ADAMOVICH, E.I.; NORIN, B.N.

Resiniferous system of the pistachio (Pistacia vera L.) Bot.zhur. 39 no.6:894-901 N-D '54. (MIRA 8:2)

1. Molotovskiy sel'skokhozyaystvennyy institut.
(Pistachio)

ADAMOVICH, Eduard Iosifovich.

Molotov Agricultural Inst imeni Fryanishnikov. Academic degree of Doctor of Biological Sciences, based on his defense, 16 February 1955, in the Council of Botanical Inst imeni Komarov, Acad Sci USSR, of his dissertation entitled: "Biological Bases of Lifetime Utilization of Aboreal Species in the Forests of the Urals." (Anatomic-physiological study)

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 13, 4 June 1955, Byulleten' MVO SSSR, No. 15, Aug 56, Moscow, pp. 5-24, Uncl. JPRS/NY-537

COUNTRY	:	USSR
CATEGORY	:	Forestry. General.
B1. JOUR.	:	RZhBiol., No. 14 1959, No. 68167
AUTHOR	:	Abramovich, S. I.
INST.	:	Molotov Agricultural Institute
TITLE	:	Resiniferous "Metiki-Cracks" and the Causes of Their Formation in Siberian Larch
SOURCE, PUB.	:	Tr. Molotovsk. s.-kh. in-t, 1957, 15, 197-207
ABSTRACT	:	Metiki are internal cracks of the tree trunk which cross its center in the radial direction. The causes and time of formation of metiki are not known. On the basis of literature materials and several experiments and observations it is stated that metiki may arise in felled trunks, and that the swinging of trees by the wind and the blows upon the earth when falling promote the formation of metiki in the trunks of growing trees. Metiki are found more often in older trees. Voronezhskaya oblast conditions are most favorable for the formation of coarse resiniferous metiki in Siberian larch.--V.I. Klimov
ABS:		1/1

ADAMOVICH, E.I.

Causes of crust formation on tree trunks. Bot. zhur. 46 no.9: 1271-1275 S '61. (MIRA 14:9)

1. Permskiy sel'skokhozyaystvennyy institut.
(Bark)

ADAMOVICH, E.I., prof. (Perm')

Northern cypresses in the Ural region. Priroda 51 no.3:80 Mr '62. (MIRA 15:3)
(Ural mountain region--Cypress)

ADAMOVICH, E. I.

Regeneration of cork on the trunks of growing birches. Bot. zhur. 48 no.3:373-378 Mr '63. (MIRA 16:4)

1. Permskiy sel'skokhozyaystvennyy institut.

(Cork) (Birch) (Regeneration(Botany))

ADAMOVICH, E.I. (Perm')

Resin conceptacles in American arborvitae (Thuja occidentalis L.). Bot. zhur. 49 no.3:403-404 Mr '64.
(MIRA 17:3)

L 27185-65 EWT(m)/EWT(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL WW/WW/RM

ACCESSION NR: AP5005598 [illegible]/0027/0029/0304

[illegible], [illegible]; [illegible]BANOV, F.[illegible]; [illegible]ICH, S.P.; DIA[illegible], [illegible];
[illegible]V, [illegible]

[illegible] of the molecular weight of [illegible] polymers by the [illegible]mechanical method. Vysokom. soed. 7 no.2:[illegible] F '65. ([illegible]A 18:3)

1. [illegible] organicheskoy [illegible] AN SSSR, [illegible] [illegible]cheskiy [illegible] A.E. Arbuzova AN SSSR.

CLASS: CULTIVATED PLANTS. Grains. Leguminous Grains. Tropical Cereals.

ABS. JOUR.: REF ZHUR - BIOLOGIYA, NO. 4, 1959, No. 15602

AUTHOR: Adamovich, G.

INST.: Krasnoyarsk Sel.Res.Inst. of Agric.

TITLE: Effect of Mineral Fertilizers on the Productivity and Beer-Brewing Qualities of Barley.

ORIG. PUB.: Byul. nauchno-tekhn. inform. Krasnoyarskogo n.-i. in-ta s.kh., 1957, No. 1-2, 29-30

ABSTRACT: The findings are cited of experiments made (1954-1956) by the Kansklinskaya seed selection station on the effectiveness of using measured fertilizers in leached chernozems of forest steppe for raising the grain yield of Vitebsk barley and improving its beer-brewing quality. Soil fertilization raises the crop yield but worsens the beer-brewing qualities of the grain (increase of protein content in the grain, reduction of germination energy).

CARD: 1/2

ADAMOVICH, G.G.

Hygienic evaluation of various climatic factors in a health resort for children. Gig. i san. no. 10:92-96 O '60. (MIRA 13:12)

1. Iz kafedry obshchey gigiyeny Tomskogo gosudarstvennogo meditsinskogo instituta.
(HEALTH RESORTS, WATERING PLACES, ETC.)
(CHILDREN--HOSPITALS)

ADAMOVICH, L.D., inzh.; GVAY, P.I., otv.red.

[Geometry of screw surfaces] K voprosu geometrii vintovykh poverkhnostei. Dnepropetrovsk, 1958. 22 p. (Dnepropetrovsk. Inzhenerno-stroitel'nyi institut. Nauchnoe soobshchenie, no.35). (MIRA 16:8)
(Screws, Theory of)

ADAMOVICH L.D.

S/121/62/000/010/005/005
D040/D112

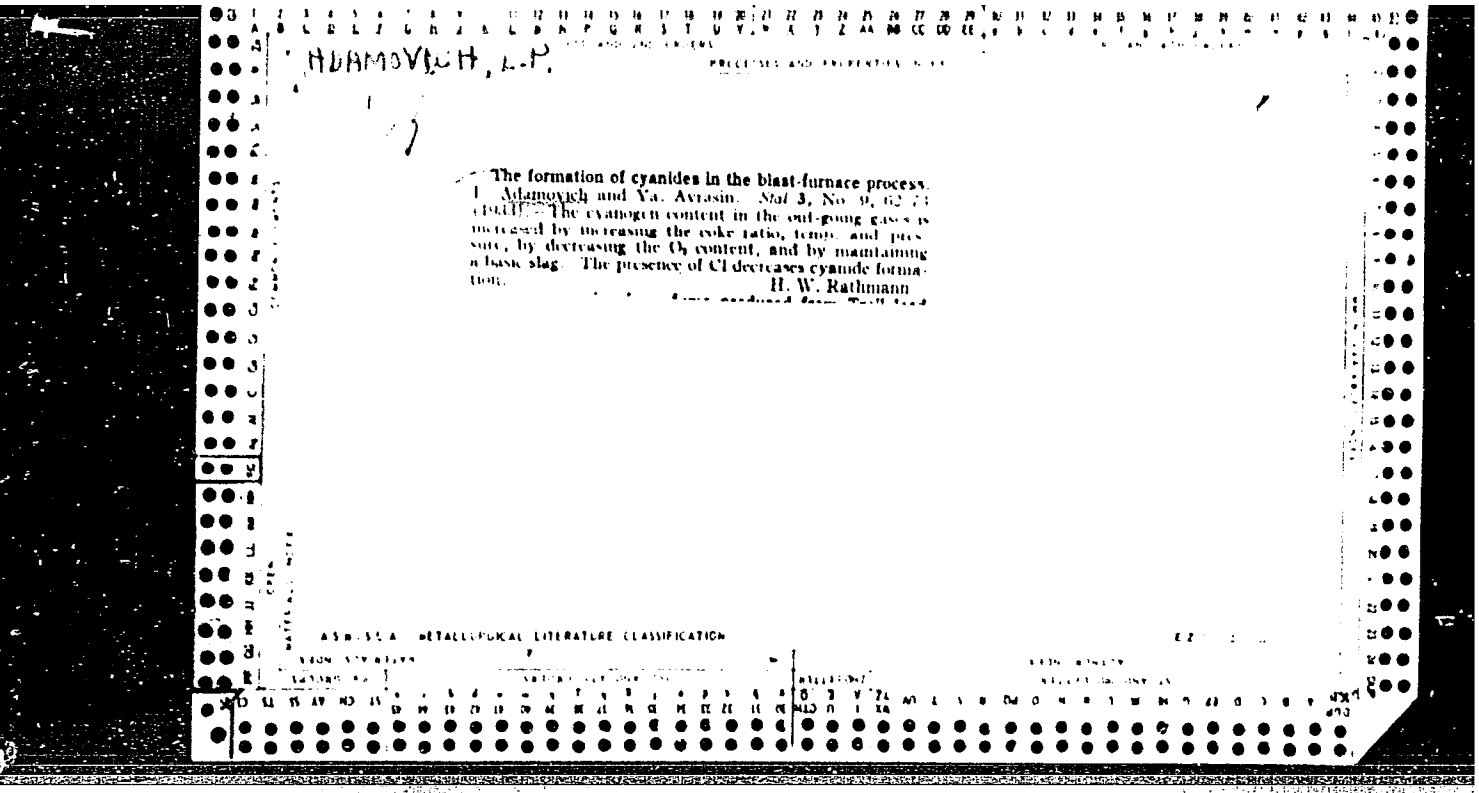
AUTHOR: None given

TITLE: Dissertations

PERIODICAL: Stanki i instrument, no. 10, 1962, 44

TEXT: The following dissertations for the degree of Candidate of Technical Sciences were presented: L.D. Adamovich, at the Voyenno-inzhenernaya krasnoznamennaya akademiya im. V.V. Kuybysheva (Military Engineering "Red Banner" Academy im. V.V. Kuybyshev), "Some Aspects of the Geometry of Helical Surfaces"; G.A. Andreyev, at the VNII zh.-d. transporta (VNII of RR Transportation), "Investigation of the Contact Formation Between Rough Surfaces"; A.V. Baltrushevich, at the Vsesoyuznyy ordena Trudovogo Krasnogo Znameni NII elektromekhaniki (All-Union "Order of the Red Banner of Labor" NII of Electromechanics), "Investigation of a Digital Servo System for Converting Digits into Movements"; A.P. Bezrodnyy, at the Leningradskiy politekhnicheskiy institut im. M.I. Kalinina (Leningrad Polytechnic Institute im. M.I. Kalinin), "Investigation of the Processes of Stepless Control of

Card 1/5



ADAMOVICH, L.P.

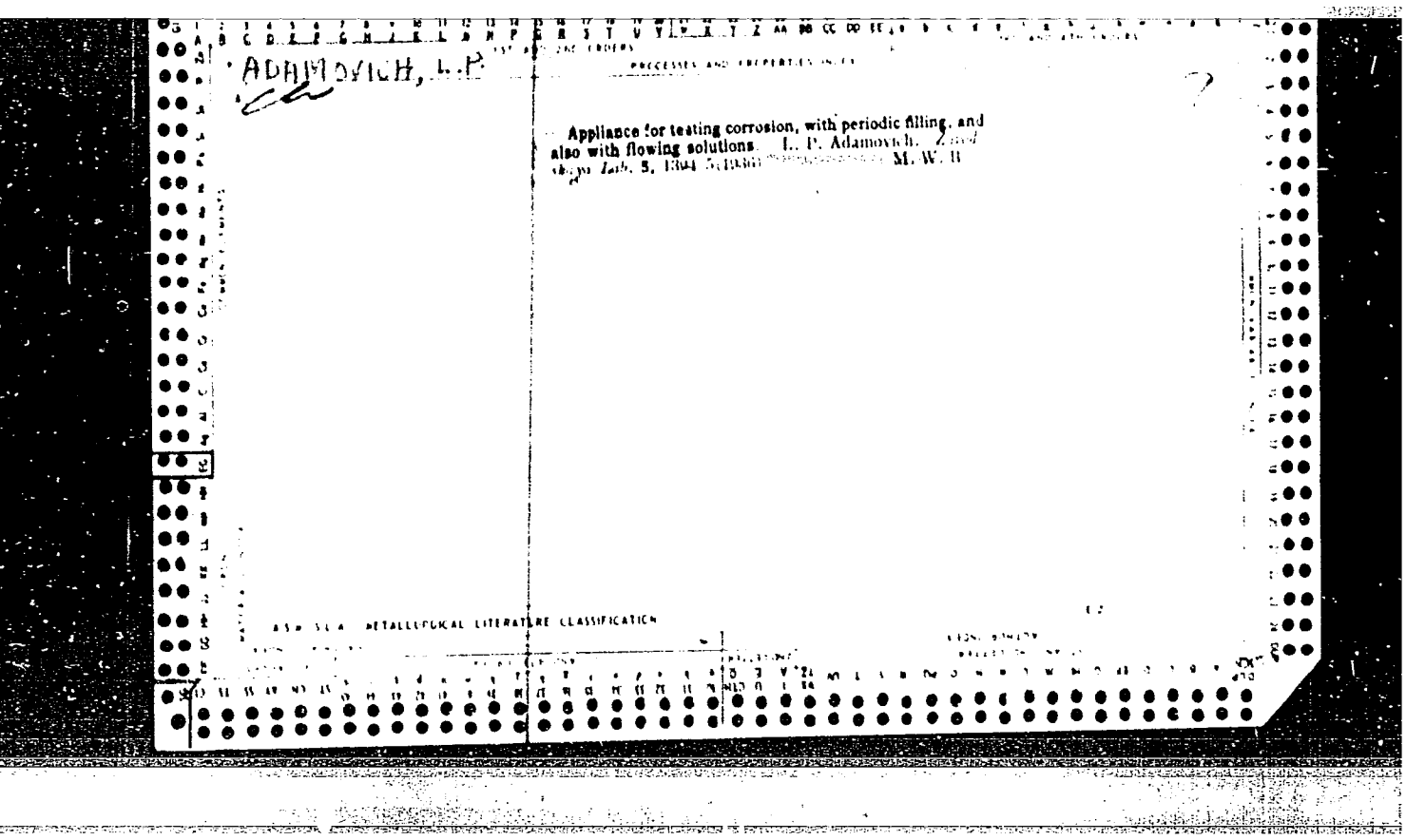
The formation of cyanides in the blast-furnace process. L. P. Adamovich and Ya. Avrasin. *Stal* 3, No. 9, 62-73 (1943). The cyanogen content in the out-going gases is increased by increasing the coke ratio, temp. and pressure, by decreasing the O_2 content, and by maintaining a basic slag. The presence of Cl decreases cyanide formation.

H. W. Rathmann

ADAMOVICH, L.P.

Potentiometric method of determining manganese chromium and vanadium in one sample. L. P. Adamovich. *Zavodskaya Lab.* 4, [illegible]. To a soln. of 1 g. steel in 50 cc. of 25% H_2SO_4 add 10 cc. of 50% HNO_3 to oxidize Fe, boil [illegible] 10–12 min. in the presence of W [illegible], and proceed with the detn. without [illegible] WO_3. *To det. Mn*, add to the hot soln. [illegible] 10 cc. of $AgNO_3$ and 50 cc. of $(NH_4)_2S_2O_8$ soln. and digest at 60° for [illegible] min. Dil. the soln. to 100 cc., add 10 cc. of NaCl soln. at room temp. and titrate with AsO_3 soln. *To det. Cr + V*, dil. the above soln. to 200 cc., add [illegible] $AgNO_3$ soln. and boil to a complete decompn. of the persulfate, whereby Mn is reoxidized to the septavalent state. Add to the boiling soln. [illegible] of NaCl soln. and boil 5 min. to a complete decolorization of the soln. [illegible] over 20 min. [illegible]. Titrate the soln. at room temp. with [illegible] N $FeSO_4$ soln. *To det. V*, [illegible] the above soln. to [illegible] with hot water, introduce 10 cc. of [illegible] HNO_3 and boil 20–30 min., whereby [illegible] and titrate the soln. at 18–20° or preferably at [illegible] with 0.02% $FeSO_4$ soln. [illegible] add to the cold soln. 0.1 N $KMnO_4$ to a permanent rose, introduce dropwise 0.1 N $NaNO_2$ to a complete decolorization and [illegible] in excess, add 0.5–1 g. of [illegible] NH_4 [illegible] and titrate with [illegible] N $FeSO_4$ soln. [illegible]

AIB-SLA METALLURGICAL LITERATURE CLASSIFICATION

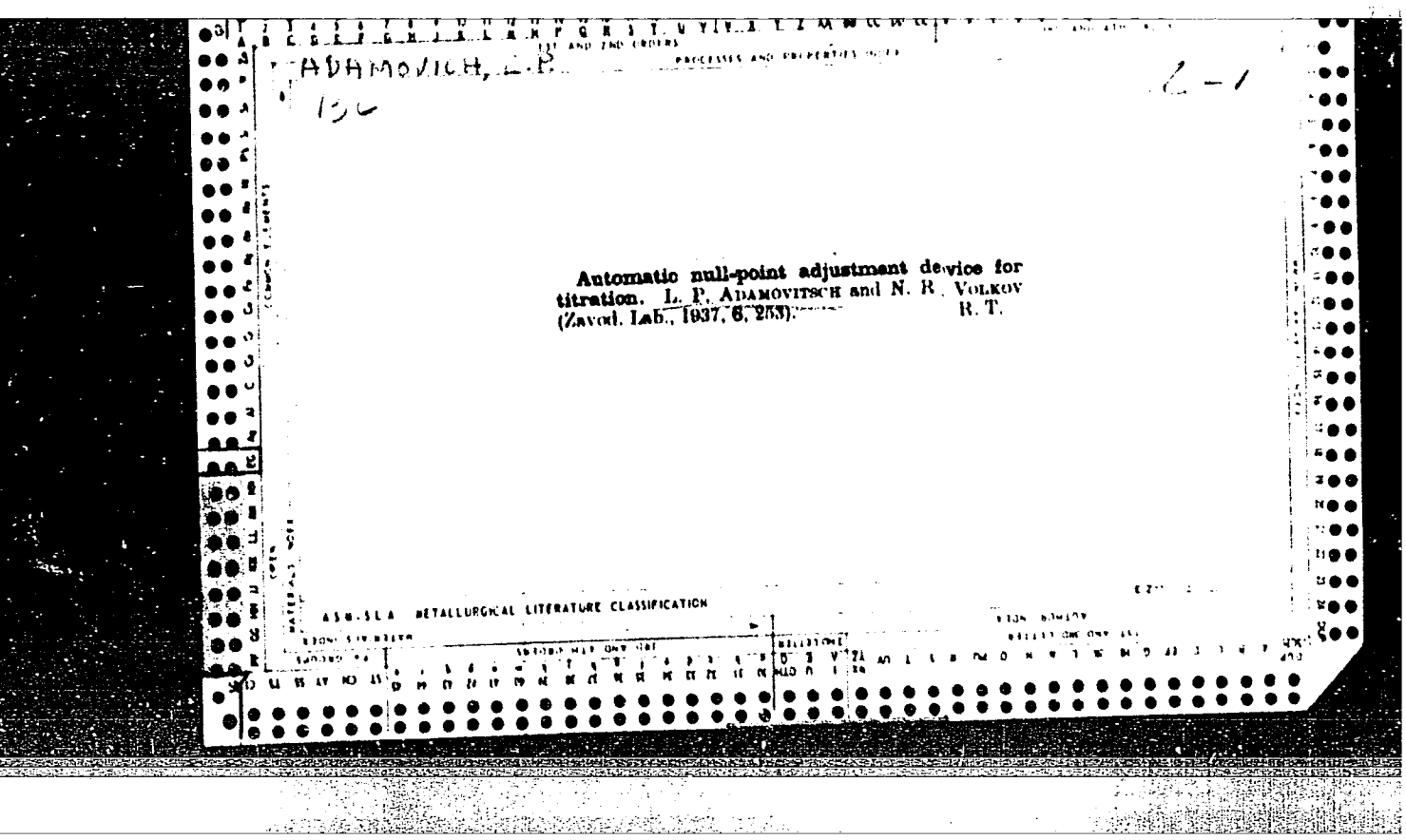


ADAMOVICH, L.P.

PROCESSES AND PROPERTIES

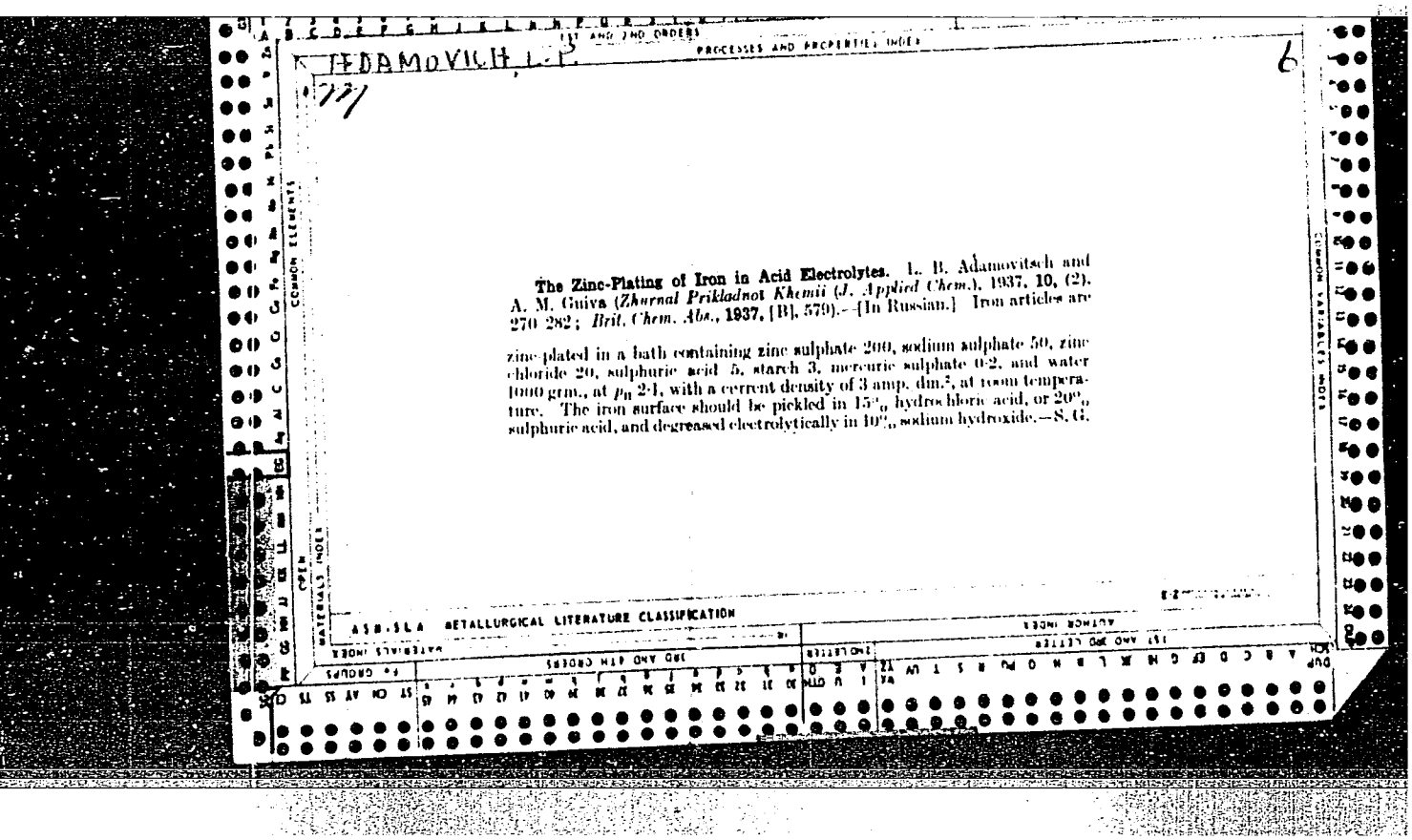
Apparatus for testing corrodibility. L. P. Adamovich. Russ. 51,467, July 31, 1937. Construction details of an app. in which metals are immersed in a liquid.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



ADAMOVICH, L.P.

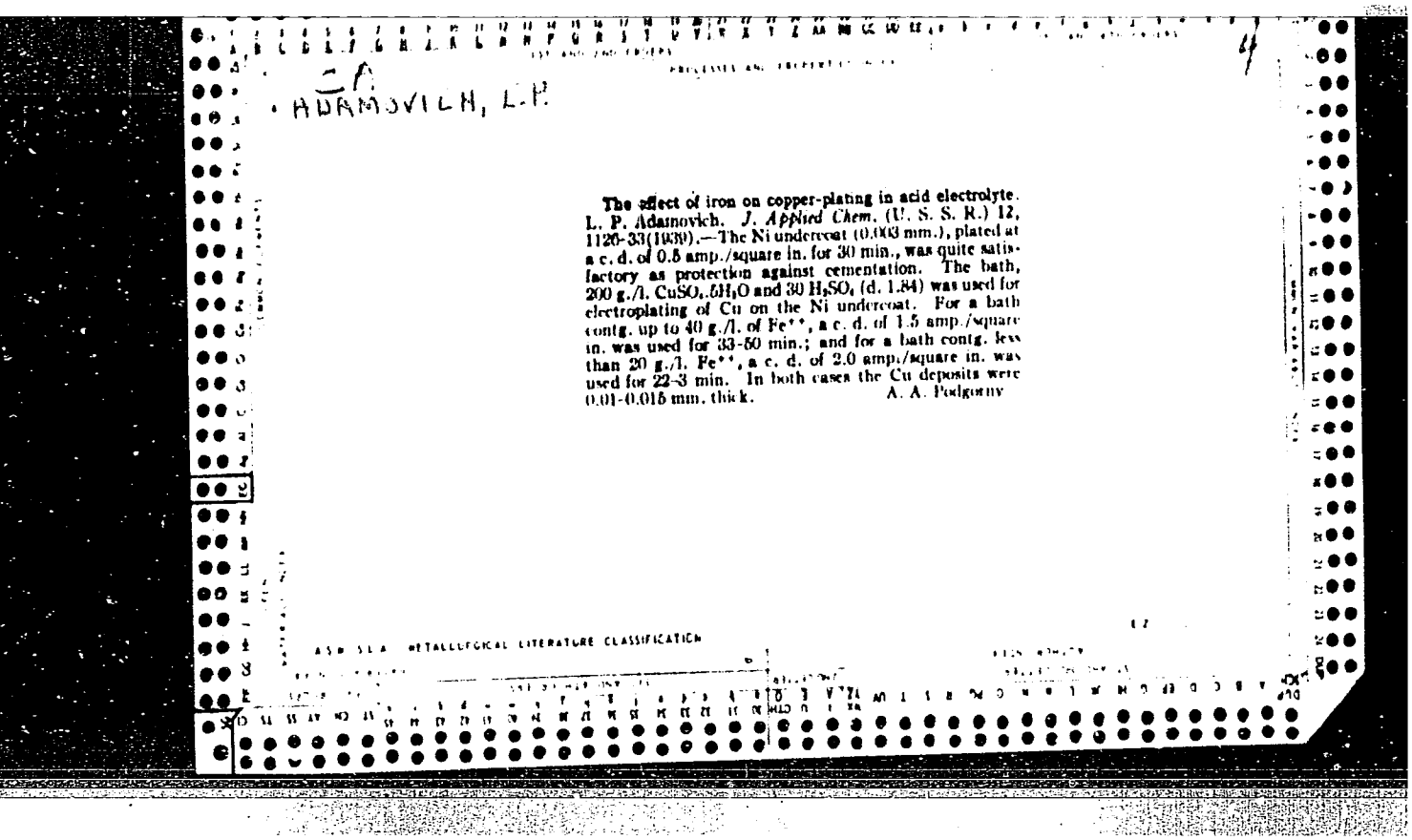
Automatic null-point adjustment device for titration. L. P. Adamovitsch and N. R. Volkov (Zavod. Lab., 1937, 6, 253). R. T.



ADAMOVICH, L. B.

6

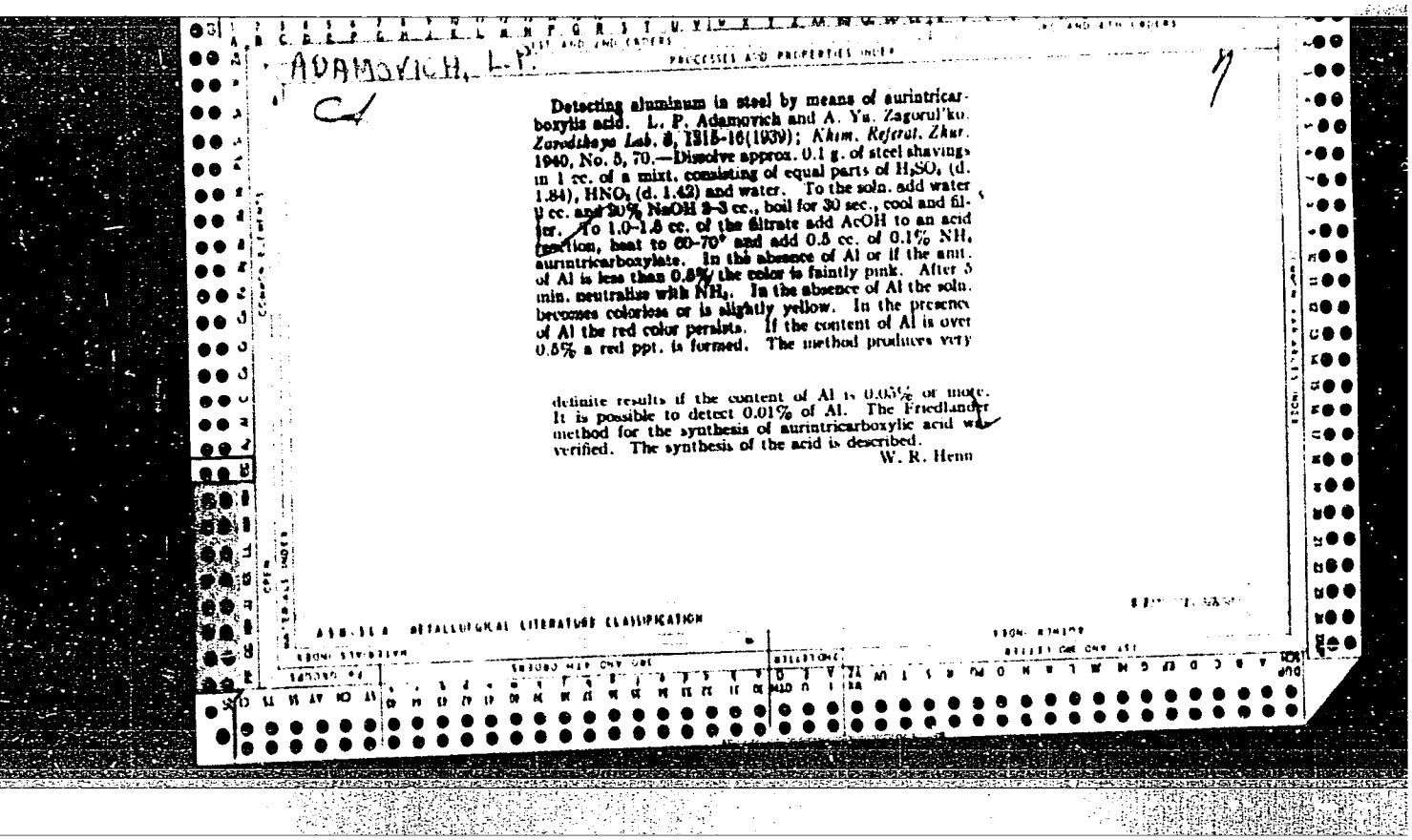
The Zinc-Plating of Iron in Acid Electrolytes. L. B. Adamovitsch and A. M. Guiva (*Zhurnal Prikladnoi Khemii* (*J. Applied Chem.*), 1937, **10**, (2), 270–282; *Brit. Chem. Abs.*, **1937**, [B], 579).—[In Russian.] Iron articles are zinc-plated in a bath containing zinc sulphate 200, sodium sulphate 50, zinc chloride 20, sulphuric acid 5, starch 3, mercuric sulphate 0·2, and water 1000 grm., at p_H 2·1, with a current density of 3 amp. dm.$^{-2}$, at room temperature. The iron surface should be pickled in 15% hydrochloric acid, or 20% sulphuric acid, and degreased electrolytically in 10% sodium hydroxide.—S. G.



ADAMOVICH, L.P.

The effect of iron on copper-plating in acid electrolyte. L. P. Adamovich. *J. Applied Chem.* (U. S. S. R.) 12, 1126-33(1939).—The Ni undercoat (0.003 mm.), plated at a c. d. of 0.5 amp./square in. for 30 min., was quite satisfactory as protection against cementation. The bath, 200 g./l. $CuSO_4.5H_2O$ and 30 H_2SO_4 (d. 1.84) was used for electroplating of Cu on the Ni undercoat. For a bath contg. up to 40 g./l. of Fe^{++}, a c. d. of 1.5 amp./square in. was used for 33-50 min.; and for a bath contg. less than 20 g./l. Fe^{++}, a c. d. of 2.0 amp./square in. was used for 22-3 min. In both cases the Cu deposits were 0.01-0.015 mm. thick. A. A. Podgorny

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION



ADAMOVICH, L. P.

Detecting aluminum in steel by means of aurintricarboxylic acid. L. P. Adamovich and A. Yu. Zagorul'ko. *Zavodskaya Lab.* 8, 1315-16(1939); *Khim. Referat. Zhur.* 1940, No. 5, 70.—Dissolve approx. 0.1 g. of steel shavings in 1 cc. of a mixt. consisting of equal parts of H_2SO_4 (d. 1.84), HNO_3 (d. 1.42) and water. To the soln. add water 9 cc. and 20% NaOH 2–3 cc., boil for 30 sec., cool and filter. To 1.0–1.5 cc. of the filtrate add AcOH to an acid reaction, heat to 60–70° and add 0.5 cc. of 0.1% NH_4 aurintricarboxylate. In the absence of Al or if the amt. of Al is less than 0.5% the color is faintly pink. After 5 min. neutralize with NH_4. In the absence of Al the soln. becomes colorless or is slightly yellow. In the presence of Al the red color persists. If the content of Al is over 0.5% a red ppt. is formed. The method produces very definite results if the content of Al is 0.05% or more. It is possible to detect 0.01% of Al. The Friedlander method for the synthesis of aurintricarboxylic acid was verified. The synthesis of the acid is described.

W. R. Henn

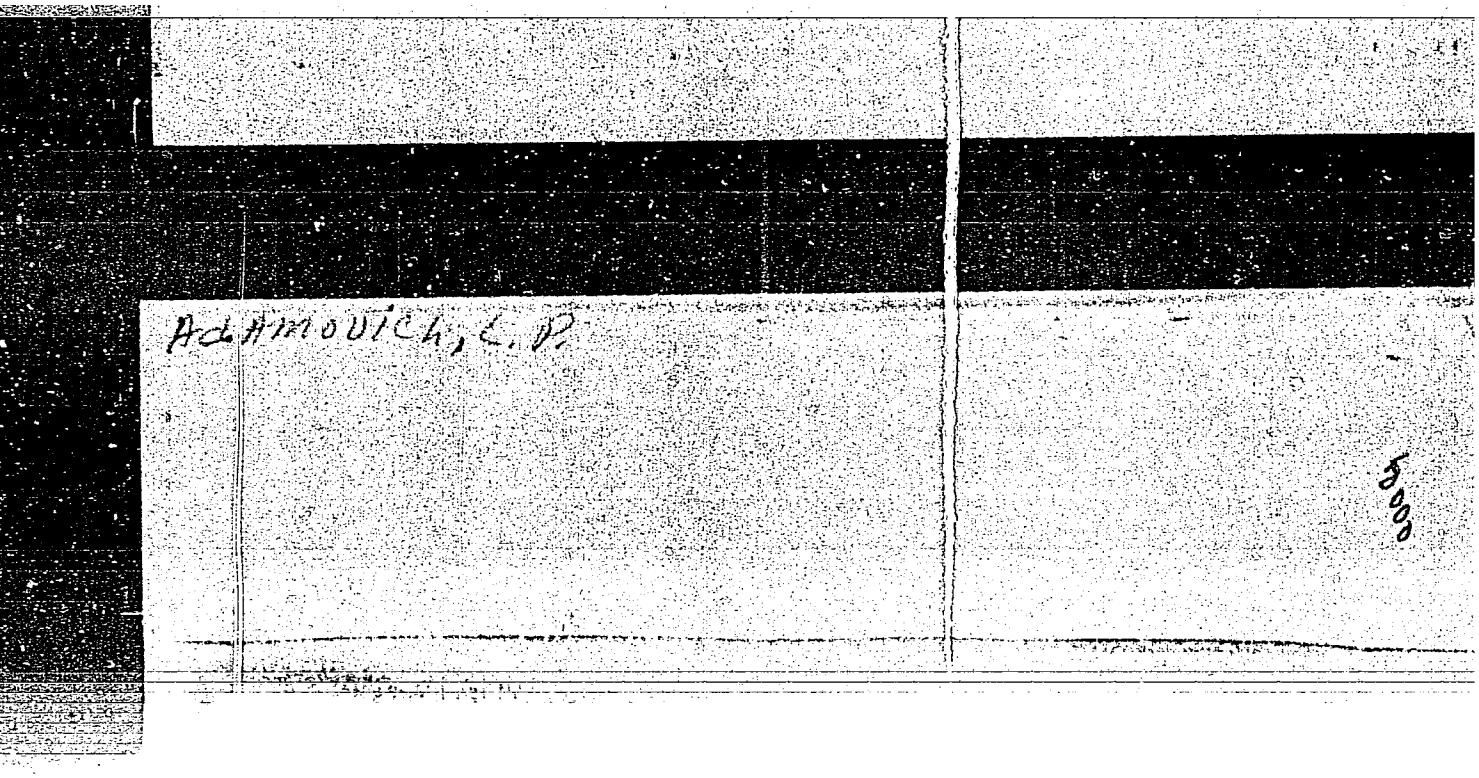
Optimum volume relations in precipitation reactions. II. Precipitation of lead iodide and lead sulfate. L. P. Adamovich and K. G. Parfenova (A. M. Gor'kii State Univ., Kharkov). *Zhur. Anal. Khim.* 5, 339–44(1950).—In one series of expts., solns. of 9×10^{-4}–1.8×10^{-3} *M* $Pb(NO_3)_2$ were pptd. with 0.01 *M* KI. The 2 solns. were combined in distinct but varying vol. ratios. To equalize the ionic strength of the combining solns., to the $Pb(NO_3)_2$ soln. was added 0.1 *M* AcOH and $NaNO_3$ in required quantities. The activity product (P_a) of Pb^{++} and I^- was calcd. from $P_a = [Pb^{++}][I^-]^2 f_1/f_2$, where f_1 and f_2 are the activity coeffs. of I^- and Pb^{++}, resp., which at $\mu = 0.01$ were 0.93 and 0.76, resp. At $P_a \geq 8.5 \times 10^{-9}$ PbI_2 always pptd.; at $P_a \leq 5.010^{-9}$ it never pptd. Between these 2 values was a zone where pptn. sometimes occurred and sometimes did not. Next, the smallest concn. of $Pb(NO_3)_2$, i.e. 9×10^{-4} *M*, was mixed with KI soln. in vol. ratios of 1:10–2:1. For all mixts. P_a was calcd. Each time pptn. occurred it was recorded, as well as nonoccurrence of pptn. When the $Pb(NO_3)_2$:KI ratio was 1:2, pptn. occurred every time. The P_a of these mixts. was 8.5×10^{-9}. At a ratio 1:3, $P_a = 8.1 \times 10^{-9}$, pptn. occurred 12 times out of 15, and at the ratio 1:1, $P_a = 7.2 \times 10^{-9}$, pptn. occurred 7 times out of 17. No ppt. formed at ratios 1:10 and 2:1, in both cases $P_a = 4.3 \times 10^{-9}$. Analogous expts. on pptn. of $PbSO_4$ in which the $Pb(NO_3)_2$:H_2SO_4 vol. ratio was 1:0–1:0.1 showed that the optimum vol. ratio was 1:1.

M. Hosch

2695. A study of the reaction between thorium and 1-(o-arsonophenylazo)-2-naphthol-3,6-disulphonic acid (thoron). L. P. Adamovich and V. M. Rutman. *Uch. Zap. Kuĭbyshev. Gos.*, 1954, 54. *Trudy Khim. Fak. i Nauch. Issledovatel. Inst. Khim.* 12, 203–208, *Ref. Zhur., Khim.* 1955, 15i, Abstr. No. 31,881.—A study of the composition of the compound formed by the interaction of Th with 1-(o-arsonophenylazo)-2-naphthol-3,6-disulphonic acid (I) by Ostromyslenskiĭ's method has shown that the components react in the ratio 1:2, the ions reacting being Th^{++++} and a bivalent anion obtained by acidic dissociation of I. The optimum pH is 1·65. The constant of complex formation is $(7{\cdot}9 \pm 0{\cdot}9) \times 10^{9}$.

C. D. Kopkin

2631. **The reaction between lithium and 1-(o-arsenophenylazo)-2-naphthol-3: 6-disulphonic acid (thoron).** L. P. Adamovich and T. T. Alekseeva. *Uch. Zap. Khar'kov. Univ.* 1954, **54** [illegible] *Trudy Khim. Fak. i Nauch. Issledovatel. Inst. Khim.* **12**, 209–214; *Ref. Zhur. Khim.*, 1955, [illegible] No. 31,556.—[illegible] study of the composition of the compound formed by the interaction of Li with 1-(o-arsonophenylazo)-2-naphthol-3: 6-disulphonic acid (I) was carried out by Ostromyslenskii's method with the help of the organic logarithmic method. At pH 13·5, Li and I combine in the ratio 1 : 1. The dissociation constant was found to be (2·4 ± 0·3) × 10 [illegible], and the coeff. of mol. extinction at 470 mμ was 10,680 ± 50. The minimum amount detectable with an accuracy of 98 per cent. is 50 mg per [illegible] [illegible] 3, 2646, 266 [illegible]



ADAMOVICH, L.P. (g.Khar'kov)

Elements of qualitative analysis in the activity of the school chemistry club. Khim.v shkole 10 no.3:65-71 My-Je '56. (MLRA 9:8)
(Chemistry, Analytical--Qualitative)

ADAMOVICH, L.P.; YUTSIS, B.V.

Photometric determination of beryllium in beryllium bronzes. Ukr. khim.zhur. 22 no.6:805-808 '56. (MLRA 10:7)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Beryllium) (Photometry)

OV/137 ~ 58-11-23799

Translation from: Referativnyy zhurnal. Metallurgiya, 195 , Nr 11, p 274 (USSR)

AUTHOR: Adamovich, L. P.

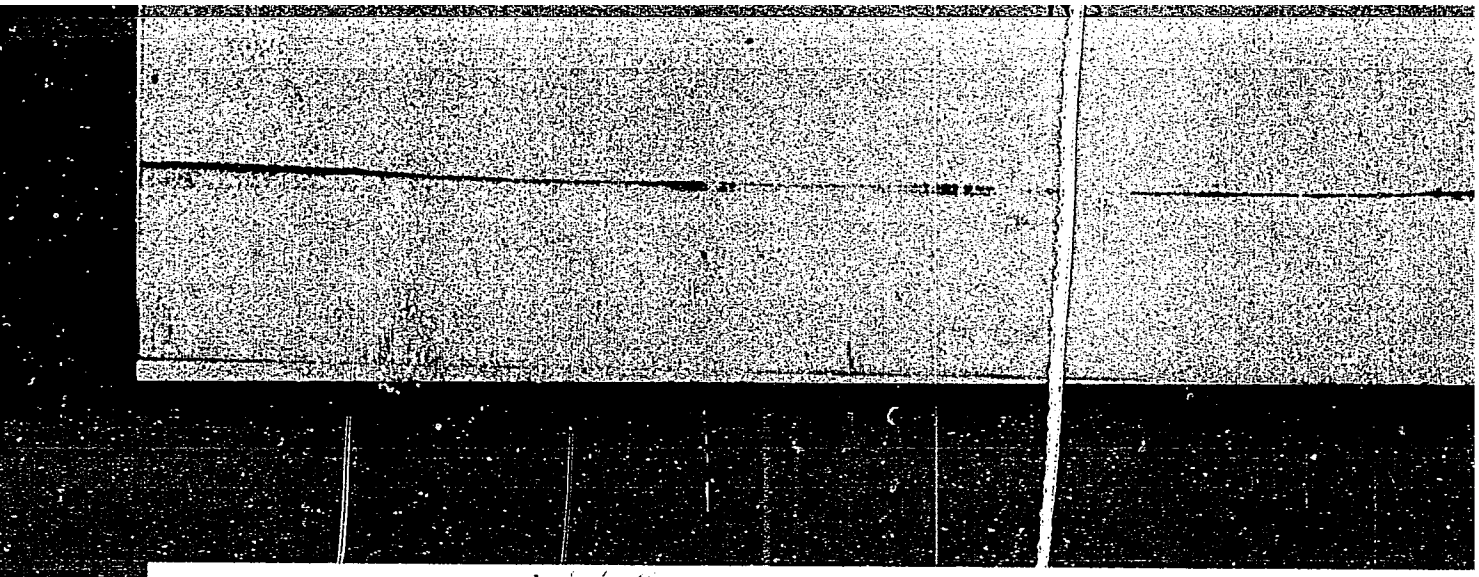
TITLE: Analytical Chemistry of Beryllium. Optical Methods (Analiticheskaya khimiya berilliya. Opticheskiye metody)

PERIODICAL: Sb. tr. Voronezhsk. otd. Vses. khim. o-va im. D. I. Mendeleyeva, 1957, Nr 1, pp 137-143

ABSTRACT: A review of the photometric determination o Be using organic dyes. The author recommends thoron, arsenazo, beryllon I, and beryllon II, naphthochrome green, aluminon, chromazurol S, and salicylic acid derivatives. Bibliography: 45 references.

V. N.

Card 1/1



ADAMOVICH, L.P.; YUTSIS, B.V.

Photometric determination of beryllium in iron alloys. Ukr.khim. zhur. 23 no.6:784-787 '57. (MIRA 11:1)

1.Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Beryllium) (Iron alloys)

ADAMOVICH, L.P.

32-9-40/43

AUTHOR: Adamovich, L.P.

TITLE: The Determination of the Beryllium Content by Means of Hydrocyanic Alizarion BB (K opredeleniyu berilliya s pomoshch'yu kislogo alizarinovogo sinego BB)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol.23, Nr 9, pp.1140-1140 (USSR)

ABSTRACT: Reference is made to the article by Barskaya,S.I. and Shemyakin,F.M. in Zavodskaya Laboratoriya, 1953, Vol.19, Nr 2, p 160. It is pointed out that the authors give no information concerning the reagent itself, and that it is therefore not possible to examine the method described. The author (Adamovich) tested this coloring substance in an ammoniacal solution recommended by the authors as well as in other media (H_2SO_4, NaOH). The coloring substance was found to be very unstable and to begin to bleach immediately after production. As regards the fact that Barskaya and Shemyakin recommended working in accordance with the method of standard series, it is pointed out that it is impossible for anybody at the same time to prepare the sample to be analyzed and, in addition, the entire color scale. There are 2 tables and 2 Slavic references.

ASSOCIATION: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet)

AVAILABLE: Library of Congress

Card 1/1

ADAMOVICH, L.P.

Photometry and spectrophotometry of beryllium compounds. Uch. zap. KHGU 95:143-151 '57. (MIRA 12:10)
(Beryllium compounds) (Photometry) (Spectrophotometry)

5(2) PHASE I BOOK EXPLOITATION SOV/1293

Adamovich, Leonid Petrovich

Rukovodstvo k laboratornym zanyatiyam po kachestvennomu analizu (Manual for Laboratory Assignments in Qualitative Analysis) Khar'kov, Izd-vo Khar'kovskogo univ-ta, 1958. 117 p. 10,000 copies printed.

Resp. Ed.: Tolmachev, V.N.; Ed.: Bazilyanskaya, I.L.; Tech. Ed.: Chernyshenko, Ya.T.

PURPOSE: This book is approved by the Ministerstvo vysshego obrazovaniya Ukr. SSR as a manual for students of chemistry departments at universities in the Ukrainian SSR. It may also serve as a textbook for students of vuzes which include analytical chemistry in their programs.

COVERAGE: This elementary textbook of qualitative analysis is based on the experience of the faculty of the Kafedra kachestvennogo analiza Khar'kovskogo gosudarstvennogo universiteta

Card 1/6

im. A.M. Gor'kogo consisting of N.P. Komar; (head), V.V. Kiselevskiy, I.U. Martynchenko, and L.P. Adamovich. It contains the description of special reactions for a series of cations and anions where semimicro techniques and apparatus are employed. The text includes those cations and anions which are specified in the program of analytical chemistry approved by the Ministerstvo vysshego obrazovaniya SSSR for the chemistry departments of state universities (1953). The author thanks N.P. Komar' for his advice. There are 5 tables and 4 figures. There are no references.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress (QD83.A24)

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Card 6/6

ADAMOVICH, L. P.

5(4) SOV/153-58-3-30/30

AUTHORS: Vasil'yev, V. P., Korableva, V. D., Yatsimirskiy, K. B.

TITLE: Conference Discussion on the Methods of Investigating the Complex Formation in Solutions (Soveshchaniye-diskussiya po metodam izucheniya kompleksoobrazovaniya v rastvorakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 173 - 174 (USSR)

ABSTRACT: From February 18 to 21, 1958 a conference discussion took place at the town of Ivanovo: it dealt with the subjects mentioned in the title. It was called on a decision of the VIIth All-Union Conference on the Chemistry of Complex Formations. More than 200 persons attended the conference, among them 103 delegates from various towns of the USSR. At the conference methods of determining the composition of the complexes in solutions were discussed, as well as the methods of calculating the instability constants according to experimental data and problems concerning the influence of the solvent upon the processes of complex formation. . . . . . . 1. In the lecture by A. K. Babko and N. M. Tananayko, "Physical and Chemical Analysis of the Systems With 3 Colored Complexes in the Solution", the results of a systematic investigation in copper-quinoline-salicylate, as well as in copper-pyridine-salicylate systems by means of the optical method were dealt with. In the lecture by Ya. A. Fialkov the idea of a further investigation of the complex formation processes in solutions was developed. Besides the determination of the composition and stability of the complexes also the physical and chemical properties, the chemical nature and the structure of the complex compounds must be investigated. . . . .

Card 2/16

I. I. Alekseyeva and K. B. Yatsimirskiy in their lecture "Investigation of the Polymerization of Iso-Poly Acids in Solutions" mentioned experimental results of the investigation of the polymerization in solutions of molybdic acid. The authors proved that especially the molybdic acid within a certain range of the pH values and the concentrations exists as a number of compounds that can be expressed by an overall formula $MoO_4(HMoO_4)^{n-2}$. In the lecture by N. V. Aksel'rud and V. B. Spivakovskiy investigation results on basic salts taking into account the complex formation in solutions by means of the potentiometric method were mentioned for systems with zinc, cadmium and indium. In the evaluation of their results the authors employed the method of the table difference. The calculation of the consecutive constants was carried out according to the interpolation formula by Newton. M. A. Chepelevtskiy held a lecture on "pH Measurement Method of the Solutions in Combination With the System Analysis of the Solubility Diagram of the System Cu^{2+}-HCl - H_2O in Investigating Complex Copper Compounds in Saturated Solutions". It was found that the substance at the bottom of the liquid is more basic than the solution; furthermore, the increased acidity of the solution from the viewpoint of the formation of hydroxy-chloro complexes in the solution was explained. V. I. Kuznetsov opened the discussion with his lecture; he pointed out the necessity of utilizing the concepts worked out in the investigations of the polymerization in organic chemistry in the chemistry of polynuclear complexes. A. A. Grinberg thinks that the new approach of the hydrolysis

Card 4/16

Card 5/16

Conference Discussion on the Methods of Investigating the Complex Formation in Solutions

SOV/153-58-3-30/30

investigation as developed by the Scandinavian school is of high value. He also pointed to the necessity of studying the kinetics of the polymerization process and a quantitative determination of the strength of the polymers. A. K. Babko pointed out that the study of the polymer structure was necessary. K. P. Kozar' mentioned in his lecture that the rather widely spread polymerization type according to the scheme "nucleus + chain members" is not obtained in all cases. The following scientists took part in the discussion: V. M. Tolmachev, A. V. Ablov, I. S. Rastrafin, I. V. Tananayev and K. B. Yatsimirskiy. A. K. Babko then discussed in his lecture "Methods of Determining the Dissociation Constant of the Complex Groups in Solutions" the main principles of determining the instability constants. N. P. Komar' discussed in his lecture "Calculation Methods of the Instability Constants of the Complex Compounds According to Experimental Data" the possibilities of using the known calculation methods of the instability constants for various cases of the complex formation in solution. If several mononuclear complexes are formed the displacement method by Abegg and Bodländer (completed by A. K. Babko) cannot be recommended for the calculation of the instability constant. The lecturer discussed the dissolution methods of the polynomials proposed by B'yerrum, Leden, Rossotti, Sketchard, Edsoll'ey and other authors. The constants calculated in this way are not very accurate. It was proved that the method of successive approximations can lead to wrong conclusions as to the chemical processes taking place in the system investigated. The most probable value of the physical constants can be obtained by the method of the least squares. B. V. Pitters, Ye. N. Tekster and L. I. Vingradova described the determination methods of the instability constants of the cyanide complexes of niobium, uranium and iron which are based on the investigation of the equilibrium displacement of the complex formation by silver ions. N. K. Bel'chakova, I. V. Tananayev and G. S. Serchenko held a lecture on "The Role of the Time Factor in the Investigation of the Complex Formation". In the discussion on the lectures A. A. Grinberg mentioned that due to the slow adjustment of the equilibria the methods discussed of determining the instability constants (palladium and cobalt complexes) can often not be employed. A. V. Ablov pointed out the necessity of devising direct methods of proving the existence of intermediate forms in a step-wise complex formation. K. B. Yatsimirskiy mentioned that the instability constants of slowly dissociating complexes can be calculated from thermochemical data. L. P. Adamovich, A. M. Golub among others took part in the discussion on the lectures. A. K. Babko requested inclusion in the next conference on the chemistry of complex compounds a lecture in which various calculation methods of the instability constants should be discussed by the example of actual cases. This should clarify to which divergencies of the values of the constants different methods of evaluating the experimental data can lead. N. P. Komar' stressed that in the determination of the instability constants all chemical equilibria should be taken into account that render complex the complex formation process in the solution, especially the hydrolysis processes of the central ion and the addendum. In the lecture delivered by V. M. Peshkova and A. P. Zozulya "Application of the Distribution Method to the Investigation of the Stability Constants

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of Some Thorium Complex Compounds" results obtained from the experimental investigation of the distribution of thorium compounds in the systems: acetylacetone - benzene - water, and 2-oxy-1,4,-naphthoquinone - chloroform - water were given. From these data the instability constants of the thorium complexes with acetyl-acetone and 2-oxy-1,4-naphthoquinone were calculated. I. V. Tananayev, G. S. Savchenko and Ye. V. Goncharov held a lecture on the application of the solubility method in the determination of the stability of complex compounds in solutions. In this lecture also other methods of investigating complex formation processes in the solution were discussed (pH measurement, measurement of the optical density, as well as of the heat of mixing). B. D. Berezin held a lecture on the "Application of the Solubility Method in Studying the Phthalocyanine Complexes of Metals". He used the determined quantitative characteristics of the reaction of the transition of the phthalocyanides of cobalt, nickel, copper and zinc, as well as of the free phthalocyanine into the sulfuric acid solution for the theoretical reasoning, and as an experimental proof of the existence of

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π-bonds in the complexes investigated. These characteristics also served him as a proof of new electronic formulae of phthalocyanine and its complex derivatives. In the lecture delivered by I. L. Krupatkin on "The Method of the Two Solvents as a Method of Investigating the Formation and Properties of Organic Complexes" it was proved that this method makes it possible to determine the number of complexes formed in the system, their composition and relative stability. V. I. Kuznetsov, A. K. Babko, N. P. Komar', I. S. Mustafin and Ya. I. Tur'yan took part in this discussion. In the lecture delivered by A. A. Grinberg and S. P. Kiseleva on the complex palladium compounds (II) with a coordination number above four it was proved that in the case of a large chlorine and bromine ion excess complexes with the coordination number 5 are formed. The instability constants of these complexes were estimated. L. P. Adamovich mentioned a new manipulation in the spectrophotometric investigation of the complex compounds that can be used in systems with the formation (or predomination) of one single complex. This method makes it possible to determine the composition and instability constant

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of the complex. In the lecture delivered by K. B. Yatsimirskiy and V. D. Korableva the application of the theory of crystalline fields for the determination of the composition and structure of the chloride complexes of cobalt, nickel and copper according to the absorption spectra of these complexes was discussed. It was proved that in a hydrochloric acid concentration above 5 mole/liter in the solution there exists an equilibrium between the tetrahedric and octahedric form of the cobalt chloro complexes. Yu. P. Nazarenko proved in his lecture "The Application of Radioactive Isotopes in the Investigation of the Solvation Equilibrium in Solutions of Complex Compounds" the possibility of using data on the isotope exchange to clarify the structure of the complex and mechanism of the hydration processes. V. Klimov mentioned in his lecture the use of radioactive isotopes in the study of tin and antimony complexes in non-aqueous solutions. A. V. Ablov, V. N. Tolmachev, V. I. Kuznetsov and A. M. Golub took part in the discussion of the lectures. The usefulness of employing the theory of the crystalline fields in explaining the results obtained from the absorption spectra of the com-

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SOV/78-3-8-12/48

AUTHORS: Adamovich, L. P., Nefedova, E. I., Vetrova, I. M.

TITLE: On the Problem of the Isomolarity of Solutions According to the Ostromyslenskiy-Zhob Method (K voprosu ob izomolyarnosti rastvorov, izpol'zuyemykh v metode Ostromyslenskogo-Zhoba)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1785-1790 (USSR)

ABSTRACT: It is shown that in working with non-equimolar solutions the position of the maximum in general does not only depend on the initial concentration but also on the parameter characteristic of the equilibrium investigated. A theoretical consideration of the method according to Ostromyslenskiy-Zhob was dealt with. By means of practical examples of complexes with a composition of 1 : 1, 1 : 2 and 1 : 3 it was found that the displacement obtained for the maximum satisfactory agreed with the one calculated. In using non-equimolar solutions also a displacement of the maximum to the middle of the diagram may occur. The Ostromyslenskiy-Zhob method with non-equimolar solutions may also be employed in investigations of complexes of higher coordination numbers.

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On the Problem of the Isomolarity of Solutions According to the Ostromyslenskiy-Zhob Method

There are 4 figures, 2 tables, and 11 references, 5 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet A. M. Gor'kogo (Khar'kov State University A. M. Gor'kiy)

SUBMITTED: July 8, 1957

5(2)

AUTHOR: Adamovich, L. P.

SOV/78-4-7-14/44

TITLE: A New Way of Spectrophotometrically Investigating Complex Compounds (Novyy priyem spektrofotometricheskogo issledovaniya kompleksnykh soyedineniy)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1552-1557 (USSR)

ABSTRACT: This paper was read at Ivanovo in February 1958 at a discussion conference on methods of investigating complex compounds. The author mentions the hitherto known spectrophotometric methods and points out that the applicability of each of these methods is limited. It is therefore of urgent necessity to search for new methods filling the hitherto existing gaps. The method suggested by the author consists in the comparison between two solutions which, though containing two components in different concentrations, nevertheless contain the reaction product, the complex compound, in the same equilibrium concentration. If the concentrations are colorless, and if only the complex compound absorbs light, their optical density is the immediate measure of their concentration. If, however, also the components absorb

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light with the wave length selected for the measurement, the deviation of optical density from its additive value may serve as measure of the concentration. The following assumptions are made: 1) Only one reaction product exists (in the case of complex formation in stages), but at least it dominates. 2) In the case of a constant concentration of the one reaction component and an increasing concentration of the second, the limit for D can be measured or calculated by extrapolation, so that also the determination of the molar extinction coefficient of the reaction product becomes possible. On the basis of the general formula $mM + nA \rightleftarrows M_mA_n$ the equilibrium concentration of the reaction product is deduced according to the law of mass action, after which the formulas for the molar extinction coefficients of the components and reaction products as well as for the exponent $\frac{n}{m} = p$ are set up. The complications caused by hydrolysis, association, polymerization, etc. are discussed and taken into account in the formulas. On the basis of the example of the reaction between Fe^{3+} and salicylic acid (Fig 1), which has a flattened absorption maximum, it is proved by calculation that $p \sim 1$ (Table 1), and that therefore the two components

A New Way of Spectrophotometrically Investigating Complex Compounds

form the complex compound in the ratio 1 : 1. In the reaction between Fe^{3+} and CNS^{-} (Fig 2) the calculation yields increasing values for p (Table 2), so that a complex compound of different composition is concerned. There are 2 figures, 2 tables, and 12 references, 6 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: April 7, 1958

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5.2620

S/078/60/005/04/006/040
B004/B007

AUTHOR: Adamovich, L. P.

TITLE: The Utilization of Saturation Curves for the Characterization of Complex Compounds ?

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 782 - 790 (USSR)

ABSTRACT: The author investigates the utilizability of optical saturation curves for the purpose of determining the composition and other characteristic values of a single complex forming by the interaction of two components in a solution. The optical density D or its deviation Δ from the additive value is determined for a number of solutions, in which the concentration of one of the components remains constant, while the second is increased from one experiment to another. For the complex formation according to the equation $mM + nA \rightleftharpoons M_mA_n$, the following is derived on the basis of the law of mass action: $(x - my)^m(c_a - ny)^n = Ky$ (1)

(c_a = constant concentration of the component A, x = varied concentration of the component M, Y = equilibrium concentration of the complex, K = its instability constant). The cases $K \longrightarrow 0$, $K \neq 0$, $m = 1$ (Fig 1), $m > 1$ (Fig 2) are discussed. In figures 3-5 curves corresponding to equation (1) are shown for several values

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The Utilization of Saturation Curves for the Characterization of Complex Compounds

of m and n. The case m = n = 1 was investigated by V. Tolmachev (Ref 9). For K ≠ 0 and whole positive values m and n function (2) is derived and its first and second derivative is discussed (Table 1). The character of the saturation curve is found to depend on the nature of the chemical reaction. As the latter is not known in advance, a hyperbola of second order is chosen as approximating function, and equations (4) and (5) are derived. The significance of the three parameters a,b,c of these equations is discussed. By means of b the composition of the complex may be determined. c corresponds to the maximum optical density. The parameter a (Table 2, Fig 6) is in a complicated connection with the instability constant C_{inst}, and thus for its determination the most simple way is given: Determination of the concentration y of the complex formed from the molar extinction coefficients of the two substances A and M, and herefrom calculation of C_{inst} for each experiment of the series. The stability of C_{inst} for the entire series of experiments confirms the correct determination of n. The author further discusses the limits of the applicability of this method in the case of side reactions (Table 3). Finally,

he recommends the following working method: determination of the data of a series of experiments as described; representation of data in form of a hyperbola, and determination of the parameters of this hyperbola from equations (12) and (13), use of the parameters b and c for the purpose of determining the composition of the complex compound and its molar extinction coefficient, calculation of the instability constant, and, checking as to whether it corresponds to conditions (7) and (11) (Table 4). The author refers to the papers by N. Komar' (Refs 3,4) on the method developed by Ostromyslenski-Job and to the book by A.K. Babko "Fiziki-khimicheskiy analiz kompleksnykh soyedineniy v rastvorakh" (Physico-chemical Analysis of Complex Compounds in Solutions). In conclusion, he thanks A. S. Leyben for valuable advice. There are 6 figures, 4 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: January 27, 1959

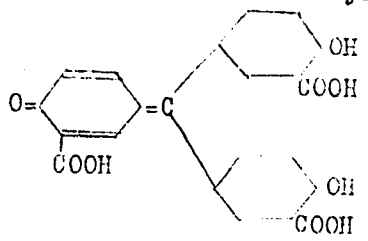
S/079/60/030/04/63/080
B001/B011

AUTHORS: Adamovich, L. P., Timofeyeva, I. I., Yutsis, B. V.

TITLE: Aurin Tricarboxylic Acid and Its Reaction With Beryllium Salts

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 4, pp. 1325-1334

TEXT: Aurin tricarboxylic acid



had been first suggested as an analytic reagent in 1925 (Ref. 1). It is simply synthesized (Ref. 2) from easily available compounds, and is fairly often used in the form of ammonium salt, under the name of "Aluminon", as a reagent on

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Aurin Tricarboxylic Acid and Its Reaction With Beryllium Salts

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aluminum (Ref. 3), some rare elements (Ref. 4), beryllium (Ref. 5), et al. Nonetheless, this acid in itself, as well as its reaction with metals, is insufficiently investigated (Refs. 6-9). A. Babko (Ref. 7) suggested a composition of the aluminum complex 1 : 1 formed, according to his diagram (this composition was confirmed by L. Molot, L. Kul'berg (Ref. 8)) without giving the lability constant. Recently, L. Serdyuk and collaborators (Ref. 9) reported on the presence of two beryllium-aluminum complexes with the composition 1 : 1 (at pH 5) and 3 : 1 (at pH 7). No demonstration was given, nor data concerning the properties of the reagent. This problem therefore requires an investigation to be made, first of all, on the acid itself. The authors studied the behavior of the acid in the pH-range 4-14, and calculated the constants of acid dissociation, as well as the coefficients of the molar light absorption at $\lambda 520$ mμ for the anions. Mention is made of the weakening of coloration of fresh alkali solutions of the dye in the course of time. In the pH-range 4-6, the formation of only one complex with the acid in the ratio 1 : 1 is observed in a fairly wide range of beryllium concentrations. The structure of this complex was defined. In the pH-range 13-14 a reaction of beryllium with the dye is likewise observed; this process was not investigated further. The complex arising in the acid region can be made use of for objective photometric de-

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terminations at pH 4.3, as well as for visual ones at pH 6-7. Papers by I. S. Ioffe (Ref.11) and N. P. Komar' (Ref. 14) are also mentioned. There are 5 figures, 3 tables, and 20 references, 11 of which are Soviet.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: March 12, 1959

Card 3/3

ADAMOVICH, L.P.

Determination of the composition of some complex compounds from saturation curves. Zhur.neorg.khim. 6 no.6:1267-1271 Je '61.
(MIRA 14:11)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Complex compounds)

ADAMOVICH, L.P.; NAPADAYLO, I.N.

Determination of the instability constant of a beryllium complex with ethylenediaminetetraacetic acid. Zhur.anal.khim. 16 no.2:158-161 Mr-Ap '61. (MIRA 14:5)

1. A. M. Gorky Khar'kov State University.
(Beryllium compounds)
(Acetic acid)

ADAMOVICH, L. P.

Relationship between the solubility product and solubility. Ukr. khim.zhur. 27 no.6:713-718 '61. (MIRA 14:11)

1. Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo.
(Solubility)

ADAMOVICH, L.P.; RUZHINSKAYA, R.I.; ANDRUSHCHENKO, D.A.

Study of some reactions for detecting antimony. Ukr.khim.zhur. 27 no.6:817-823 '61. (MIRA 14:11)

1. Kar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Antimony--Analysis)

ADAMOVICH, L. P.

Studying some chemical problems in schools. Khim. v shkole 17 no.6:37-40 N-D '62. (MIRA 16:1)

1. Universitet imeni A. M. Gor'kogo, Khar'kov.

(Chemistry—Study and teaching)

ADAMOVICH, L.P.; MORGUL'-MESHKOVA, O.V.; YUTSIS, B.V.

New analytical reagent, alberon, and its interaction with beryllium ions. Zhur.anal.khim. 17 no.6:678-684 S '62. (MIRA 16:1)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Beryllium--Analysis) (Alberon)

ADAMOVICH, L.P.

Addition method in photocolorimetry. Zhur.anal.khim. 17 no.8:912-916 N '62. (MIRA 15:12)

1. Gorky Knarkov State University.
(Colorimetry) (Photometry)

ADAMOVICH, L.P.; YUTSIS, B.V.

Colorimetric determination of beryllium in bronze with aluminon.
Zav.lab. 28 no.8:920-921 '62. (MIRA 15:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
(Beryllium--Analysis) (Aluminon) (Bronze--Analysis)

ADAMOVICH, I.P.; MIRONOVA, A.F.

Spectrophotometric study of beryllon II, an analytical reagent. Zhur. anal. khim. 18 no.3:292-297 Mr '63. (MIRA 17:5)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.

L 16617-63

45

S/075/63/018/004/001/015

AUTHOR: Adamovich, L. P., Mirnaya, A. P. and Starchenko, A. V.

TITLE: Synthesis and study of phenohydroxydinaphthofuchsonedicarboxylic acid as an analytical reagent

PERIODICAL: Zhurnal analiticheskoy khimii, v. 18, no. 4, April 1963, 420-424

TEXT: The authors have refined a method for synthesis of the dye phenohydroxydinaphthofuchsonedicarboxylic acid, whose sodium salt is known as "naphthocrom green G". The dye can be used for the photometric determination of beryllium. They study the behavior of an aqueous solution of this dye, in time, and also its optical properties within the pH range 3-13. With use of the optical method, they determine its two acid dissociation constants at ionic strength 0.1 and temperature 20 ± 1°C. The molar extinction coefficients of all its ions have also been determined. There are 2 figures and 2 tables. The one English-language source reads as follows: Aldridge, W., Liddell, H., Analyst 73 607 (1948).

ASSOCIATION: (Khar'kov State University im. A.M. Gor'kiy)

Card 1/2

ACCESSION NR: AR4033706 S/0081/64/000/003/G023/G023

SOURCE: Referativnyy zhurnal. Khimiya, Abs. 3G142

AUTHOR: Adamovich, L. P.; Yutsis, B. V.

TITLE: Detection and determination of beryllium in alloys by means of aurin tricarboxylic acid

CITED SOURCE: Uch. zap. Khar'kovsk. un-t, v. 133, 1963, Tr. Khim. fak. i N.-i. in-ta khimii KhGU, v. 19, 135-139

TOPIC TAGS: beryllium, beryllium determination, alloy analysis, aurin tricarboxylic acid, aluminon

ABSTRACT: Methods have been developed for the detection of Be in Cu-, Al- and Fe alloys and the photometric determination of Be in Cu alloys with aluminon (I). To detect Be in Cu alloys, 0.05 g of the sample are dissolved in 10 ml HNO_3 (1:3). An excess of 5% $(NH_4)_2CO_3$ solution is added to 1 ml of the solution obtained, 1.5 g KU-1 cation exchange resin in the NH_4-form is introduced and the mixture is shaken for ~1 hr. (until the solution becomes decolorized). Three ml of the colorless solution containing 1 drop phenolphthalein are neutralized with 0.1 N HCl until the solution is slightly pink, after which 3 ml of a solution of I are added. The solu-

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tion of I is prepared by dissolving 0.0844 g aurin tricarboxylic acid in 53 ml 0.1 N NH_4OH and adding 47 ml 0.1 N CH_3COOH and 100 ml 3% complexon III solution at pH 8.4. In the presence of Be the solution turns pink after adding I. To detect Be in Al- and Fe alloys, 0.5 g of the sample are dissolved in 20 ml HCl (1:1), several drops of concentrated HNO_3 are added and the mixture is boiled for 3 min. The solution is neutralized with concentrated NH_4OH, 10 ml 5% oxalic acid and 4 g KU-1 cation exchange resin in the H-form are added and the mixture is shaken for ~1 hr. The solution (containing the Al) above the resin is decanted, the resin is washed with water to a neutral reaction, and Be is extracted by shaking (~1 hr.) with 15 ml 10% HCl. The extraction of Be with acid is repeated once more, both solutions are combined, evaporated to 2-3 ml, neutralized to pH 8 and, after adding a solution of I, heated for 1-2 min. A pink color appears in the presence of Be. For the quantitative determination of Be in Cu alloys, 0.1 g of the sample (with a 0.3-3% Be content) is dissolved in HNO_3 (1:5) and the solution is diluted to 100 ml. Concentrated NH_4OH is added to 10 ml of the solution (until slight turbidity is formed which is eliminated by adding HNO_3), and the resulting solution is diluted with water to 100 ml. An aliquot of this solution is combined with an equal volume of the reagent solution. To prepare it, 1.25 g complexon III and 0.1055 g aurin tricarboxylic acid are dissolved in 100 ml of a buffer solution (3 parts of 0.1 N CH_3COOH and 1 part of 0.1 N NH_4OH) and diluted to 250 ml with the same buffer solution. The mixture of the solution to be analyzed and the reagent solution is heated for 5 min. on a

ACCESSION NR: AR4033706

steam bath and read, after cooling, in a FEK-M photoelectric colorimeter with a green filter in a 1 cm cuvette, using a control test solution as the reference solution. The error in the determination of Be is 1.52%. L. Sin'kova

DATE ACQ: 02Apr64 SUB CODE: CH, ML ENCL: 00

Card 3/3

NOVAKOVSKIY, Mark Samoylovich; ADAMOVICH, L.P., doktor khim.nauk, prof.,otv. red.; NESTERENKO, A.S., red.

[Laboratory work in the chemistry of complex compounds] Laboratornye raboty po khimii kompleksnykh soedinenii. Khar'kov, Izd-vo Khar'kovskogo univ., 1964. 202 p. (MIRA 17:11.)

ADAMOVICH, L.P.

Rational composition of analytical procedures. Calculation of a procedure for photometric determination. Zhur. anal. khim. 20 no.12:1273-1278 '65. (MIRA 18:12)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo. Submitted July 8, 1964.

L 12007-66 EWT(m)/T/EWA(m)-2

ACC NR: AP6001779 SOURCE CODE: UR/0386/65/002/010/0490/0494

AUTHOR: Adamovich, M. I.; Larionova, V. G.; Lebedev, A. I.; Kharlamov, S. P.; Yagudina, F. R.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Determination of the $\gamma\pi\rho$ interaction constant

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 10, 1965, 490-494

TOPIC TAGS: Gamma interaction, meson interaction, photon scattering, dispersion equation

ABSTRACT: The authors attempt an indirect determination of the $\gamma\pi\rho$ interaction constant A, from data on single photoproduction of pions from nucleons. The contribution of the ρ meson to the photoproduction amplitudes is separated by comparing the experimental data with theoretical calculations based on rigorous dispersion relations, since such an analysis is sensitive to the accuracy with which the dispersion integrals are calculated. The authors' main purpose in this paper is (i) to find for the photoproduction processes a differential characteristic for which the theoretical uncertainties are minimal or nil, and (ii) analyze the cor-

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ACC NR: AP6001779 6

responding experimental data for the purpose of determining the constant A. To avoid the uncertainties connected with the imaginary parts of the photoproduction amplitudes, they confine themselves to a consideration of the near-threshold region of photon energies. The contribution of the subtraction constant is neglected. By making use of published data and their own results (Dokl. AN SSSR v. 158, 309, 1964) on the differential cross sections of the process $\gamma + p \rightarrow n + \pi^+$, the authors conclude that more accurate values of the differential cross sections of the processes $\gamma + p \rightarrow n + \pi^+$ and $\gamma + n \rightarrow p + \pi^-$ in the near-threshold region of energy can yield more definite information on the constant A. To obtain data on the latter process it is necessary to study further the processes $\gamma + d \rightarrow p + p + \pi^-$ and $\pi^- + p \rightarrow n + \gamma$. Authors are grateful to Corresponding Member AN SSSR P. A. Cherenkov and Professor A. M. Baldin for useful discussions and interest. Orig. art. has 2 figures and 6 formulas. 44,55

SUB CODE: 20/ SUBM DATE: 05Oct65/ ORIG REF: 003/ OTH REF: 002

Card 2/2

L 30166-66 EWT(d)/EWT(l)/T/EWP(t) IJP(c) BB/IG/GG/GD

ACC NR: AT6017034 SOURCE CODE: UR/0000/65/000/000/0102/0110

AUTHOR: Savchenko, Yu. G.; Adamovich, L. V. 51 B+1

ORG: none

TITLE: The use of the Hamming code for better magnetic tape memory reliability 16C 25

SOURCE: AN UkrSSR. Kiberneticheskaya tekhnika (Cybernetic techniques). Kiev, Naukova dumka, 1965, 102-110

TOPIC TAGS: magnetic tape, memory core, error correcting code, ~~Hamming code~~ reliability, memory

ABSTRACT: Existing methods for improving the reliability of digital automatons may be divided into two broad classes: 1) methods based on the introduction of information redundancy, and 2) methods based on the introduction of design redundancy. The conditional nature of this breakdown is discussed briefly and it is pointed out that while error-detecting-and-correcting codes for data transmission have been quite widely discussed in the literature, the application of such codes for the purpose of improving the reliability of magnetic-tape storage devices is obstructed by the absence of developed coding and decoding arrangements and circuits. Although modern magnetic-tape storage devices use back-up or stand-by techniques, this method suffers from excessively high redundancy (two-fold). One method for achieving better reliability for such memories is found

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ADAMOVICH, M.I.

USSR/Physics - Cosmic Rays Apr 52

"Spatial Distribution of Penetrating Particles in Atmospheric Showers of Cosmic Rays," L. Kh. Eydus, M. I. Adamovich, I. A. Ivanovskaya, V. S. Nikolayev, M. S. Tulyankina, Phys Inst imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 4, pp 440-447

Investigates the spatial distribution of penetrating particles in atm showers by means of counters connected to hodoscopes. Shows that the percent of penetrating particles increases proportionally to the distance to the shower's axis. The total energy of penetrating particles exceeds half of the total energy of the shower. Presents proofs of existence of showers with a complex spatial structure. Indebted to Acad D. V. Skobeltsyn, N. A. Dobrotin, G. T. Zatsepin. Received 15 Dec 51.

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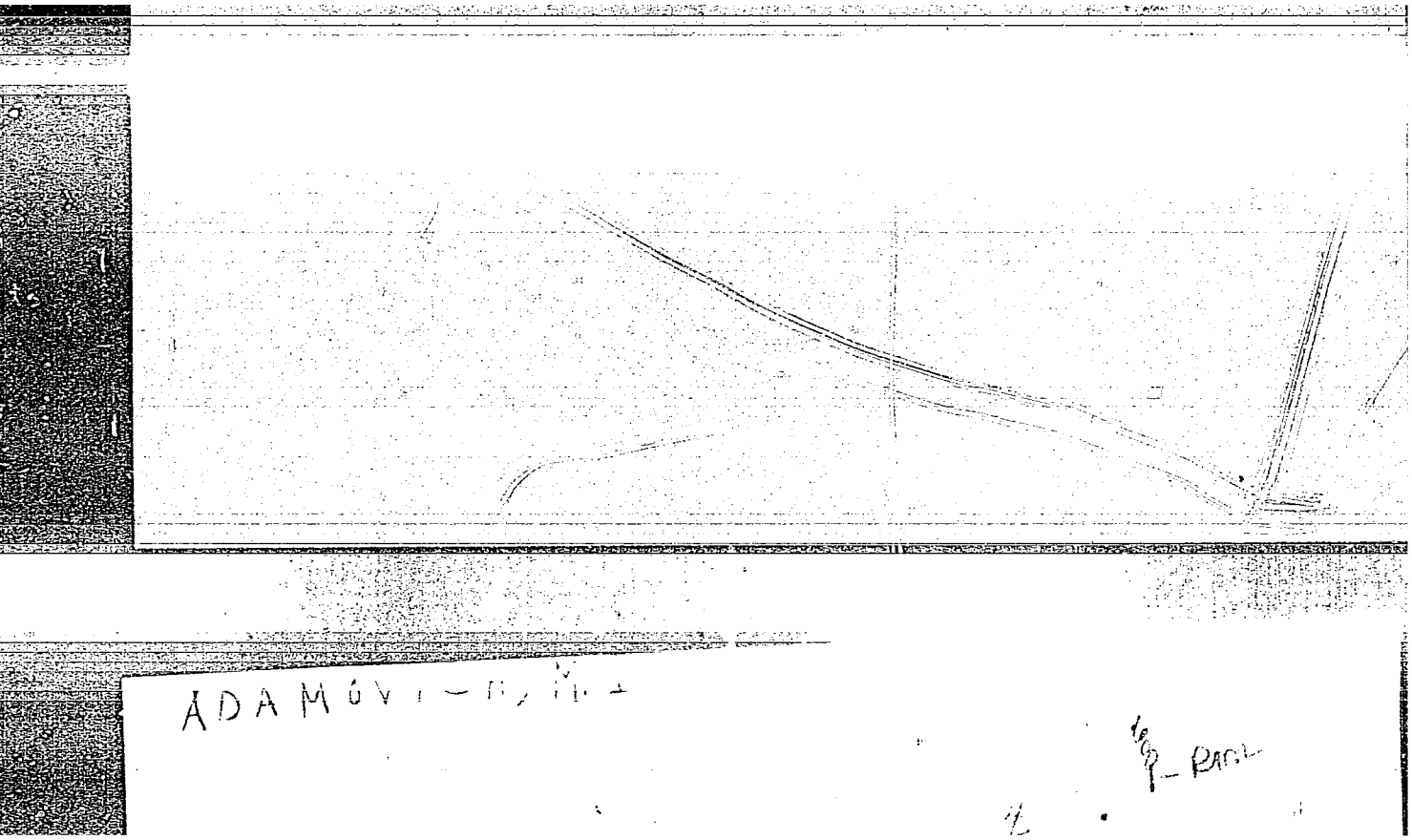

USSR/ Physics - π-mesons

Card 1/1 Pub. 22 - 16/53

Authors : Adamovich, M. I.; Kuzmichova, G. V.; Larionova, V. G.; and Kharlamov, S. P.

Title : Photo-formation of negative π-mesons on deuterium

Periodical : Dok. AN SSSR 102/4, 715-718, Jun 1, 1955

Abstract : The reaction $\gamma' + d \longrightarrow p + p + \pi^-$ was studied by the method of photo-emulsions. The photo-emulsions were filled with water and exposed to a beam of photons. Five USA references (1952-1954). Table; diagrams.

Institution : The Acad. of Sc., USSR, P. N. Lebedev Physical Institute

Presented by: Academician I. Ye. Tamm., February 1, 1955

[illegible], [illegible], [illegible], [illegible]
[illegible], S.P.

Photoproduction of negative π-mesons on deuterium. (II/30)

CERN-Symposium on High Energy Accelerators and Pion Physics

Geneva 11-23 June 56
In. French 55

ADAMOVICH, M.I., Cand Phys Math Sci -- (diss) "Photogenesis of negative π -mesons on deuterium near the threshold." Mos, 1958, 8 pp (Phys Inst im P.N. Lebedev of Acad Sci USSR) AxxxxXxxxxXXXXR} 150 copies. Bibliography at end of text (18 titles) (KL, 29-58, 127)

AUTHORS: Adamovich, M. I., Kuz'micheva, G. V., Larionova, V. G., Kharlamov, S. P. SOV/56-35-1-3/59

TITLE: The Photoproduction of π^--Mesons on Deuterium Near the Threshold (Fotorozhdeniye π^--mezonov na deyterii vblizi poroga)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp 27 - 38 (USSR)

ABSTRACT: In several earlier papers (Refs 1-4) the ratio of the cross sections of the processes $\gamma+d \rightarrow p+p+\pi^-$ and $\gamma+d \rightarrow n+n+\pi^+$ has already been investigated ; Watson (Vatson) (Ref 4) showed that σ^-/σ^+ for deuterium corresponds to that for free nucleons. The authors of the present paper investigated the reaction $\gamma+d \rightarrow p+p+\pi^-$ on the 265 MeV synchrotron of the FIAN (Fizicheskiy institut Akademii nauk SSSR - Physics Institute AS USSR) with NIKFI-R photoemulsion plates which were enriched with deuterium (as D_2O). (Plates: $3{,}2.10^{22}$ deuterium nuclei per cm^3). The maximum energy of the γ-quanta amounted to 250 and 200 eV for a magnetic field with H=7000 Oe; in

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the evaluation of the plates the microscope MBI -2 was used, for the determination of coordinates in the case of multiple scattering MBI -8. For the dependence of the cross section of meson production on photon energy ($5 < E < 30$ MeV, $p < 0,7$) experimental results are compiled in a table, where they are compared with theoretical results. Measuring results: $2,98 \pm 0,50$ (1,125), $5,90 \pm 70$ (1,175), $5,91 \pm 0,91$ (1,225), $3,66 \pm 0,52$ (1,30); (the values in brackets denote the photon energy $[\mu c^2]$, the σ are given in units of $10^{-29} cm^2$). In chapter 4, a number of other experimental results is compared with the predictions of impulse approximation. It is shown that the square of the matrix element of the photoproduction of π-mesons by neutrons near the meson threshold is a constant and equal to $|\overline{K_n}|^2 = (0,785 \pm 0,072).10^{-27} cm^2$. For $\sigma^-/\sigma^+ = |K_n|^2/|K_p|^2$ $1,34 \pm 0,14$ is obtained. In conclusion the authors thank Professor V.I.Veksler and A.M.Baldin for their valuable advice and assistance. There are 8 figures, 1 table, and

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The Photoproduction of π^--Mesons on Deuterium Near the Threshold SOV/56-35-1-3/59

9 references, 3 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva Akademii nauk SSSR (Physics Institute imeni P.N.Lebedev, AS USSR)

SUBMITTED: February 10, 1958

Card 3/3

AUTHOR: Adamovich, M. I. SOV/56-35-1-4/59

TITLE: Investigation of the Final States in the Reaction of the Photoproduction of π^--Mesons on Deuterium (Issledovaniye konechnykh sostoyaniy v reaktsii fotorozhdeniya π^--mezonov na deyterii)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp 39 - 44 (USSR)

ABSTRACT: In continuation of the preceding paper (Ref as above, pp 27-28) investigations of the reaction $\gamma+d \rightarrow p+p+\pi^-$ in nuclear emulsion plates are again dealt with. The plates were again exposed on the synchrotron of the FIAN ($E_\gamma^{max} \sim$ 250 MeV). The experimental arrangement is described by reference 1. In the present paper investigation is mainly carried out of the angular distribution and the energy spectra of the mesons. Thus, figure 1 shows the angular distribution of pions (in c.m.s.) for the photo-energy intervals of 153-167 MeV and 167 - 174 MeV. Figure 2 shows the energy spectrum of the relative motion of two protons for a photon-energy interval of 153-174 MeV near the threshold of the photoproduction of mesons;

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figure 3 shows the energy spectrum of the pions. The analysis of the angular distribution of the mesons shows that an electric dipole transition exists which causes a change of spin of the system of nucleons and which leads to the formation of mesons in the S-state. Results:

Electromagnetic transition	compound state	angular distribution
$E1(^1S_0,S)$	0^-	const
$E1(^3D_2,S)$	2^-	const
$M1(^3P_0,S)$	0^+	const
$M1(^3P_1,S)$	1^+	const
$M1(^3P_2,S)$	2^+	const
$M1(^3F_2,S)$	2^+	const
$E1(^3P_0,P)$	1^-	$1+\cos^2\theta$
$E1(^3P_1,P)$	1^-	$3-\cos^2\theta$

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Electromagnetic transition	compound state	angular distribution
$M1(^1S_0,P)$	1^+	$1+\cos^2\theta$
$M1(^3D_2,P)$	1^+	$13+\cos^2\theta$

In conclusion, the author thanks Professor V.I.Veksler for his valuable advice, and A.M.Baldin and V.N.Maykov for discussing the problem. There are 4 figures, 1 table, and 5 references, 1 of which is Soviet.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva Akademii nauk SSSR (Physics Institute imeni P.N.Lebedev, AS USSR)

SUBMITTED: February 10, 1958

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100320009-6"

24(1) SOV/56-36-3-58/71

AUTHORS: Kharlamov, S. P., Adamovich, M. I., Larionova, V. G.

TITLE: On the Amount of the Ratio σ^-/σ^+ Near the Threshold of Meson Photoproduction (O velichine otnosheniya σ^-/σ^+ vblizi poroga fotorozhdeniya mezonov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 945 - 947 (USSR)

ABSTRACT: The amount of the yield ratio of negative and positive photomesons from deuterium $\eta = N_d^-/N_d^+$ may deviate considerably from the value σ^-/σ^+ for pion-photoproduction on free nucleons. This fact has already been investigated in reference 1. A table contains the pion yield ratios for 165 and 310 Mev from deuterium at angles of 60 and 73° to the direction of photon radiation. The table further gives the η-values from these experiments with correction to the Coulomb (Kulon) interaction (π^-,p) and (p,p) and a correction which takes into account that π^--and π^+-mesons of one and the same energy can be formed by photons from different energy intervals. The σ^-/σ^+-values are smaller than the corresponding yield conditions, the difference becomes smaller with in-

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creasing energy. The corrections are then discussed. Figure 1 shows the experimentally found π^--distribution according to momenta in the reaction $\gamma+d \longrightarrow \pi^-+p+p$ for photons between 155 and 165 Mev (cf.Ref 1). Figure 2 shows the dependence pion yield (6.7 - 11.7 Mev) at an angle of 60° to the photon direction, on the energy of γ-quanta. The π^+-curve is lower and has a lower maximum than the π^--curve, which is also shifted somewhat in the direction of higher energies. The curves are normalized according to

$$\left[N_d^{\pm} = \int_{\nu_m} N_d^{\pm}(\nu)d\nu\right]_{theor} = \left[N_d^-/N_d^+ = 2.10\pm0.17\right]_{exp}$$ (Ref 3). For a photon energy of ν 160 Mev and a Coulomb correction equal to 1.065 1.30 ± 0.11 results for σ^-/σ^+. If in the Carlson-Lee experiment the upper boundary of the spectrum is established not at 165 but at 167 Mev, the N_d^-/N_d^+ agree with $\sigma^-/\sigma^+ = 1.42\pm0.12$. This shows the important influence exercised by this boundary. This is particularly

On the Amount of the Ratio σ^-/σ^+ Near the Threshold of Meson Photoproduction

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marked in the photoproduction of charged mesons on beryllium ($\gamma+Be^9_4 \rightarrow \pi^-+p+Be^8_4$), which has an energy threshold that is by 17.9 Mev lower than that of π^+-production. This explains the anomalous behavior of the quantities N^-/N^+ if the upper boundary of the spectrum is decreased, as also in the case of an increase of the energy or of the flying-off angle of the recorded mesons. There are 2 figures, 1 table, and 5 references, 2 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: November 26, 1958

Card 3/3

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S/056/60/039/006/018/063
B006/B056

24.6900

AUTHORS: Adamovich, M. I., Panova, N. M., Popova, V. M., Yagudina, F.R.

TITLE: Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1585 - 1588

TEXT: The yield of charged photomesons is, in general, proportional to $A^{2/3}$, but the ratio for high-energy pions π^- and π^+, denoted by N^-/N^+, shows a considerably higher value for some nuclei, thus also for beryllium. Thus, N^-/N^+, for 56-Mev mesons produced by photons of E_{max} = 256 Mev, is equal to 3.3±0.3, whereas, according to the $A^{2/3}$ law, it ought to amount to only 1.51. For slow mesons, the law is, however, correct. To explain this discrepancy, the authors measured the ratio σ^-/σ^+ for pions of medium energies on beryllium. By means of the 250-Mev photon beam from the synchrotron of the FIAN, a 3-mm thick beryllium target was irradiated; the mesons leaving the target under an angle of 90° to the photon beam

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Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

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were recorded in a НИКФИ-Р (NIKFI-R) 400μ thick emulsion. Of all tracks of pions stopped in the emulsion, those within the energy interval of 12 - 40 Mev were selected, for which the correction for Coulomb interaction between pion and residual nucleus is negligible, and in addition, the ratio σ^-/σ^+ for free nucleons is known. Altogether, 981 π^-- and 370 π^+ mesons were recorded; it was found that $N^-/N^+ = 2.65\pm0.22$, and that the pion yields are practically independent of E_π. The yields may be described by the equations $N^-(E_\pi,\theta) = \int_{E_n^-}^{E_{max}} C\sigma^-(E_\pi,\theta)f(E_\gamma)dE_\gamma$ and $N^+(E_\pi,\theta) = \int_{E_n^+}^{E_{max}} C\sigma^+(E_\pi,\theta)f(E_\gamma)dE_\gamma$, where C denotes the number of nuclei per cm^2 of the target, $\sigma^\pm(E_\pi,\theta)$ the pion production cross section for E_π and the angle θ, $f(E_\gamma)$ is the photon spectrum $\sigma^-/\sigma^+ = k(N^-/N^+)$; for $E_{max} = 250$ Mev, $\bar{E}_\pi = 26$ Mev, $\theta = 90^\circ$ one obtains $k = 0.68$. N^-/N^+ was

Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

S/056/60/039/006/018/063
B006/B056

experimentally determined as 2.65 ± 0.22; thus, one obtains $\sigma^-/\sigma^+ = 1.8 \pm 0.15$ as a ratio of the mean cross sections in the photon energy interval of from $E_n^{\pm}$ to E_{max} and in the meson energy interval of 12 - 40 Mev. This value agrees well with those found by other authors. The anomalous behavior of the yield ratio N^-/N^+ may be explained by the fact that the π^- and π^+ mesons have different production thresholds. The authors thank Professor P. A. Cherenkov, Professor V. I. Gol'danskiy, E. G. Gorzhevskaya, and S. P. Kharlamov for discussions. There are 2 figures, 1 table, and 10 references: 3 Soviet and 7 US.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 12, 1960

Card 3/3

ADAMOVICH, M.I.; GORZHEVSKAYA, E.G.; POPOVA, V.M.; YAGUDINA, F.R.

Method for measuring the photoproduction cross section of π^+ -mesons on hydrogen near the threshold. Zhur.eksp.i teor. fiz. 40 no.3:974-976 Mr '61. (MIRA 14:8)

1. Fizicheskiy institut im. P.N.Levedeva Akademii nauk SSSR.
(Mesons) (Ionization chamber) (Photonuclear reactions)

S/056/61/041/006/023/054
B102/B138

AUTHORS: Adamovich, M. I., Gorzhevskaya, E. G., Larionova, V. G., Tanova, N. M., Popova, V. M., Kharlamov, S. P., Yagudina, F.R.

TITLE: The energy dependence of the photoproduction cross section of π^+ mesons on hydrogen near the threshold

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1811-1817

TEXT: The paper gives results of π^+ photoproduction cross section measurements made in the photon energy range from 167 to 212 Mev at an angle $\theta = \arccos(k-0.93)/kq$, i. e. the angle in the c. m. s. at the contribution of the non-physical region to the dispersion integral vanishes. k denotes the photon momentum, 0.93 is its threshold, q and ω are momentum and total energy of the pion, θ the angle of emission of the meson; $\hbar = c = \mu = 1$. The energy range was chosen so as to satisfy the relation $k\omega - kq\cos\theta = 0.93$; it holds exactly for 195-Mev photons, for 167 and 212 Mev it is 0.88 and 0.99, which are both close to the threshold value. The photon ray from the synchrotron of the FIAN with a maximum

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The energy dependence of the ...

energy of 250 Mev was collimated and directed on to the hydrogen target, a brass cylinder of 17μ wall thickness, placed in a vacuum chamber. The detector was a stack of 50 layers of [illegible]-400 (NIKFI BK-400) emulsion plates. It was placed between two 2cm-thick emulsion blocks and fixed so that the mesons struck its end. The emulsions were evaluated as usual, by [illegible]-1 (MBI-1) microscopes. All π-μ decay events were selected. An area of 340 cm^2 yielded 3322 π-μ decays and 64 π^- decays. The differential photoproduction cross sections were plotted after applying corrections for energy loss, scattering meson decay and background (Fig. 3). The results are in good agreement with dispersion theory, where the imaginary part of the resonance amplitude is determined empirically. The experimental results were treated by the method of least squares to find the threshold value of the matrix element of π^+ photoproduction $\chi^{-1}d\sigma/d$[illegible] and its dependence on q^2; $\chi = (q/k)(1+k/M)^{-2}$, M - nucleon mass. For $0.17 < q^2 < 0.74$

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{см^2}{стерад}\right] = (1{,}90 \pm 0{,}15) - (0{,}34 \pm 0{,}22)\,q^2, \qquad (5)$$

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{см^2}{стерад}\right] = (2{,}39 \pm 0{,}21) - (2{,}87 \pm 0{,}93)\,q^2 + (2{,}80 \pm 1{,}0)\,q^4, \qquad (6)$$

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was found. The threshold value was determined from power expansions of the squares of the matrix elements, $a_o = (1.90 \pm 0.15) \cdot 10^{-29}$ cm^2/steradian, which is in good agreement with the theoretical value, $a_o = 2.04 \cdot 10^{-29}$ cm^2/sterad. Experimentally, $\sigma^-/\sigma^+ = 1.34 \pm 0.11$ was found. Using the theoretical a_o value, the calculated value is $\sigma^-/\sigma^+ = 1.28$. The pion photoproduction cross section as a function of the photoproduction amplitudes is given by

$$d\sigma/d\Omega = (q/k)\{|F_1|^2 + |F_2|^2 - 2\mathrm{Re}\, F_1^* F_2 \cos\theta + \\ + \tfrac{1}{2}\sin^2\theta\,[|F_3|^2 + |F_4|^2 + 2\mathrm{Re}\, F_3^* F_3 + 2\mathrm{Re}\, F_1^* F_4 + 2\mathrm{Re}\, F_3^* F_4 \cos\theta]\}, \quad (9)$$

with

$$F_1 = \sqrt{2}F_{10} - \sqrt{2}F_{11}\cos\theta, \qquad F_2 = \sqrt{2}F_{20},$$
$$F_3 = \sqrt{2}F_{30} + \sqrt{2}F_{31}/(1 - \beta\cos\theta), \qquad F_4 = \sqrt{2}F_{41}/(1 - \beta\cos\theta);$$

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β denotes pion velocity. From experimental data for 15 and 165° in the c. m. s. the amplitudes were calculated for 185-Mev photons:

$$[(F_{10})_1 = (1{,}81 \pm 0{,}034)\cdot 10^{-2}, \qquad (F_{11} + F_{10})_1 = -(0{,}105 \pm 0{,}034)\cdot 10^{-2},$$

$$(F_{10})_2 = -(1{,}81 \pm 0{,}034)\cdot 10^{-2}, \qquad (F_{11} + F_{20})_2 = (0{,}105 \pm 0{,}034)\cdot 10^{-2}.$$

The authors thank Professor P. A. Cherenkov for help, A. M. Baldin and A. I. Lebedev for discussions and A. A. Svetlov, Engineer, for assistance.
There are 5 figures, 2 tables, and 15 references: 3 Soviet and 12 non-Soviet. The four most recent references to English-language publications read as follows: J. Hamilton, W. S. Woolcock. Phys. Rev. 118, 291, 1960; N. P. Samios. Phys. Rev. Lett., 4, 470, 1960; M. Derrick et al. Phys. Rev. Lett., 5, 230, 1960; A. F. Dunaitsev et al. Proc. 1960 Ann. Intern. conf. on high energy physics at Rochester, Publ. Univ. Rochester 1961, p. 181.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 31, 1961
Card 4/5

ALIKHANOVICH, M. I.; GORZHEVSKAYA, E. G.; KHARLAMOV, S. P.; LARIONOVA, V. G.; YAGUDINA, F. R.

"Photoproduction of Positive Pions from Hydrogen near Threshold"

report presented at the 11th Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

ADAMOVICH, M.I.; GORZHEVSKAYA, E.G.; LARIONOVA, V.G.; PANOVA, N.M.; POPOVA, V.M.; KHARLAMOV, S.P.; YAGUDINA, F.R.

Energy dependence of the cross section for the photoproduction of π^--mesons on hydrogen near the threshold. Zhur. eksp. i teor. fiz. 41 no.6:1811-1817 D '61. (MIRA 15:1)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Photonuclear reactions) (Mesons) (Hydrogen)

S/056/62/043/003/057/063
B104/B102

AUTHORS: Adamovich, M. I., Gorzhevskaya, E. G., Yagudina, F. R.

TITLE: The production of π^+-photomesons at angles of 25-36° in the energy range 152-162 Mev

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 1113-1116

TEXT: This study was directed to establishing the differential photoproduction cross section of π^+-mesons when the momentum transfer $k\omega - kq\cos\theta$ is close to its threshold value of 0.93, k and q being respectively the momenta of photon and pion, and ω the total ion energy in the c.m.s. The mesons emitted by a thin polyethylene film at an angle of about 30° from the photon beam were examined by a method described previously (M. I. Adamovich et al., ZhETF, 40, 974, 1961). $E_{\gamma max}$ was 170 Mev. All π-μ decay events were recorded. The ends of the pion and muon traces were established for checking. The results (Table) are in good agreement with the calculations. The threshold value of $(1/\chi)d\sigma/d\Omega$ is $(2.18 \pm 0.37)\cdot 10^{-29}$ cm^2/sterad. The threshold value calculated from

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Panov's formula is $1.99 \cdot 10^{-29}$ cm^2/sterad. The mean values of $d\sigma/d\Omega$ and $(1/\bar{\chi})d\sigma/d\Omega$ agree well with the values for $k\omega - kq\cos\theta = 0.93$ as extrapolated from experimental data. There are 2 figures and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 3, 1962

Table. Results of measurements.
Legend: E_γ - mean photon energy, laboratory system; E_π - mean pion energy in the energy interval of the photons; M - proton mass; $\bar{\chi} = (q/k)(1+\omega/M)^2$.

E_γ, MeV	E_π, MeV	q^2	$k\omega - kq\cos\theta$	$d\sigma/d\Omega$, 10^{30} см^2/стерад	$\frac{1}{\bar{\chi}}\frac{d\sigma}{d\Omega}$, 10^{30} см^2/стерад
153,4	3,8	0,023	0,91	0,32±0,054	2,70±0,46
155,7	7,3	0,048	0,86	0,39±0,070	2,26±0,41
157,6	9,7	0,069	0,84	0,43±0,077	2,12±0,38
159,3	11,6	0,088	0,83	0,40±0,076	1,77±0,34
160,8	13,3	0,104	0,82	0,39±0,097	1,59±0,40

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ACCESSION NR: AT3012928 S/2504/63/019/000/0037/0065

AUTHORS: Adamovich, M. I.; Larinova, V. G.; Kharlamov, S. P.

TITLE: Investigation of the photoproduction of negative pions on deuterium near threshold

SOURCE: AN SSSR. Fizicheskiy institut. Trudy*, v. 19, 1963, 37-65

TOPIC TAGS: pion, Pi meson, photoproduction, negative pion photoproduction, photoproduction on deuterium, photoproduction near threshold, emulsion technique. Panofsky ratio, pion pion interaction

ABSTRACT: In view of the scarcity of experimental work on the photoproduction of charged pions on deuterium near threshold, the authors investigated this reaction using type "R" NIKFI emulsions 400 microns thick, sensitive to relativistic-particle tracks, filled with heavy water, and irradiated directly in a photon beam so that the emulsion serves simultaneously as a target and a detector. The experimental procedure and the method used to identify the reaction and determine the photon flux are described. The method of determining the photon

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ACCESSION NR: AT3012928

flux from the measured photon energy flux was developed by V. Ye. Pisarev and V. S. Roganov. The experimental data were plotted in laboratory-system photon energy and pion momentum coordinates, with an upper pion energy limit 30 MeV. The resultant diagram could be used to determine many of the characteristics of the $\gamma + d \rightarrow p + p + \pi^-$ reaction, viz. the final state of the particles and the initial state of the nucleons. The experimental data agree with the theory in the impulse approximation. The confirmation of the impulse-approximation theory makes it possible to determine the square of the matrix element for the photoproduction of negative pions on free neutrons. The procedure for this determination is described. The Panofsky ratio obtained from the experimental data is 1.57 ± 0.1, which agrees with the average of the measured values obtained by others (1.54 ± 0.015). Further study of the threshold parameters may yield interesting information on the effect of pion-pion interaction on pion photoproduction. "In conclusion, the authors are deeply grateful to A. M. Baldin and Academician V. I. Veksler for continuous interest, valuable advice, and discussion." Orig. art.

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L 16678-65 EWT(m)/T/EWA(m)-2 SSD/AFWL

Kharlamov.

positive