 IJP(c) AT/

ACCESSION NR: AP5007307 S/0057/63/035/003/0557/0561

AUTHOR: Alikhanov, S.G.; Ivaniya, [illegible] P.

63
60
B

TITLE: Temperature and density distribution in a hot stationary arc

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.3, 1965, 557-561

TOPIC TAGS: plasma, plasma arc, plasma confinement, hot plasma confinement, deuterium

21

ABSTRACT: In order to explore one of the possibilities inherent in the suggestion of H.Alfven and R.Smars (Nature,188, 801,1960) that a hot plasma might be thermally insulated from a surrounding dense gas by a magnetic field, the steady state equations for an axially symmetric completely ionized deuterium arc were solved numerically. The results are presented graphically and are discussed briefly. The thermally insulating magnetic field was assumed to be that due to the arc current (pinch in a gaseous shell). Both electron and ion heat conduction were included in the equations, the electron and ion temperatures were assumed to be equal, and energy loss by radiation was neglected. The steady state equations involve the parameter T^5/p, where T and p are the temperature and pressure on the axis of the arc. Solu-

Card 1/2

L 40944-65

ACCESSION NR: AP5007307

tions were obtained for values of this parameter ranging from 10^{17} to 10^{24} $(\sigma_{ii})^5$ cm^2/dyne. The results of the present calculations are not in agreement with those of somewhat similar calculations of C.G.Falthammar (Phys.Fluids 4,1145,1961). Whereas Falthammar finds the pinch to be surrounded by a thick dense shell of cold plasma, the present calculations show that the density rises sharply only in a thin layer at the wall of the confining vessel. The curve in Falthammar's figure 6 does not represent a solution of his equations (19)-(21), and is accordingly erroneous. It is concluded that the solution of the steady-state equations with the classical transport coefficients provides no basis for hope that a very hot stable plasma might be achieved without employing special means for its stabilization, but that one may expect to be able to isolate the hot plasma from impurities coming from the wall of the chamber. "In conclusion, the authors thank G.I.Budker for his interest and support of the work, M.K.Fage for valuable consultations, and L.P.Kovachevich for performing the computer calculations." Orig.art.has: 23 formulas, 8 figures and 2 tables.

Card 2/3

ALIKHANOVA, KH. M.

Category: USSR/ Farm Animal Diseases Caused by Bacteria and Fungi V-2

Abs Jour: Refer. Zhur-Biologiya, No 16, 1957, 72308

Author : Gryslov V. P. Alikhanova Kh. M.
Inst : Not given
Title : A Case of Actinomycosis of the Breat-Bone of a Cow

Orig Pub: Tr. Dagestansk. S.-Kh. In-ta, 1956, 8, 193-194

Abstract: In the region of 6-7 segments of the breast-bone and 7-9 rib cartilage a painless swelling was found, which had a pus secreting fistula in the center. The study of of the pus demonstrated the presence of actinomyces. On the basis of the findings, upon opening the authors suspect that the actinomycosis localized in the breast bone occurred due to a trauma (piercing of the bone) by a wire covered with Actinomyces, which penetrated into the breast region.

Card : 1/1

ALIKHANOVA, O.I.

Increasing the precision of the spectral determination of boron in soils. Zav. lab. 30 no.1:47 '64. (MIRA 17:9)

1. Nauchno-issledovatel'skiy institut pochvovedeniya.

ALIKHANOVA, O.I.

Spectral determination of total and water soluble boron in soils. Pochvovedenie no.11:98-101 N '64 (MIRA 18:1)

1. Tadzhikskiy nauchno-issledovatel'skiy institut pochvovedeniya.

ALIKHANOVA, R.I.

Problem for a functional equation. Dokl. AN Azerb. SSR 5 no.5:371-374 '59. (MIRA 12:8)

(Integral equations)

AGAYEV, G.N.; ALIKHANOVA, N.I.

Cauchy's problem for a functional equation. Trudy Inst. mat. i mekh. AN Azerb. SSR 2:129-132 '63. (MIRA 16:10)

ALIKHANOVA, R.I.

Cauchy problem for a quasi-parabolic equation. Dokl. AN Azerb. SSR 20 no. 6:9-14 '64. (MIRA 17:9)

1. Institut matematiki i mekhaniki AN AzerSSR. Predstavleno akademikom AN AzerSSR Z.I.Khalilovym.

ACCESSION NR: AP4045055 S/0249/64/020/006/0009/0014

AUTHOR: Alikhanova, R. I., Khalilov, Z. I.

TITLE: The Cauchy problem for a quasi-parabolic equation

SOURCE: AN AzerbSSR. Boklady*, v. 20, no. 6, 1964, 9-14

TOPIC TAGS: Cauchy problem, parabolic equation, quasiparabolic equation

ABSTRACT: In continuation of earlier work (Agayev G. N., Alikhanova R. I. Trudy* Inta matematiki i mekhaniki AN Azerb. SSR, vol. 10, 1963), the author considers the Cauchy problem for the functional integrodifferential equation

$$\frac{du(t,x)}{dt} = -\sum_{|m|<2r} \varphi^m\left[\int_{R_n} u^2(t,\xi)d\xi\right] A_m(t) D^m u(t,x) \quad (1)$$

with the inital condition

$$u(t,x)|_{t=0} = u_0(x). \quad (2)$$

where R_n is an n-dimensional Euclidean space. It is assumed that

$$0 < \sum_{|m|<2r} \varphi^m(z) A_m(t) \mu^m < C_0[1 + |p|^2]^r, \quad (3)$$

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where $C_0>0$ is a definite number, independent of t and z. The form

$$\sum_{|m|<2r}\varphi^m(z)A_m(t)p^m \tag{4}$$

then decreases monotonously in z with fixed t and a real vector p. The solution is sought in the class of functions vanishing near infinity, together with their derivatives of the order $\geqslant 2r-1$, and reduces to the solution of a dual problem. It can readily be demonstrated that if

$$v(t, p)=\int e^{i(p, x)}u(t, x)dx, \tag{5}$$

and v(t, p) is the solution of the dual problem

$$\frac{dv(t, p)}{dt}=-\sum_{|m|<2r}i^m[\int v^2(t, p)dp]A_m(t)p^m=v(t, p) \tag{6}$$

with the initial condition

$$v(t, p)|_{t=0}=v_0(p). \tag{7}$$

then u(t,x) is the formal solution of the problem represented by (1) and (2). Assuming that

$$0<v_0(p)<\frac{N}{[1+|p|^2]^{r+\frac{n+1}{2}}}, \tag{8}$$

where N O is a definite number, it is clear that the integrals

and

$$\int[1+|p|^2]^{2r+\frac{n+1}{2}}v_0^2(p)dp \tag{9}$$

$$\int v_0^2(p)dp \tag{10}$$

converge. This is proven by means of four preliminary lemmas. The author then goes on to prove that the problem represented by (6) and (7) has a solution, arrived at by the methods of successive approximation and mathematical induction. In final form, the required solution of the problem represented by (1) and (2) is shown to be

$$u(t,x)=\left(\frac{1}{2\pi}\right)^n\int V(t,p)e^{-i(p,x)}dp. \tag{11}$$

ACCESSION NR: AP4045055

"The author expresses his appreciation to G. N. Agayev for suggesting the problem and helping in the daily work." Orig. art. has: 12 numbered equations.

ASSOCIATION: Institut matematiki i mekhaniki Akademii nauk Azerbaydzhanskoy SSR (Institute of Mathematics and Mechanics, Academy of Sciences of the Azerbaidjan SSR)

SUBMITTED: 02Jul63

ENCL: 00

SUB CODE: MA

NO REF SOV: 003

OTHER: 000

Card 4/4

ALIKHANOVA, U.M.

Treatment of the severe form of trachoma using cortisone, ronidase and etazol. Azerb. med. zhur. no.10:57-61 O '61. (MIRA 15:6)

(CONJUNCTIVITIS, GRANNULAR) (CORTISONE)
(ETAZOL) (HYALURONIDASE)

S/078/61/006/005/004/015
B121/B208

AUTHORS: Markov, V. P., Alikhanova, Z.M.

TITLE: Uranyl compounds with trihydroxy-glutaric acid

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 5, 1961, 1066 - 1073

TEXT: The complex formation of the uranyl ion with trihydroxy-glutaric acid COOH - CHOH - CHOH - CHOH - COOH was studied by physico-chemical methods such as potentiometric titration, determination of the specific electrical conductivity and transference number. The potentiometric titrations were made on the ЛП-5 (LP-5) potentiometer by means of a glass- and a calomel electrode. The titrations were carried out with a 0,1 M alkali hydroxide solution and mixtures of 0,1 M aqueous uranyl nitrate solutions and trihydroxy-glutaric acid with different ratios of the components at 20°C. No hydroxide precipitates in the titration of a mixture of uranyl nitrate and trihydroxy-glutaric acid with alkali hydroxide solution. It may be seen from the potentiometric titrations and measurements of the specific electrical conductivity of isomolar solutions that tri-

Uranyl compounds with ...

S/078/61/006/005/004/015
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hydroxy-glutaric acid reacts with uranyl ions by forming complexes in which the ratio of the components U : $C_5H_8O_7$ varies from 1 : 3 to 2 : 1. Various uranyl compounds with trihydroxy-glutaric acid were synthesized. $UO_2C_5H_6O_7 \cdot 1\ 1/2\ H_2O$ is obtained by two methods. In the first method trihydroxy-glutaric acid is added to a nearly saturated uranyl nitrate solution up to a ratio of the components of 1 : 2. After 2 - 3 days a fine-crystalline, light-yellow precipitate is obtained. This method is also applicable when using uranyl chloride, but not, when using uranyl sulfate. In the second method, trihydroxy-glutaric acid is added to an aqueous suspension of uranyl oxide in the heat up to a ratio of the components U : $C_5H_8O_7$ = 1 : 3. The analytical results obtained for the crystals prepared by the two methods are the same. The crystals of $UO_2C_5H_6O_7 \cdot 1\ 1/2\ H_2O$ are insoluble in water and organic solvents. The compound $(UO_2)_2C_5H_4O_7 \cdot 4H_2O$ is precipitated from a solution of uranyl nitrate and trihydroxy-glutaric acid, where the ratio of the components is 2 : 1, by a mixture of ethyl alcohol (2 parts) and ether (5 parts). Chemical ana-

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S/078/61/006/005/004/015
B121/B208

lysis confirmed the given formula. The compound is soluble in water, but insoluble in organic solvents, it is decomposed in aqueous solution by lyes or acids. The compound is a nonelectrolyte, as was confirmed by measuring the molar electrical conductivity. The compound $(UO_2)_2C_5H_6O_7(HSO_4)_2 \cdot H_2O$ is precipitated by treating a solution of uranyl sulfate and trihydroxy-glutaric acid with alcohol and ether. The chemical analysis of the compound confirmed the above composition. The compound is very well soluble in water, but insoluble in organic solvents. The compound $NH_4(UO_2)_2C_5H_3O_7 \cdot 3H_2O$ is precipitated from an uranyl nitrate solution with trihydroxy-glutaric acid at a pH of about 2 after 2 - 3 hr in the form of a fine-crystalline, light-yellow powder. The analysis of the compound confirmed the above formula. This compound is insoluble in water and organic solvents, but soluble in alkalies. The alkaline solutions of this compound may be destroyed by mineral acids. The compounds $K(UO_2)_2C_5H_3O_7 \cdot 3H_2O$ and $Ba[(UO_2)_2C_5H_3O_7]_2 \cdot 12H_2O$ are obtained by reaction of potassium- and barium hydroxide, respectively, with solutions containing uranyl nitrate and trihydroxy-glutaric acid. The above formulas are con-

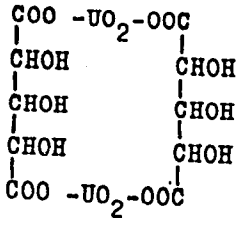
Card 3/7

firmed by chemical analyses. Compounds of the $Me_2UO_2C_5H_4O_7 \cdot nH_2O$ type (Me = K, Na, or NH_4) are obtained by two methods: In the first method, uranyl nitrate is added to a solution of trihydroxy-glutaric acid and alkali lye, in which the ratio of the components $C_5H_8O_7$: KOH = 2 : 3 or 2 : 4. The solution having a pH of 9 - 10 is then treated with ethyl alcohol and ether. The following compounds were isolated: $UO_2K_2C_5H_4O_7 \cdot 4H_2O$ and $UO_2Na_2C_5H_4O_7 \cdot 4H_2O$. In the second method, uranyl trihydroxy-glutarate is precipitated from saturated solutions of uranyl nitrate and trihydroxy-glutaric acid, and is then dissolved in dilute ammonium hydroxide. The yellow crystalline $(NH_4)_2UO_2C_5H_4O_7 \cdot 2H_2O$ is precipitated from the ammoniacal solution by alcohol and ether. The chemical analysis confirmed this composition. The compound is soluble in water, but insoluble in organic solvents, and is decomposed by mineral acids. For the resultant compounds the following structural formulas were suggested on the basis of the experimental data:

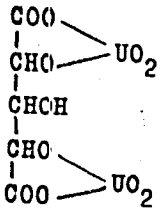
Uranyl compounds with ...

S/078/61/006/005/004/015
B121/B208

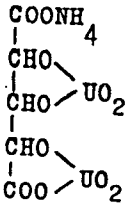
I



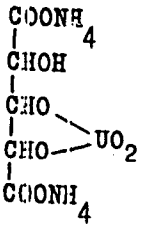
II



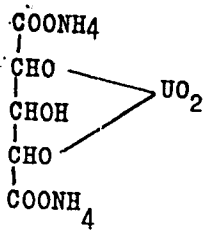
III



IV^a



or IV^b



Card 5/7

S/078/61/006/005/004/015
B121/B208

A characteristic feature of the production of trihydroxy-glutaric acid compounds is that the formation of these complex compounds takes a certain time (3 - 5 days). The authors assume that the water-insoluble uranyl trihydroxy-glutarates have dimeric or polymeric structure. The reaction of uranyl with trihydroxy-glutaric acid is represented by the following formula:

$UO_2A_2 + C_5H_6O_7H_2$

$[UO_2(C_5H_7O_7)_3]^-$

$[UO_2(C_5H_7O_7)_2]$

$[UO_2C_5H_7O_7A]$

$UO_2C_5H_6O_7$ +MeOH

$MeUO_2C_5H_5O_7$ +MeOH

$Me_2UO_2C_5H_4O_7$ +MeOH

$[Me_2UO_2C_5H_5O_7OH]$

$(UO_2)_2C_5H_6O_7A_2$

$(UO_2)_2C_5H_4O_7$ +MeOH

$Me(UO_2)_2C_5H_3O_7$ +MeOH

$[Me_2(UO_2)_2C_5H_3O_7OH]$ +MeOH

$[Me_2(UO_2)_2C_5H_4O_7(OH)_2]$

Card 6/7

Uranyl compounds with ...

S/078/61/006/005/004/015
B121/B208

The spectrophotometric studies were carried out by Syuy Li-yuan' (Ref. 1: Dissertation at the Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo, 1960 (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, 1960). There are 5 figures and 10 Soviet-bloc references.

SUBMITTED: December 1, 1960

Card 7/7

L 55076-65 EWT(m)/EWP(j)/T Pc-1 RM

ACCESSION NR: AP5017999 UR/0186/64/006/006/0702/0713

AUTHOR: Kharitonov, Yu. Ya.; Alikhanova, Z. M.

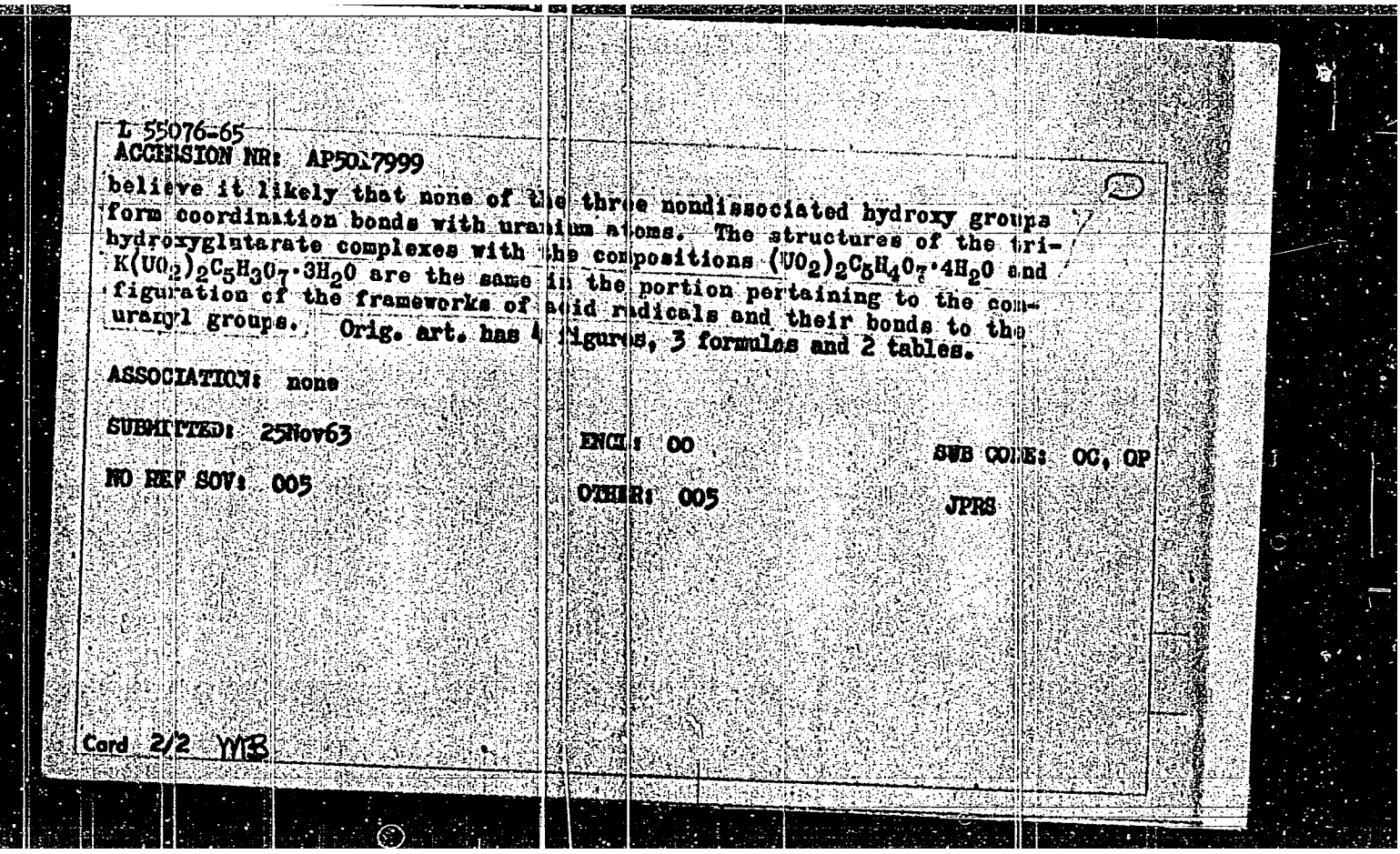
TITLE: Infrared absorption spectra of some complex compounds of uranyl with hydroxy acid radicals

SOURCE: Radiokhimiya, v. 6, no. 6, 1964, 702-713

TOPIC TAGS: organouranium compound, IR spectrum, hydroxy carboxylic acid, IR spectroscopy

Abstract: The infrared absorption spectra (~650-4000 cm^{-1}) of polycrystalline samples of uranyl compounds with residues of malic, tartaric, and trihydroxyglutaric acids, as well as the spectra of the acids themselves, their potassium salts, and their deutero-derivatives, are described. On the basis of the data obtained, it was concluded that carboxyl groups that have split off protons take part in the formation of all uranyl complexes. In the uranyl complex with the malic acid residue, the nondissociated hydroxy group forms a coordination bond with the uranium atom. In the analogous complex with the tartaric acid radical, one hydroxy group takes part in complex formation, while the second does not. In the complex with the trihydroxyglutaric acid radical, the authors

Card 1/2



L 55076-65
ACCESSION NR: AP5017999

believe it likely that none of the three nondissociated hydroxy groups form coordination bonds with uranium atoms. The structures of the trihydroxyglutarate complexes with the compositions $(UO_2)_2C_5H_4O_7 \cdot 4H_2O$ and $K(UO_2)_2C_5H_3O_7 \cdot 3H_2O$ are the same in the portion pertaining to the configuration of the frameworks of acid radicals and their bonds to the uranyl groups. Orig. art. has 4 figures, 3 formulas and 2 tables.

ASSOCIATION: none

SUBMITTED: 25Nov63 ENCL: 00 SUB CODE: OC, OP

NO REF SOV: 005 OTHER: 005 JPRS

Card 2/2 WB

MARKOV, V.P.; KHARITONOV, Yu.Ya.; ALIKHANOVA, Z.M.

Structure of complex compounds of uranyl with anoins of tartaric, malic, and trihydroxyglutaric acids. Zhur.neorg.khim. 8 no.3:774-775 Mr '63. (MIRA 16:4)

1. Institut obshchey in neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Uranyl compounds) (Acids, Organic)

GOLOVNYA, V.A., doktor khim. nauk; ELLERT, G.V., kand. khim. nauk; SHUBOCHKIN, L.K., kand. khim. nauk; SHCHELOKOV. R.N., kand. khim. nauk; TSAPKINA, I.V., kand. khim. nauk; TRAGGEYM, Ye.N., kand. khim. nauk; MAMKOV, V.P., doktor khim. nau, [deceased]; AJTKHANOVA, Z.M.; DYATKINA, M.Ye., doktor khim. nauk; MIKHAYLOV, Yu.N.; TSAPKIN, V.V., kand. khim. nauk; BOLOTOVA, G.T., kand. khim. nauk; CHERNYAYEV, V.A., doktor khim. nauk; KORCHEMNAYA, Ye.K., red.

[Complex compounds of uranium] Kompleksnye soedineniia urana. Moskva, Izd-vo "Nauka," 1964. 488 p. (MIRA 17:7)

1. Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii. 2. Laboratoriya khimii kompleksnykh soyedineniy aktinidov Instituta obshchey i neorganicheskoy khimii AN SSSR (for all except Korchemnaya).

L 45734-66 EWT(1) IJP(c) AT

ACC NR: AP6030920 SOURCE CODE: UR/0207/66/000/004/0038/0041

AUTHOR: Alikhanov, S. G. (Novosibirsk); Budker, G. I. (Novosibirsk); Kichigin, G. N. (Novosibirsk); Komin, A. V. (Novosibirsk)

ORG: none

TITLE: Implosion of a metal liner by the action of a magnetic field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1966, 38-41

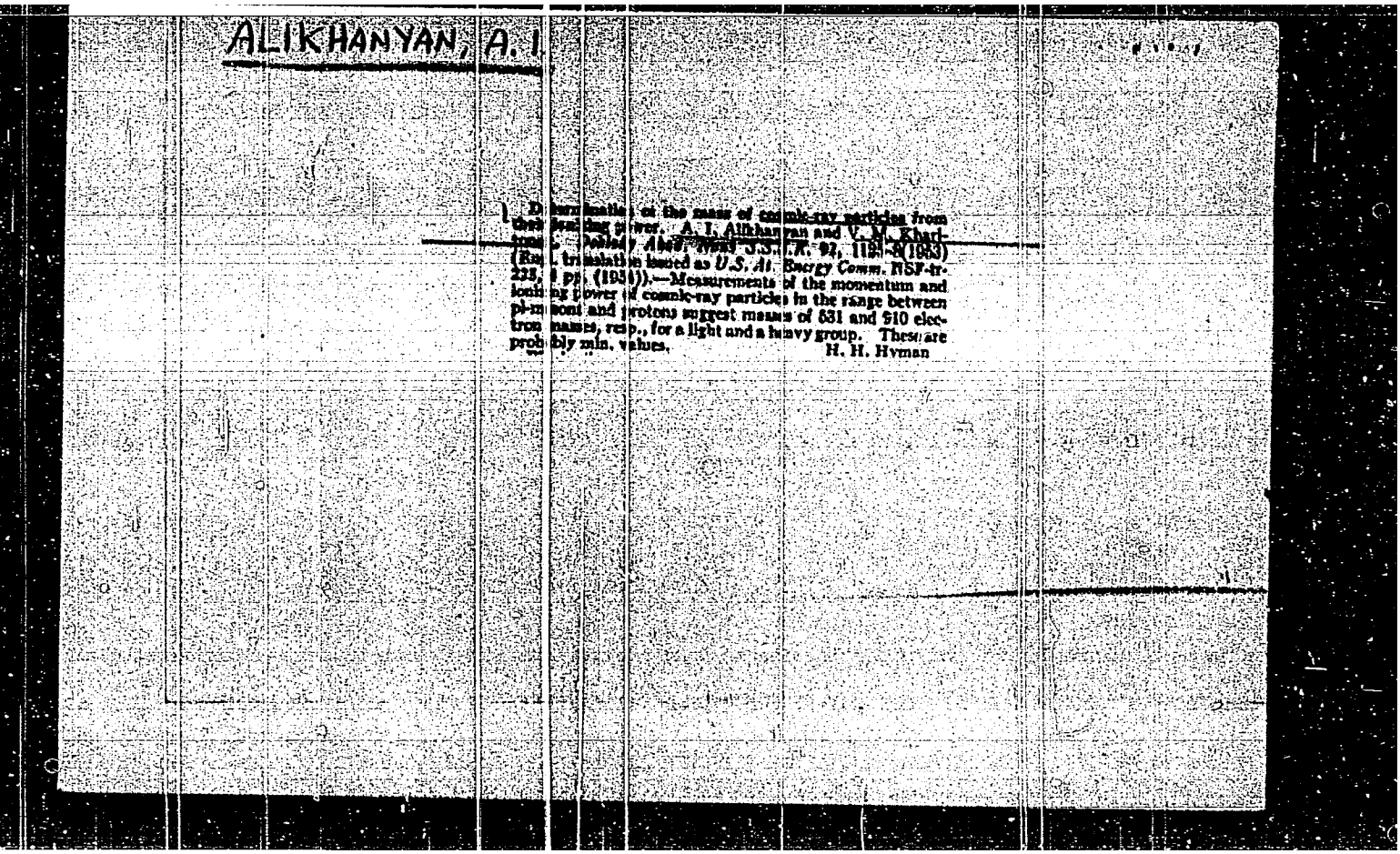
TOPIC TAGS: implosion, metal liner implosion, magnetic implosion, plasma heating, megagauss field, megagauss magnetic field, STRUCTURE DYNAMIC STABILITY, STRUCTURE STABILITY

ABSTRACT: The experimental results of theta-pinch of metal liners by the action of a magnetic field of a single-turn solenoid are presented and compared with theoretical data on the collapse mechanics of liners. The charge of a 5×10^{-2} f condenser at a voltage of 4 kv was used to activate the solenoid. AD-1M (aluminum) and M-1 (copper) cylindrical liners 80 mm in outside diameter and 150 mm long were used. Wall thickness was 2.5 mm with the aluminum liner and 1 mm with the copper liner; weight was 250 g and 350 g, respectively. The circuit current and battery voltage were recorded along with other data during the experiment. A series of photographs taken from the end projection of the

Card 1/2

liner during the process of collapse showed that the liner's cross-section area remains constant and that its cylindricality is unimpaired. An analysis of the interrelationship existing between the stage of collapse, the speed of collapse, and the circuit current showed that most of the acceleration occurs during the first half of travel, viscosity of the material and the central air pad causing a decrease in acceleration during the second half prior to the explosion. The ensuing vapor cloud, having a reduced inductance because of its expansion, is said to explain the continuation of the current peak of 2.8×10^6 Ma in the circuit after the collapse. The copper liner displayed the same characteristics of the process as the aluminum liner. The kinetic energy of the liner acquired in acceleration reached 100 kJ at 35 percent efficiency. This energy level is considered to be of practical interest for such applications as plasma heating and the production of megagauss magnetic fields. The authors thank V. A. Polyakov and V. G. Belan for help in carrying out the experiment. Orig. art. has: 5 figures and 4 formulas. [FP]

SUB CODE: 20/ SUBM DATE: 15Feb65/ ORIG REF: 001/ OTH REF: 004
ATD PRESS: 5076



ALIKHANYAN, A. I.

[illegible] of the mass of cosmic-ray particles from their [illegible] power. A. I. Alikhanyan and V. M. Khatunkin, Zhurnal Eksp. Teor. Fiz. U.S.S.R. 92, 119–9 (1953) (Russ. translation issued as *U.S. At. Energy Comm.* NSF-tr-225, 8 pp. (1954)).—Measurements of the momentum and ionizing power of cosmic-ray particles in the range between pi-meson and protons suggest masses of 531 and 910 electron masses, resp., for a light and a heavy group. These are probably min. values.

H. H. Hyman

ALIKHANYAN, A.I.

USSR/Nuclear Physics - Radioactivity

Card 1/1 : Pub. 124 - 8/29

Authors : Alikhanyan, A. I., Memb. Corresp. of Acad. of Sc. USSR.; and Vaysenberg, A. O.

Title : Artificial radioactivity

Periodical : Vest. AN SSSR 6, 51-61, June 1954

Abstract : Speeches held in commemoration of the 20th anniversary of the discovery, by Irene and Frederic Julio-Curie, of artificial radioactivity are presented. Various stages in the development of nuclear physics, beginning with the discovery by Marie Curie of two radioactive elements Po and Ra (1897-1898), the discovery of neutron radioactivity by Fermi and associates and including developments up to 1953, were mentioned. The direct relation between artificial radioactivity and various cosmogonic problems is explained. The speakers also predicted that by 1970 the total amount of radioactive fission products obtained from reactors will reach 100 tons per year which will correspond to a radioactive radiation energy of 12 million kw.

Institution : ...

Submitted : ...

ALIKHANYAN

USSR/Physics

Card : 1/1

Author : Kamalyan, V. and Alikhanyan, Memb. Corres. of the Acad. of Scs. of the USSR

Title : About the spectrum of π-mesons at an altitude of 3200 m

Periodical : Dokl. AN SSSR, 97, No. 3, 425 - 428, July, 1954

Abstract : Description is given of experiments performed at an altitude of 3200 m above sea level for the purpose of obtaining a spectrum of π-mesons formed by collisions of neutrons of cosmic radiation with the solar nuclei. The experiments were conducted with the help of a magnetic spectrometer with an additional hodoscope. Seven references. Diagrams.

Institution : Physical Institute of the Acad. of Scs. of the Arm. SSR.

Submitted : ...

ALIKHANYAN, A. I.

USSR/ Physics - T-particles

Card 1/1 Pub. 22 - 6/40

Authors : Alikhanyan, A. I., member correspondent of the Acad. of Scs. of USSR; Dayon, M.I.; Shostakovich, N. V.; Kirillov-Ugoyumov, V. G. and Deryagin, B.N.

Title : Unstable charged particles heavier than protons.

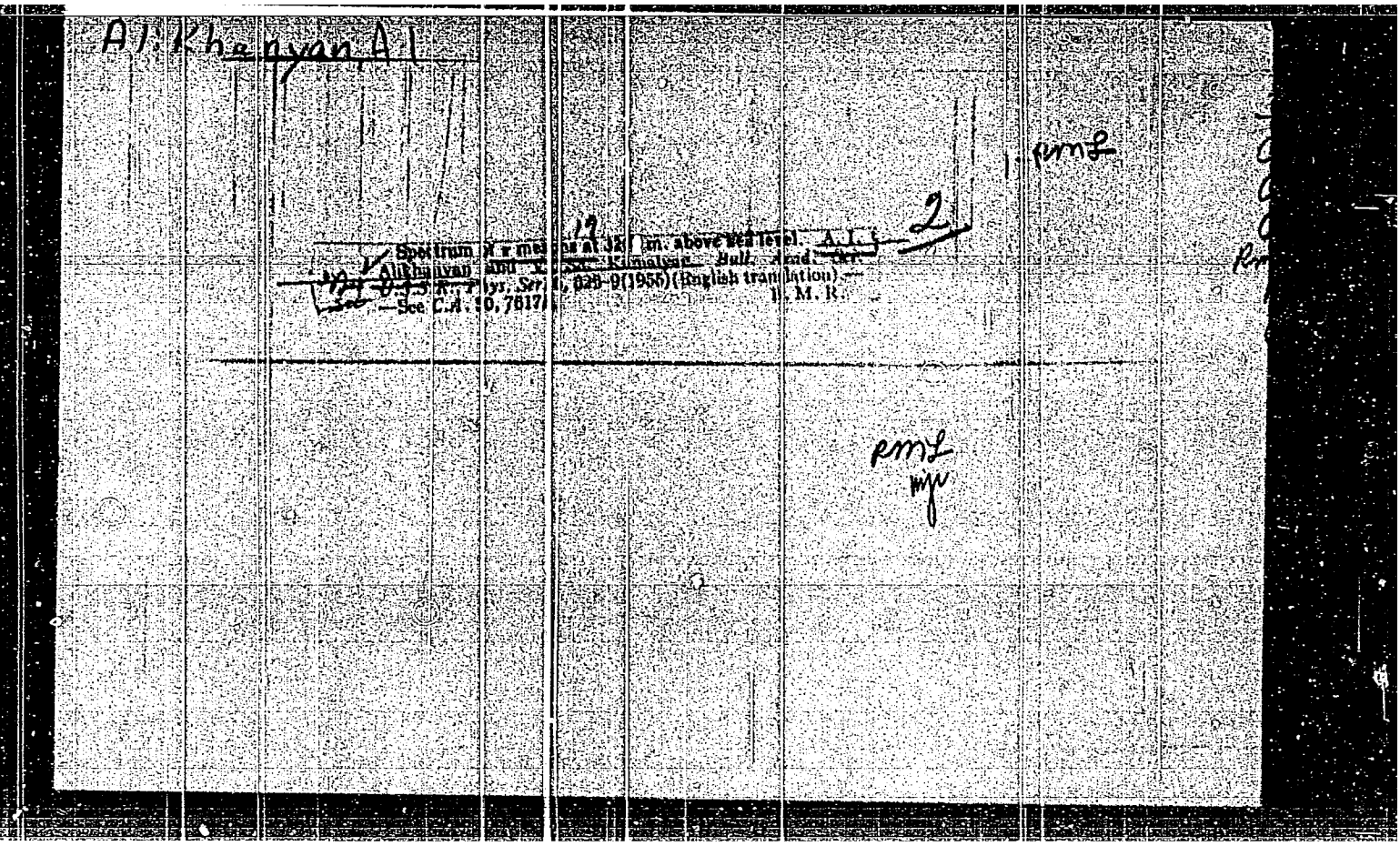
Periodical : Dok. AN SSSR 99/3, 361-364, Nov 21, 1954

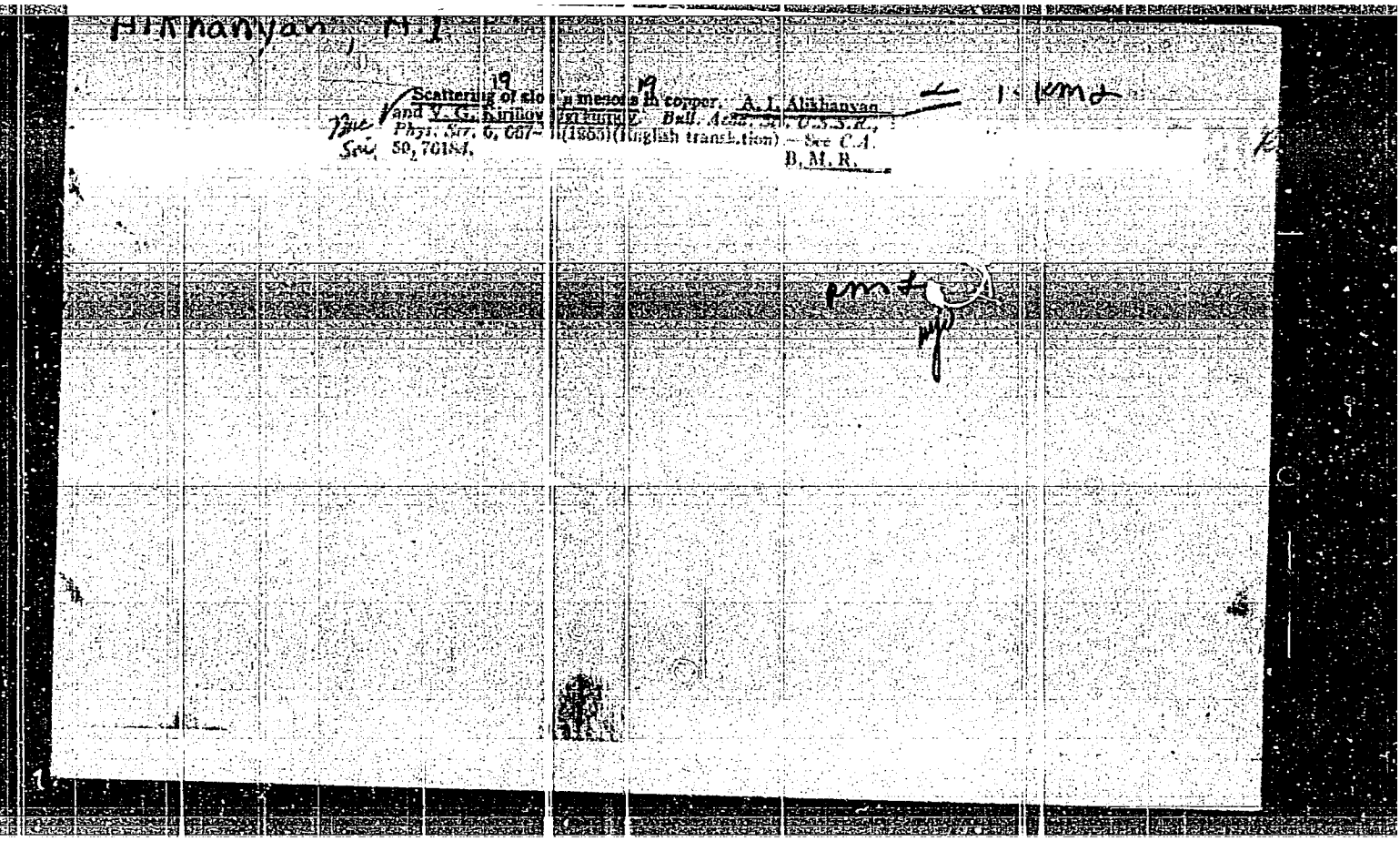
Abstract : Four cases of charged particles heavier than protons, observed in Wilson's camera, are described. These particles were designated T-particles and their mass, sign, durations and energy were estimated. They are considered as being particles of a decomposition process at the end of which the formation of π-mesons was observed. A scheme of the decomposition process can be written as follows: $T \rightarrow n^{o} + \pi^{o}$ (π^{o}) + Q, where Q is energy carried away by the neutron and the meson, from the T-particle when the latter is in a state of rest. Six references; 2-USSR and 4-Foreign (1953-1954). Table; illustrations.

Institutions: Physical Institute of the Acad. of Scs. of the Arm SSR
Physical Institute of the Acad. of Scs. of the USSR

Submitted : .....

Translation M-819, 12 Oct 55





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