"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

SAFRONOV, Ivan Andreyevich; ABANIN, Aleksandr Mikhaylovich; SHNAPIR, Shimen El'yev [deceased]; USTIYANTS, V.A., red.; MELENT'IEV, A.M., tekhn.red.

[Accounting for material values using the balance sheet method in manual and machine processing of documents] Uchet material'nykh tsennostei po operativno-bukhgalterskomu (sal'dovomu) metodu pri ruchnom i mekhanizirovannom sposobakh obrabotki dokumentov. Moskva, Gos.stat.izd-vo, 1959. 75 p. (MIRA 13:2)
(Accounting)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ARANIN, A.N., inzhener.

Concrete slab foundations for railroad track. Zhel.dor.transp. 37 no.1:60-61 Ja '56. (MLRA)
(Railroads--Track)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABANIN, D. D. and YEVSTYUKHIN, A. I.

"A Study of the phase diagram of the system NaF-ThF_4 over the concentration range 35 to 100 mole % ThF_4. Report of the MIFI,1950 (unpublished)

SO: J. Nuclear Energy, II, 1957, Vol, 5, p. 114, Pergamon Press Ltd., London

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

YEMEL'YANOV, V.S.; YEVSTYUKHIN, A.I.; ABANIN, D.D.; STATSENKO, V.I.

Improved method of preparing chromium iodide and its properties.
Met.i metalloved.chist.met. no.1:44-69 '59. (MIRA 12:10)
(Chromium iodide) (Chemistry, Metallurgic)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

30662
S/137/61/000/010/012/056
A006/A101

18.3100 1521, 1454, 1067

AUTHORS: Yevstyukhin, A. I., Barinov, I. P., Abanin, D. D.,

TITLE: Investigation of the iodide process to obtain zirconium using zirconium carbide as raw material

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 10, 1961, 21, abstract 100164 (V sb. "Metallurgiya i metalloved. chist. metallov", no. 1, Moscow, 1959, 78 - 83)

TEXT: Experimental investigations were made of the possibility to obtain iodide Zr from Zr carbide. The latter was obtained by sintering ZrO_2 with C powder at gradual heating up to 1,900 - 2,000°C in a vacuum furnace with a graphite heater. After sintering the powder-like product was remelted in an МНФЦ-9-3 (MNFN-9-3) arc furnace with a water-cooled Cu-crucible. The remelted product was crushed in a cast-iron mortar and screened through a 100 - 150 mesh sieve. The interaction of Zr carbide with I_2 was studied in quartz ampoules. The ampoule was evacuated until a vacuum of 1.10^{-4} mm Hg and heated to 900 - 1,000°C. After cooling, I_2 was distilled into the ampoule and then the ampoule end containing Zr carbide was gradually heated. The I_2 vapors interacted freely with the carbide.

Card 1/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

30662
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A006/A101

Investigation of the iodide process...

In all experiments 1 g Zr carbide powder and 0.5 g I_2 were employed. The reaction proceeds at a sufficient rate already at 700 - 800°C. The Zr I_4 yield was 97%. The design of a quartz laboratory device for obtaining ZrI_4 from ZrC was developed and experimentally checked.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABANOV, L. V.

ABANOV, L. V. -- "INVESTIGATION OF THE PHENOMEN ON SELF-SHARPENING OF AN ABRASIVE TOOL." SUB 13 JAN 53, MOSCOW MECHANICS INST (DISSERTATION FOR THE DEGREE OF CANDIDATE IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1953

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

IBANOV, L.V., kandidat tekhnicheskikh nauk, laureat Stalinskoy premii.

Ways of improving the technical design of agricultural machinery. Sel'khozmashina no.11:22-28 N '54. (MLRA 7:11)

1. TsITM.
(Agricultural machinery)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

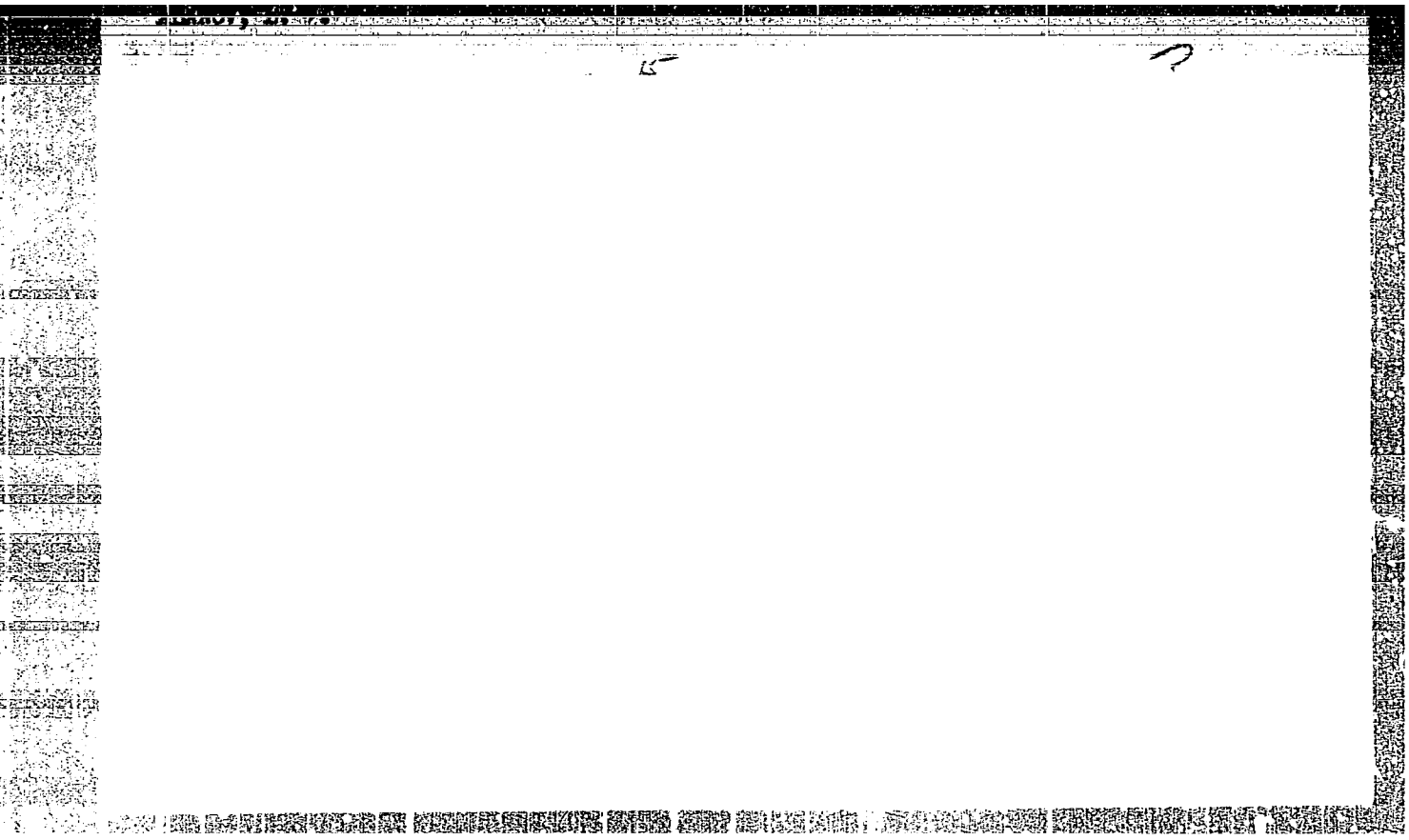
"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABANOV, L.V.; AL'SHITS, I.Ya.; BERDICHEVSKIY, Ya.G.; KODNIR, D.S.; OMNYAGIN, M.G.; USTYUZHANINOV, M.I.; KOROLEV, A.A., kandidat tekhnicheskikh nauk, redaktor; POPOVA, S.M., tekhnicheskiy redaktor

[Liquid friction bearings for rolling mills] Podshipniki zhidkostnogo treniia prokatnykh stanov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1955. 195 p. (MLRA 8:6)
(Bearings (Machinery))

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABANOVICH, A.A.; SKAVINSKIY, N.A.; BARAY, N.A.

Rodent control. Zdrav. Belor. 6 no. 5:52 My '60. (MIRA 13:10)

1. Iz Baranovichskoy gorsanepidstantsii.
(BARANOVICHI—RODENT CONTROL)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABAN'SHIN, A.M.

Stability of a solution. Biul.SNO LGU no.1:36-50 '58.
(MIRA 13:6)
(Differential equations)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

16.3400

S/043/60/000/13/03/016
81245
C111/C222

AUTHOR: Aban'shin, A.M.

TITLE: On the Stability of Established Motion in the Case When k Roots of the Characteristic Equation are Equal to Zero

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1960, No. 13, pp. 24 - 31

TEXT: Given the system

(1') $\frac{dx_1}{dt} = x_2$, $\frac{dx_i}{dt} = X_i(x_1, x_2, \ldots, x_k)$, $i = 2,3,\ldots, k$.

Let $X_i(x_1, x_2,\ldots, x_k) = \varphi_i(x_1, x_3, \ldots, x_k)x_2 + \tilde{\varphi}_i(x_1, x_3,\ldots,x_k)x_2^2\ldots$,

where all φ_i , $\tilde{\varphi}_i$ are holomorphic, $\varphi_i(0,0,..,0) = 0$. Then

(1.2) $x_i = c_i + \psi_i(x_1, c_2, c_3,\ldots, c_k)$, $i = 2,3,..,k$,

where ψ_i is holomorphic, $\psi_i(0, c_2, c_3 \ldots, c_k) = 0$ and c_i is the value

Card 1/3

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

On the Stability of Established Motion in the Case When k Roots of the Characteristic Equation are Equal to Zero

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C111/C222

of x_i for $x_1 = 0$ (determined from $\frac{dx_i}{dx_1} = \Psi_i + x_2 \tilde{X}_i$) .

Theorem 1 : The undisturbed motion described by (1') is stable if the lowest term of the development $\Psi_2(x_1,0,\ldots,0) = bx_1^{\beta} + \ldots$, $b \neq 0$, has an odd exponent β and $b<0$.

Theorem 2 : The undisturbed motion (1') is unstable in the following cases: 1) β even or β odd but $b>0$, 2) $\Psi_2(x_1,0,\ldots,0) \equiv 0$.

Theorem 3 gives a stronger assertion in a special case. Four further analogous assertions of stability relate to the case where

$$(2.1)\quad X_i(x_1, x_2, \ldots, x_k) = f_i(x_1) + x_1^{\gamma_i} u_i(x_1, x_3, \ldots, x_k) + x_2 v_i(x_1, x_2, \ldots, x_k) \quad , \quad i = 2,3,k$$

Card 2/3

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

On the Stability of Established Motion in the Case When k Roots of the Characteristic Equation are Equal to Zero

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C111/C222

and f_i, u_i, v_i are holomorphic, $\nu_i > 0$ integral, $u_i(0, x_3, \ldots, x_k) \not\equiv 0$, $u_i(x_1, 0, \ldots, 0) \not\equiv 0$, $f_i(x_1) = a_i x_1^{\alpha_i} + \overline{a}_i x_1^{\alpha_i+1} + \ldots$, $i = 2,3,\ldots,k$.

The author mentions A.M. Lyapunov. There are 3 Soviet references.

Card 3/3

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

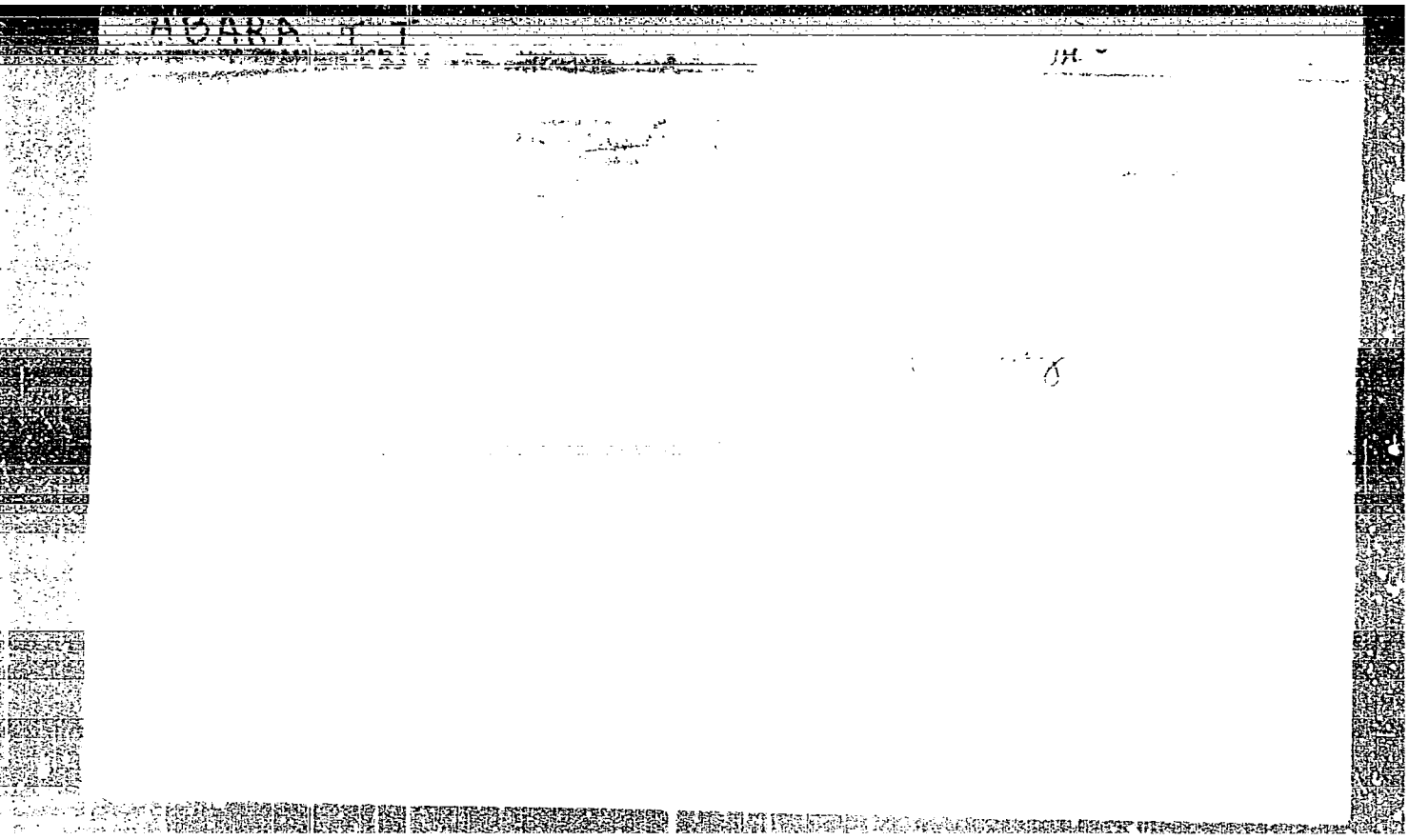
ABAPIAN, S.; GMIERSKI, A.; ZOTOCKI, J.

Causes of the increased consumption of crankshaft bearings in tractor engines. Tr. from the Russian. p.130.
TECHNIKA MOTORYZACYJNA (Naczelna Organizacja Techniczna) Warszawa
Vol. 6, no. 4, Apr. 1956

So. East European Accessions List Vol. 5, No. 9 September 1956

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ya.S.; TSINZERLING, A.V.

Dynamics of the changes in candidiasis of the lungs. Eksp. i klin. issl. po antibiot. 2:103-105 '60. (MIRA 15:5)
(LUNGS—DISEASES) (MONILIASIS)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye. [E.]

"Au sujet de l'influence du systeme nerveux vegetatif sur le relief de la muqueuse gastrique." Abarbanel, E., et Guelpern, M. (p. 71)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1940, Volume 18, No. 1.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL, E.

1554. **Motor Function of the Small Intestine and Gastrointestinal Reflexes after Gastrectomy Carried out for Peptic Ulcer.** (Моторная функция тонкого кишечника и желудочно-кишечный рефлекс после резекции желудка, произведенной по поводу язвенной болезни)

E. E. ABARBANEL'. Терапевтический Архив [*Terap. Arkh.*] 22, No. 1, 78–86, Jan.–Feb., 1950. 15 refs.

A series of 140 patients, who had a Billroth gastrectomy of either type, were examined radiologically with the aid of an opaque meal. The motor function of the small intestine and ileo-caecal region was disturbed, and commonly there was a great increase in the speed with which food passed down the small intestine; this may be due to the lack of gastric preparation of the food. This acceleration varied in relation to the length of bowel involved: in extreme cases it affected the ileo-caecal region. The tone of the small intestine remained poor for several months, or even a year. This may be a result either of the presence of imperfectly digested food or of the trauma suffered by the gut-wall plexuses at operation. In view of this, the author suggests that the procedure of gastrectomy should be re-planned so that as little damage is done to the plexuses as possible.

Jeffrey Boss

Abstracts of World Medicine
Vol 8 1950

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye. E.

USSR/Medicine - Roentgenology

Card 1/1

Authors : Abarbanel', Ye. E.

Title : Clinical knowledge of various types of motor functions of the small and large intestines after resection of the stomach in connection with ulcers

Periodical : Vest Rentgen i Radiol 1, 45-51, 1954

Abstract : In patients with ulcers, there is often observed a decrease and not an increase in the motor-evacuatory function of the small intestine and the ileocecum together with an increased gastro-ileocecum reflex. After resection of the stomach, a decrease in the evacuation of the large intestine is observed, and hence it is necessary to keep patients who have undergone a resection operation under observation. Eight references; all USSR. One table.

Institution : Roentgenology Department (Chief-Doctor of Medical Sciences Ye.E. Abarbanel'), Basman Hospital (Moscow).

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye.E., professor

Roentgenologic picture on cardiac topographical and functional changes following pneumonectomy. Khirurgiia no.8:21-27 Ag '54. (MLRA 7:11)

1. Iz gosudarstvennogo onkologicheskogo instituta imeni P.A.Gertsena (nauchnyy rukovoditel' chlen-korrespondent Akademii meditsinskikh nauk SSSR prof. A.I.Savitskiy, i.o. direktora kandidat meditsinskikh nauk V.V.Gorodilova)

(LUNGS, surgery,
pneumonoctomy, postop. cardiac changes, x-ray)
(HEART, physiology,
eff. of pneumonectomy, x-ray)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye.E.

Motor and evacuative function of the small intestines and ileocecal segment following total gastrectomy. Vest. rent. i rad. no.5:61-67 S-O '55. (MLRA 9:1)

1. Iz rentgenologicheskogo otdeleniya (zav.--prof. Ye.E. Abarbanel') Onkologicheskogo instituta imeni P.A.Gertsena (i.o. dir.--kandidat meditsinskikh nauk V.V.Gorodilova, nauchnyy rukovoditel'--chlen-korrespondent AMN SSSR prof. A.I.Savitskiy)

(INTESTINES, SMALL, physiol.
evacuative funct.,after total gastrectomy)
(ILEUM, physiol.
evacuative funct. if ileocecal region after total gastrectomy)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL, E. E.

2044. *The radiological diagnosis of intrathoracic lymph node metastases in lung cancer (Russian text)* ABARBANEL E. E. and MARMORSHTAIN S. I. Oncol. Inst., Moscow, USSR *Vop. Onkol.* 1957, 3/6 (719-724)

The authors analyse and compare the roentgenological examination data of 150 patients with lung cancers of whom 102 had been operated on. The diagnosis had been confirmed histologically in 70 patients who had undergone pneumectomy. On the basis of frontal, lateral and superexposed roentgenograms, the condition of the lymph nodes of the lung hilus and mediastinum had been correctly diagnosed in 73% of cases. The significance of tomography, kymography of the hili and large vessels, as well as examination of the oesophagus with contrast medium are discussed.

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye.S., prof.

Effect of pulmonary artery ligation on the growth of an inoperable tumor and X-ray demonstration of the involved lung [with summary in English]. Khirurgiia 33 no.12:8-12 D '57. (MIRA 11:2)

1. Iz rentgenologicheskogo otdeleniya (zav. - prof. Ye.S.Abarbanel') Gosudarstvennogo onkologicheskogo instituta imeni P.A.Gertsena (nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR prof. A.I. Savitskiy dir. - prof. A.N.Novikov)

(LUNG NEOPLASMS, surg.
ligation of pulm. artery in inoperable cases)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

SAVITSKIY, A.I., prof., zaslushennyy deyatel' nauki; ABARBANEL, Ye.M. prof.

Second All-Union Oncological Conference. Klin.med. 36 no.10:144-149 O '58 (MIRA 11:11)

1. Chlen-korrespondent AMN SSSR (for Savitskiy).
(ONCOLOGY)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye.E. (Moskva, Lyalin per., 9, kv.4)

Functional changes in the heart in lung cancer patients as represented in the kymographic picture. Vop.onk. 5 no.9:274-279 '59.
(MIRA 12:12)

1. Iz rentgenologicheskogo otdeleniya (zav. - prof. Ye.E. Abarbanel') Gosudarstvennogo onkologicheskogo instituta im. P.A. Gertsena (dir. - prof. A.N. Novikov, nauchnyy rukovoditel' - zasluzhennyy deyatel' nauki chlen-korrespondent AMN SSSR prof. A.I. Savitskiy).
(LUNGS neoplasms)
(KYMOGRAPHY)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABA[illegible]EL', Ye.Ye.; KUZNETSOVA, I.P.

Dynamics of functional pulmonary changes following pneumonectomy with various modes of anesthesia; roentgenological investigations. Vop.onk. 5 no.10:416-425 '59. (MIRA 13:12)
(LUNGS--SURGERY)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARRANEL, Ye.Ye.

Roetgenographic picture of complications after pneumonectomy.
Vop.onk. 7 no.3:3-11 '61. (MIRA 14:5)
(LUNGS—SURGERY) (LUNGS—TUMORS)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Yelena Ernestovna; ANKUDINOV, V.A., red.; SENCHILO, K.K., tekhn. red.

[X-ray observations following radiocal operations on the lungs] Rentgenologicheskie nabliudeniia posle radikal'nykh operatsii na legkikh. Moskva, Medgiz, 1962. 210 p. (MIRA 15:6)
(LUNGS--RADIOGRAPHY) (LUNGS--SURGERY)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBANEL', Ye.E., prof. (Moskva, B-62, Lyalin per., d.9, kv.4)

External respiratory function in the electrokymographic picture following pneumonectomy. Vest. rent. i rad. 37 no.1:3-10 Ja-F '62. (MIRA 15:3)

1. Iz rentgenodiagnosticheskogo otdeleniya (zav. - prof. Ye.E. Abarbanel') Gosudarstvennogo onkologicheskogo instituta imeni P.A. Gertsena (dir. prof. A.N. Novikov).
(ELECTROKYMOGRAPHY) (LUNGS--SURGERY) (RESPIRATION)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACC NR: AP7003000 (A) SOURCE CODE: UR/0413/66/000/024/0110/0110

INVENTORS: Samorosov, V. A.; Kats, G. M.; Abarbanel', Z. I.

ORG: none

TITLE: A hydraulic press for making products from powdered materials. Class 58, No. 189686

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 24, 1966, 110

TOPIC TAGS: powder metal molding, ceramic pressing, piezoelectric ceramic

ABSTRACT: This Author Certificate presents a hydraulic press for making products from powdered materials, such as are used in piezo-ceramics. The press includes a container, a movable powder-feeding case, a floating mold, upper and lower pistons, and a casing (see Fig. 1). To provide for regulating the height of the products, the upper piston of the press has shoulders (the diameter of which is larger than the diameter of the upper plunger) and a floating mold. The shaft of the lower piston carries a spring-loaded washer placed in a hollow cup screwed into the body of the press. To prevent the powdered material from becoming stuck in the container and in the feeding case, the container may include a stirrer with a pendulum drive, while the feeding case may be provided with an electric vibrator. To control the height of the products, the body of the press may carry an indicator resting with its base against the bottom of the

UDC: 621.226:621.762

Card 1/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

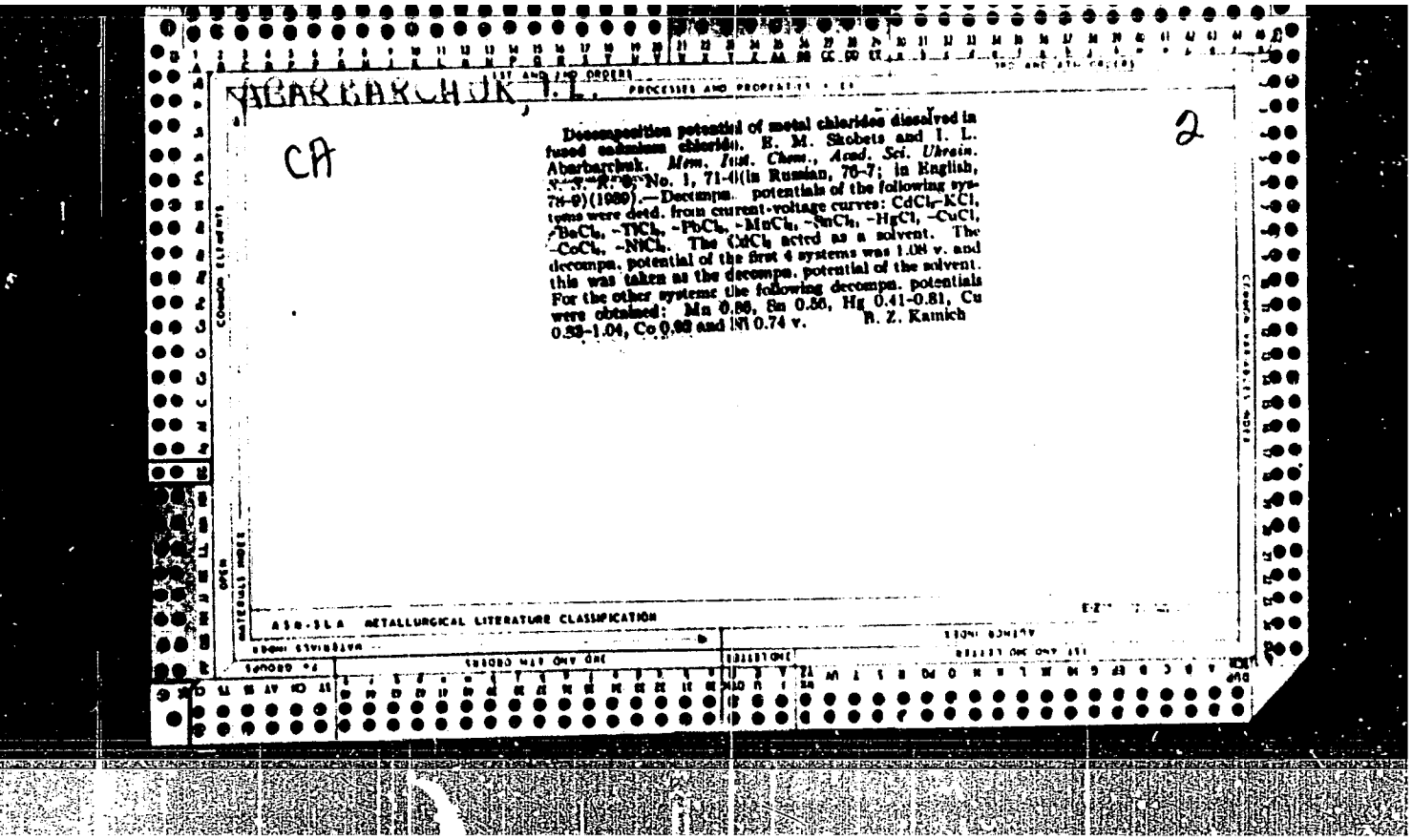
"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

KOLOTILO, Danyil Makarovych [Kolotylo, D.M.]; ABAKUMOV, I.I., otv. red.; AGOF, M.A., red.

[Agricultural production wastes as valuable raw materials for the chemical industry] Vikhody sil's'kohospodars'koho vyrobnytstva -- tsinna syrovyna dlia khimichnoi promyslovosti. Kyiv, Tovarystvo dlia poshyrennia polit. i nauk. znan' URSR 1961. 34 p. (MIRA 18:5)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1



YEARCHUK, I. L.

CA

2

Decomposition potential of metal chlorides dissolved in fused cadmium chloride. E. M. Skobets and I. L. Abarbarchuk. *Mem. Inst. Chem., Acad. Sci. Ukrain. S.S.R.*, No. 1, 71-4 (in Russian, 76-7; in English, 76-9) (1950).—Decompn. potentials of the following systems were detd. from current-voltage curves: $CdCl_2$–KCl, –$BeCl_2$, –$TlCl$, –$PbCl_2$, –$MnCl_2$, –$SnCl_2$, –$HgCl$, –$CuCl$, –$CoCl_2$, –$NiCl_2$. The $CdCl_2$ acted as a solvent. The decompn. potential of the first 4 systems was 1.08 v. and this was taken as the decompn. potential of the solvent. For the other systems the following decompn. potentials were obtained: Mn 0.86, Sn 0.56, Hg 0.41-0.81, Cu 0.59-1.04, Co 0.92 and Ni 0.74 v. R. Z. Kamich

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, I. L. and Fyalkov, Ya. A.

"Physicochemical Investigation of Systems of Antimony Halides-Iodine. IV. Systems $SbCl_5$-I_2 and $SbCl_3$-I_2." Ukr. Khim. Zhur. 15, No. 3, 1949

MLRA Sept 1952

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, I. L.

USSR/Chemistry - Polarography Aug 50

"Application of Solid Electrodes for Polarographic Determination of Metals Ions in Nonaqueous Solutions," Yu. K. Delimarskiy, I. L. Abarbarchuk, Inst of Gen and Inorg Chem, Acad Sci Ukrainian SSR

"Zavod Lab" Vol XVI, No 8, pp 929-932

Demonstrates possibility of using solid electrodes for polarographic determination of metals in nonaqueous solutions. By automatic plotting of curves, obtains polarograms for pyridine solutions of silver chloride, cobalt chloride and arsenous bromide.

169T8

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, I. F.

Chemical Abst.
Vol. 48
Apr. 10, 1954
Inorganic Chemistry

Investigations in the field of polyhalide compounds formed by nonpolar halides. Ya. A. Fialkov, A. A. Kaz'menko, and I. F. Abarbarchuk. *Trudy Sektora Fiziko-Khim. Analiza Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* 26, 124-40(1951). A series of systems was investigated that consisted of the halogens or halides of I and the nonpolar or weakly polar halides of P, S, and Al. Particular attention was given to the mechanism of the formation of polyhalides (or double halides) and to the nature of the elec. cond. of such systems. The compds. of the halides of S or Al with the halides of I are representative of a new type of double halide with I as cation, a new series of compds. of electropos. I. J. R. Dehrmann

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, I. L.; Fyalkov, Ya. A.; and Kuz'menko, A.A.

"Investigation of Polyhalides Formed by Non-Polar Halides," Izv. Sekt. Plat. i Blag. Met., No 26, 1952

MIRA May 1952

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, L.L.; MEL'NIK, A.T.

Study of system $AsCl_3$—ICl. Ukr.khim.zhur.19 no.4:365-367 '53. (MLRA 8:2)

1. Kiyevskiy sel'skokhozyaystvennyy institut, kafedra khimii. (Chlorides)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

#BARBARCHUK, I. L.

5

The viscosity of the system titanium tetrachloride-bromine. I. L. Abarbarchuk and K. P. Kostitsyna (Agr. Inst., Kiev). *Ukrain. Khim. Zhur.* 19, 618-21(1953).—(H) Viscosity measurements at 20° indicate the existence of $3TiCl_4.Br_2$, which decomp. at higher temp. Cryoscopic studies of the system in $PhNO_2$ do not indicate the existence of compds. H. M. Leicester

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

SKORETS, Ye.M.; ABARBARCHUK, I.L.; KOSTITSINA, K.P.; BELINSKAYA, N.I.

Polarographic soil analysis. Determining the intake capacity of soils. Pochvovedenie no.1:99-105 Ja '58. (MIRA 11:2)
(Soils--Analysis)
(Polarography)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

21-58-7-16/27

AUTHORS: Skobets, Ye.M., Abarbarchuk, I.L. and Labkovskaya, N.O.

TITLE: Determination of Dissociation Potentials by the Differential Polarography Method (Opredeleniye potentsialov razlozheniya metodom differentsial'noy polyarografii)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 7, pp 752-755 (USSR)

ABSTRACT: The authors criticize the usual method of graphical determination of electrolyte dissociation potentials from the current intensity versus voltage curves, because of its insufficient accuracy. They propose for this purpose the curve of derivatives, i.e., the dI/dE curve, which possesses a more distinct bending point by which the dissociation point can be determined. An automatic polarograph with a condenser in the galvanometer circuit can be used for the differentiation of the I - E curves. The authors show the advantages of the proposed method on the graphs of CdJ_2 and $NiBr_2$ solutions in water, and CdJ_2 and $CdBr_2$ solutions in acetone. This method promises to be especially useful in determining the association potentials of non-aqueous solutions and fused salts, where particularly high residual currents are frequently observed. There are 4 graphs and

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

21-58-7-16/27

Determination of Dissociation Potentials by the Differential Polarography Method

5 references, 4 of which are Soviet and 1 German.

ASSOCIATION: Ukrainskaya akademiya sel'sko-khozyaystvennykh nauk (Ukrainian Academy of Agricultural Sciences)

PRESENTED: By Member of the AS UkrSSR, Yu.K. Delimarskiy

SUBMITTED: February 25, 1958

NOTE: Russian title and Russian Names of individuals and institutions appearing in this article have been used in the transliteration.

1. Electrolytes--Properties 2. Polarographic analysis--Applications
3. Differential equations--Applications

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, Y.L. [Abarbarchuk, I.L.]; BAZILEVS'KA, N.P. [Bazylevs'ka, N.P.]

Interaction between iodine chloride and naphthalene. Nauk. pratsi UASHN 17 no.12:159-162 '60. (MIRA 16:7)

(Iodine chlorides) (Naphthalene)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

KOLOTILO, Daniil Makarovich [Kolotylo,D.M.]; ABARBARCHUK, I.L., otv. red.; AGUF, M.A., red.

[Agricultural waste is a valuable raw material for chemical industries] Vidkhody sil's'khospodars'koho vyrobnytstva - tsinna syrovyna dlia khimichnoi promyslovosti. Kyiv, 1961. 34 p. (Tovarystvo dlia poshyrennia politychnykh i naukovykh znan' Ukrains'koi RSR. Ser.6, no.11) (MIRA 14:9)

(Chemical industries)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARBARCHUK, I.L.; KOSTITSYNA, K.P.; SKOBETS, Ye.M.

Polarographic determination of exchangeable aluminum in soils.
Pochvovedenie no.2:114-116 F '62. (MIRA 15:3)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Soils--Aluminum content)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

SKOBETS, V. D.; ABARBARCHUK, I. L.; SKOBETS, Ye. M.

Determining the total amount of metathetic alkalies in soils by differential polarography. Nauch. dokl. vys. shkoly; biol. nauki no.3:189-193 '62. (MIRA 15:7)

1. Rekomendovana kafedroy neorganicheskoy i analiticheskoy khimii Ukrainskoy akademii sel'skokhozyaystvennykh nauk.

(SOILS—SODIUM CONTENT) (POLAROGRAPHY)
(SOILS—POTASSIUM CONTENT)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

SKOBETS, V.D.; ABARBARCHUK, I.L.; SKOBETS, Ye.M.

Determination of potassium, sodium, and their sum by the method of derivative polarography. Ukr.khim.zhur. 28 no.2:251-259 '62. (MIRA 15:3)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Potassium--Analysis) (Sodium--Analysis) (Polarography)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

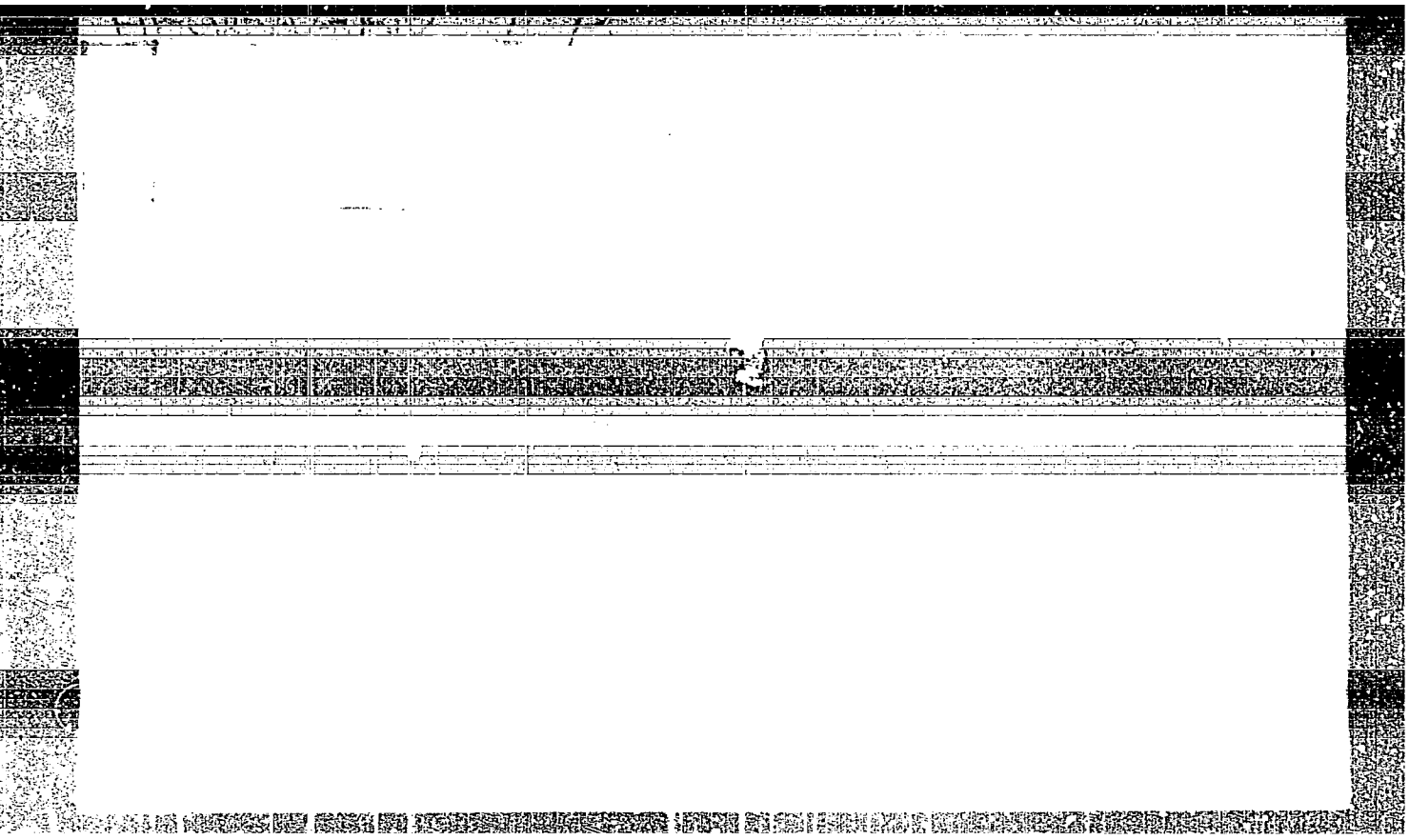
GORENBEYN, Ye.Ya.; SUKHAN, V.V.; ABARBARCHUK, I.I.

Interaction of $SnBr_4$ with $AlBr_3$ and of $SbCl_3$ with $AlCl_3$ in nitrobenzene as solvent. Ukr. khim. zhur. 29 no.8:797-805 '63. (MIRA 16:11)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARENKOV, I.V.; KRISTOFEL', N.N.; PETRASHEN, M.I.

Calculation of the optical properties of small-radius electron centers in ionic crystals. Opt. i spektr. 10 no.4:487-492 Ap '61. (MIRA 14:3)

(Ionic crystals—Spectra)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARENKOV, I.V.

Absorption and emission spectra of impurity centers. Vest LGU 16 no.22:10-20 '61. (MIRA 14:11)

(Crystals--Spectra)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACCESSION NR: AP3002667 S/0054/63/000/002/0005/0015

AUTHORS: Petrashen', M. I.; Kristofel', N. N.; Abarenkov, I. V.

TITLE: The Hartree Fock equations for nonmetallic crystals

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1963, 5-15

TOPIC TAGS: Hartree Fock equation, nonmetallic crystal, electron zone theory, electron state, wave function

ABSTRACT: In studying crystals as many-electron systems, there has been some tendency to use other methods than the Hartree-Fock one-electron approximation as being more reliable. The authors have analyzed the Hartree-Fock scheme for a crystal, and they have obtained a one-electron zone theory as an approximation to the Hartree-Fock theory. The approach is similar to the Hund-Milliken approximation for a molecule. The authors have based their work on the results of C. Roothan (Rev. mod. phys., 23, 69; 1951; and 32, 179, 1960). They have shown that the information given by the one-electron zone theory derives from a direct examination of the Hartree-Fock equations and that different crystal states (including

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ACCESSION NR: AP3002887

the excited state) may be obtained from the scheme. In examining the Hartree-Fock equations, the authors investigated the energy spectrum of a crystal on the basis of a model of noninteracting electrons in a periodic field. The authors thus conclude that all results of the one-electron zone theory concerning the structure of spectra of a crystal can be obtained from examination of the system of Hartree-Fock equations if it is written in proper form, accounting for symmetry. Orig. art. has: 21 formulas.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 01Dec62 DATE ACQ: 24Jul63 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

PETRASHEN', M.I.; KRISTOFEL', N.N.; ABARENKOV, I.V.

Hartree-Fock's equations for nonmetal crystals. Vest. IGU 18 no.10:5-15 '63. (MIRA 16:8)

(Crystallography)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACCESSION NR: AT4041505 S/2910/63/003/01-/0143/0150

AUTHOR: Abarenkov, I. V., Bratsev, V. F.

TITLE: The effective potential method

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963, 143-150

TOPIC TAGS: effective potential, valence electron, core electron, wave function, successive approximation, Pauli exclusion principle

ABSTRACT: The method of successive approximations was applied to computation of the wave function of the valence electron. The problem consists of finding the (n + 1) st eigen value, λ n + 1, and the corresponding eigen-function Ψ n + 1, of a self-consistant integro-differential operator H

$$H\Psi_k = \lambda_k \Psi_k. \quad (1)$$

when all λ_k and Ψ_k are known for all $k \leq n$. Here (in atomic units)

$$H = -\frac{1}{2}\Delta + W + A \quad (2)$$

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

where W and A are the coulomb and the exchange term, respectively. This reasoning follows from Pauli's principle for valence and core electrons. In the iteration procedure, each step is treated as a problem of an electron in some "effective" field. It is shown that in the case of an atom the convergence of the successive iterations is assured when the linear combination $p\mathcal{H} + q\Psi_{n+1}$ is a non-zero function, where $\mathcal{H}$ is a normalized function

$$\mathcal{H} = \sum_{k=1}^{n} \tau_k \Psi_k$$

and where p and q are constants which satisfy certain inequalities. The method is tested by solution of the hydrogen atom for the energy and wave function of the 2S-state with the 1S-state taken as the "core" electron. Here the linear combination $p\mathcal{H} + q\Psi_{n+1}$ is a constant and a good convergence to the correct value is reached in 4 steps. Subsequent examples for the valence electrons of Li and Na atoms show that the method of effective potential compares favorable with experimental results and with other similar methods such as Hartree's (Proc. Royal Soc. A. 193, 299 (1948)). Orig. art. has: 51 equations, 2 tables and 2 figures.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACCESSION NR: AT4041505

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im. A. A. Zhdanova (Leningrad State University)

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NO REF SOV: 002

OTHER: 006

Card 3/3

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

30861
S/054/61/000/004/001/009
B108/B138

24,7000(1137,1143,1385)

AUTHOR: Abarenkov, I. V.

TITLE: Absorption and emission spectra of impurity centers

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1961, 10 - 20

TEXT: The author calculated an expression for the Fourier transform of the spectrum $S_{12}(\omega)$, which is related to the absorption coefficient k by $k(\omega) = M_{12}\omega S_{12}(\omega)$, where M_{12} defines overall absorption, and S_{12} the frequency dependence of the absorption coefficient. The calculations are made under the assumption that the impurity centers furnish a thermodynamic system with Boltzmannian probability distribution. No assumptions are made about any relationships between the normal coordinates of the initial and final states. The spectrum is written as

$$S_{12}(\omega) = \int_{-\infty}^{\infty} S(t)\exp\{-2\pi i\omega t\}\,dt.$$

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APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

From this relation as a starting point, the author derived the Fourier transform S(t) of the spectrum in the simple form

$$S(t) = \frac{1}{|G|} \exp\{2\pi i \omega_0 t + B\}$$

where

$$G = \det\{G_{ik}\}, \qquad (32)$$

$$G_{ik} = \frac{\operatorname{sh} 2\mu_k \cdot \operatorname{sh} 2\gamma_k}{4\omega_{2k} \operatorname{sh}^2 \beta_k}\left[\omega_{1k}\delta i_k + \frac{A_{ik}}{\sqrt{\omega_{1i}\omega_{1k}}} + \omega_{1i} \operatorname{th} \mu_i \sum_l d_{li} d_{lk} \operatorname{cth} \gamma_l + \right.$$

$$\left. + \omega_{1k} \operatorname{cth} \mu_k \sum_l d_{li} d_{lk} \operatorname{th} \gamma_l \right].$$

and

$$\beta_j = \frac{\hbar\omega_{1j}}{2kT},$$

$$\mu_j = \beta_j + i\pi\omega_{1j}t,$$

$$\gamma_j = -i\pi\omega_{2j}t,$$

$$\omega_0 = \frac{E_{02} - E_{01}}{\hbar},$$

Card 2/3

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

Absorption and emission spectra of ...

Besides this, the central moments of the spectrum $S_{12}(\omega)$ (normalized to unity) are calculated from the relation

$S_k = \int_{-\infty}^{\infty} (\omega - \omega_c)^k S(\omega) d\omega$ where $\omega_c = p_1 = \int_{-\infty}^{\infty} \omega S(\omega) d\omega$ and $p_k = \int_{-\infty}^{\infty} \omega^k S(\omega) d\omega$.

The results agree with those obtained by M. Lax(J. Chem. Phys., 20, 1752, 1952). Mention is made of S. I. Pekar (ZhETF, 20, 510, 1950), K. K. Rebane, O. Sil'd (Izv. AN ESSR, 9, 1, 313, 1960). M. I. Petrashen' and N. N. Kristofel' are thanked for discussions. There are 7 references: 3 Soviet and 4 non-Soviet. The two most recent references to English-language publications read as follows: O'Rourk. Phys. Rev., 91, 265, 1953; J. J. Marcham. Rev. mod. phys., 31, 956, 1959.

4

Card 3/3

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

PETRASHEN', M.I.; ABARENKOV, I.V.; KRISTOFEL', N.N.

Approximate wave functions of free ions and ions in crystals. Vest. LGU 15 no.16:7-21 '60. (MIRA 13:8)
(Ions) (Wave mechanics)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

KISELEV, A.A.; ABARENKOV, I.V.

Optical transitions in the U center in a NaCl crystal. Opt. i spektr. 9 no. 6:765-771 D '60. (MIRA 14:1)
(Salt crystals--Spectra)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

9.4300 (1035, 1138, 1143)

S/051/60/009/004/023/034
E201/E191

AUTHORS: Petrashen', M.I., Abarenkov, I.V., and Kristofel', N.N.

TITLE: Approximate Wave-functions of Free Ions and of Ions in a Crystal

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, No 4, pp 527-529

TEXT: In quantum-mechanical calculations of properties of alkali-halide crystals, the one-electron functions of free ions are used as the functions of ions in a crystal. This approach is not very satisfactory. The present note describes a simple method of calculating approximate one-electron functions of a "central ion" (CI) in an ionic crystal. The one-electron functions of a free CI are assumed to be known. They are then modified by allowing for the effect of other ions in the lattice, regarded as geometrical points. The new functions are known as crystalline one-electron functions and they can be used in the zeroth approximation of the perturbation theory. The next step would be an allowance for the departure from the assumed point geometry of the lattice. The calculation method described here was tested by calculating diamagnetic susceptibility of a crystal.

Card 1/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

83923
S/051/60/009/004/023/034
E201/E191

Approximate Wave-functions of Free Ions and of Ions in a Crystal

It was found that the results obtained with crystalline functions agreed better with experiment than the results deduced using free-ion functions. The paper is entirely theoretical.

There are 6 references: 4 Soviet, 1 English and 1 German.

SUBMITTED: April 16, 1960

Card 2/2

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APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

84941

24.7700

S/051/60/009/003/019/019/XX
E201/E191

AUTHOR: Abarenkov, I.V

TITLE: A Polarizable Point-Lattice Approximation in the Theory of Impurity Centres in Ionic Crystals

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, No 3, pp 418-420

TEXT: The rigid point-lattice approximation is widely used in dealing with the simplest impurity centres, such as colour centres in alkali-halide crystals (Refs 1, 2). This very simple approximation gives some general properties of colour centres, but it fails to give other properties, such as the absorption and emission line widths, Stokes shift, etc. This is because the rigid point-lattice approach does not allow for lattice vibrations. The present author develops a method, called a polarizable point-lattice approximation, which allows for motion of ions but retains the simplicity of the rigid point-lattice approach. The new method was applied to a NaCl crystal at 0 °K and the following parameters were calculated: absorption band maxima, a luminescence band maximum, the half-width of an absorption band, dissociation energies in the ground and excited

Card 1/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

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S/051/60/009/003/019/019/XX
E201/E191

A Polarizable Point-Lattice Approximation in the Theory of Impurity Centres in Ionic Crystals

states (table on p 420; col. 2). The calculated values were in fairly good agreement with the experimental ones (col. 3).
Acknowledgement is made to M.I. Petrashen' for his advice.
There are 1 table and 4 references: 2 Soviet, 1 English and 1 Swedish.

SUBMITTED: April 4, 1960

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ARAKTIKOV, I.V., Cand Phys-Math Sci -- (diss) "Quantum-mechanical calculation of optic properties of F-centers in alkaline-haloid crystals in the approximation of a parabolic lattice." Kiev, 1959. 9 pp (Kiev Order of Lenin State U im A.A. Zhdanov), 150 copies (KL,29-59,125)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

24(2), 24(7) SOV/48-22-11-9/43

AUTHOR: Cherenkov, I. V.

TITLE: Quantum-Mechanics Calculation of the F-Centers in Alkali-Halide Crystals (Kvantovo-mekhanicheskiy raschet F-tsentrov v shchelochno-galoidnykh kristallakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 11, pp 1320-1325 (USSR)

ABSTRACT: The paper under review gives an account of a quantum-mechanics series representation of the F-centers in alkali-halide crystals. The ordinary F-center model is used in the calculation: An electron localized beside unoccupied anion sites. The single-electron function $\Psi(r)$ of the "optical" electron (this being the term used for captured electrons) is specified by the following equation:

$$\left[-\frac{1}{2}\Delta - \sum_{i=1}^{n} \frac{Z_i}{|\vec{r} - \vec{R}_i|} + \int \frac{\rho(\vec{r}'\vec{r})}{|\vec{r} - \vec{r}'|} d\tau'\right] \Psi(\vec{r}) -$$

$$- \int \frac{\rho(\vec{r}'\vec{r})}{|\vec{r} - \vec{r}'|} \Psi(\vec{r}') d\tau' = \lambda \Psi(\vec{r}) + \sum_{i=1}^{N} \lambda_i \Psi_i(\vec{r}) \qquad (2)$$

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Quantum-Mechanics Calculation of the F-Centers in Alkali-Halide Crystals

where $\psi_i(\vec{r})$ denotes the single-electron function of the lattice electron (the totality of all remaining electrons and nuclei of the system being covered by the term "lattice"), Z_i, $\vec{R}_i$ the charge and the radius vector of the i-th ion nucleus, $\rho(\vec{r},\vec{r})$ the averaged density of the lattice electrons. If this equation is simplified it takes the form:

$$\left[-\frac{1}{2}\Delta - \sum_{i=1}^{n} \frac{e_i}{|\vec{r} - \vec{R}_i|} \right] \psi(\vec{r}) = \lambda \psi(\vec{r}) \qquad (3)$$

where e_i denotes the magnitude of the i-th charge. The eigenfunctions and the eigenvalues of equation (3) can be determined only approximately by expanding the potential and the wanted function with respect to an arbitrary complete system of functions, which is dependent upon angular variables. It appears to be most convenient and natural to use the system of cubical harmonics for such a system.

$$\sum_i \frac{e_i}{|\vec{r} - \vec{R}_i|} = \sum_{n=0}^{\infty} V_n(r)\, K_n^{(\alpha)}(\vartheta, \varphi); \qquad (4)$$

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Quantum-Mechanics Calculation of the F-Centers in Alkali-Halide Crystals

$$\Psi(\vec{r}) = \sum_{n=0}^{\infty} \frac{1}{r} f_n(r) K_n(\vartheta, \varphi). \tag{5}$$

For the coefficients of $f_n(r)$ there exists an infinite system of differential equations, which defies an accurate solution. Approximative solutions can be obtained most readily if a corresponding variation problem is substituted for equation (5) and the sum total of the finite number of the series (5) is taken for a comparison function. If the considerations are limited to one term, there is obtained the equation

$$f_0'' + F_0 f_0 + \lambda f_0 = 0. \tag{6}$$

If the first two terms are used, there is obtained in second order approximation the system

$$\begin{cases} f_0'' + F_0 f_0 + \lambda f_0 = \phi_0 f_1 \\ f_1'' + F_1 f_1 + \lambda f_1 = \phi_0 f_0 \end{cases} \tag{7}$$

This process can be continued indefinitely. The functions F_0, F_1, and ϕ_0 are in these equations expressed by $v_n(r)$ and by integrals of the product of three cubical harmonics. Equa-

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Quantum-Mechanica Calculation of the F-Centers in Alkali-Halide Crystals

tion (6) was solved for the 1s and 2p states of an optical electron in LiCl and NaCl crystals. The results are compiled in the table. Apart from this, a more simple equation was solved, using the potential $V(r) = \begin{cases} \frac{M}{a} & r \ll a \\ 0 & r > a, \end{cases}$ where a denotes the lattice constant and M the Madelung constant. At present the author is engaged in solving the exact equation (2) for LiCl and NaCl crystals. The author expresses his gratitude to M. I. Petrashen' for supervising the work. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta imeni A. A. Zhdanova (Scientific Research Institute of Physics of the Leningrad State University imeni A. A. Zhdanov)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

PETRASHEN', M.I.; ABARENKOV, I.V.

Semiempirical method for calculating oscillator forces. Fiz. sbor. no.4:92-96 '58. (MIRA 12:5)

1. Fizicheskiy institut Leningradskogo ordena Lenina gosudarstvennogo universiteta imeni A.A.Zhdanova.
(Wave mechanics) (Electrons)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

AUTHOR: Abarenkov, I. V. SOV/54-58-4-2/18

TITLE: The Theory of the F Centers in Alkali Haloid Crystals in Point Lattice Approximation (Teoriya F-tsentrov v shchelochno-galoidnykh kristallakh v priblizhenii tochechnoy reshetki)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1958, Nr 4, pp 14-27 (USSR)

ABSTRACT: In this paper the author tried to give a first approximation for the description of the F centers in alkali haloid crystals from a quantum-mechanical point of view. In this connection the F center is regarded as an electron which is located besides an empty anion lattice point. This electron is called "optical electron". On principle, the problem is to solve the single-electron function $\psi(\vec{r})$ for the optical electron. For the purpose of simplifying the problem it is assumed that the ion in the lattice point possesses the point charge ± 1 and the empirically found relation may be applied to a cubic lattice (with the lattice constant a) $\Delta E \cdot a^2 = \text{const}$. This is possible in the case of haloid crystals. $\psi(\vec{r})$ is obtained in the form of the Schrödinger equation (2,2) for an electron located in the point of an ideal

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point lattice from which a negative charge was removed. A series with a finite number of terms is established for $\psi(\vec{r})$ by means of the given principles of variation (3,5). The eigenvalues and eigenfunctions are calculated in the first approximation. The coefficients are determined also for the heterogeneous form of the differential equation. A numerical computation was made for the crystals NaCl (in the first and second approximation) and for LiCl only in the first approximation. It was shown that by use of the second approximation the theoretical value of ΔE corresponds far better to the experimental one, which indicates the applicability of the approximate method applied here. Further, the dependence of $\Delta E \cdot a^2$ on a was investigated with the crystals LiF — LiCl; NaF — NaBr — NaCl — NaJ; KF — KBr + KCl — KJ; RbBr — RbCl — RbJ, which proved to be in good agreement with the experiment. In a further paper the author will publish similar computations taking into account the fact that the ions of the surrounding medium are not point-shaped. He thanks M. I. Petrashen' for supervision of the work and K. L. Slobodskaya and

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The Theory of the F Centers in Alkali Haloid Crystals in Point Lattice Approximation

D. M. Dmitriyeva for carrying out the major part of computations. There are 3 figures, 2 tables, and 10 references, 6 of which are Soviet.

SUBMITTED: May 26, 1958

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

AUTHOR: Abarenkov, I. V. SOV/54-58-3-1/19

TITLE: The Potential of the Crystal Point Lattice (Potentsial tochechnoy kristallicheskoy reshetki)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1958, Nr 3, pp 5-13 (USSR)

ABSTRACT: In the present paper the author discusses an exact determination of the electrostatic potential in the domain of the capture center. A cubic lattice of the type of NaCl was investigated. The electrostatic potential of a point lattice crystal with other symmetry can also be determined in the same way. In the determination of the electron wave function in the domain of the central node it is suitable to split up the potential according to a total function system. The potential belongs to the class of the functions that remain invariable in the case of a regrouping of the symmetry in the crystal. Therefore it is most suited to factorize the potential according to the cubical harmonics $K_n^{(\alpha)}(\vartheta, \varphi)$ (Ref 5). $V(r, \vartheta, \varphi) = \sum_n V_n(r) K_n^{(\alpha)}(\vartheta, \varphi)$.

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The charge has only one index m as all charges located at the same distance from the central charge exhibit the same index. For the determination of the potential the coefficients of all layers must be ascertained.

$V_n(r) = \sqrt{4\pi} \sum_m A_n(r,R_m)Z_{nm}$. In the determination of the Z_{nm} the summation in the equation (10)

$$Z_{nm} = \sum_{\kappa}' e_m \frac{\sqrt{4\pi}}{2n+1} K_n^{(\alpha)} (\Theta_{mk}, \Phi_{mk})$$

was carried out as follows. First the sums Z'_{nm} for all charges of the sub-layer were ascertained. Then all the Z'_{nm} of the concerned layer were summed up. The number of charges in the sub-layer can be found quite easily as only 6 types of indices are existing (Table 1). By means of the values of Z'_{nm} the coefficients A_{ns} and B_{ns} were found (Table 2). The first 4 coefficients $V_n(r)$ of the point lattice potential of NaCl are represented in the figure. In the whole work the central charge was assumed to be positive. In the case of a negative

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central charge the respective sign must be introduced into the formulae. Especially the quantities A_{ns} and B_{ns} and the coefficients $V_n(r)$ will have the inverse sign. The author thanks M. I. Petrashen' for having supervised the work. There are 1 figure, 3 tables, and 7 references, 2 of which are Soviet.

SUBMITTED: January 27, 1958

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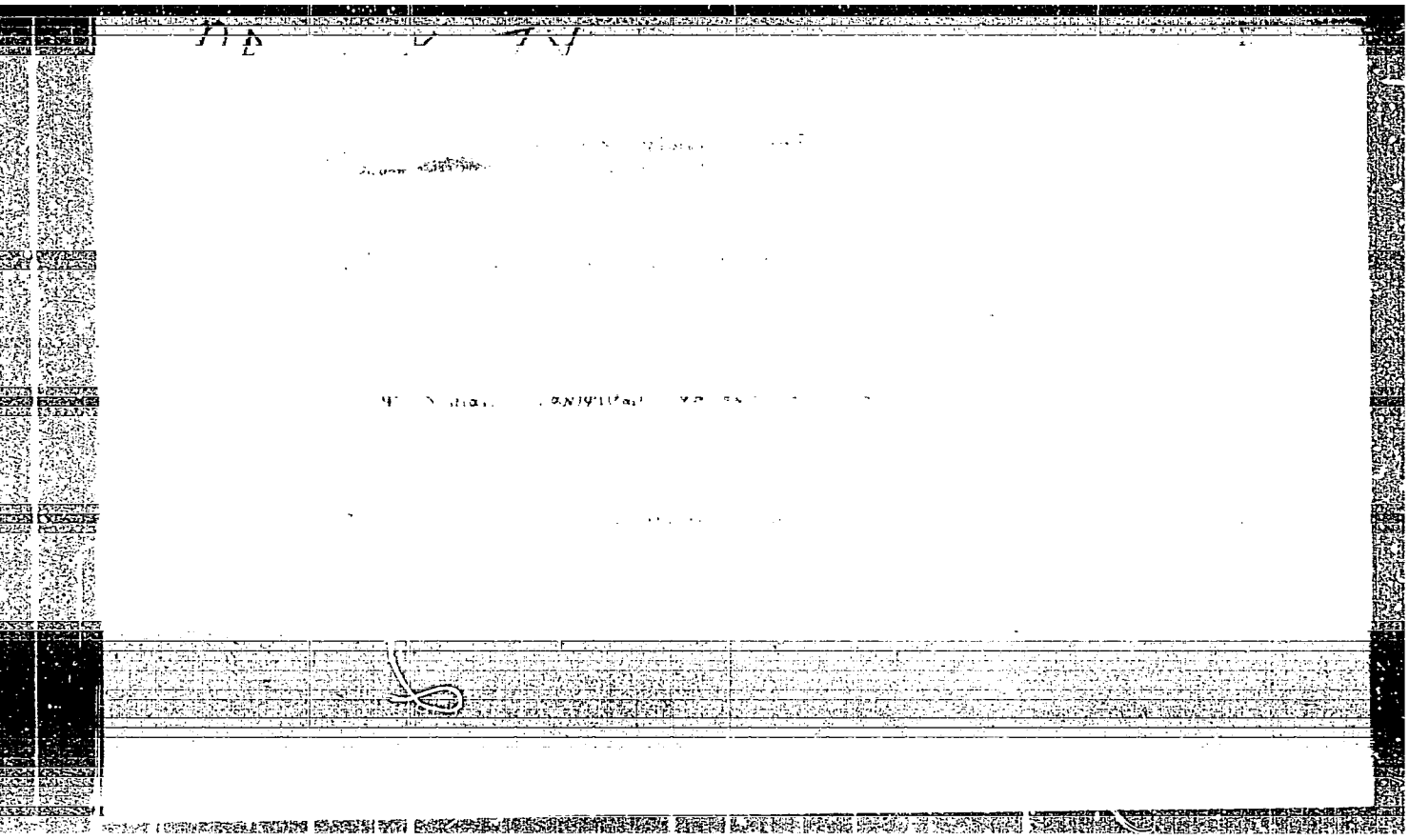

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

Category : USSR/Atomic and Molecular Physics - Physics of the Atom D-1

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3356

corresponding to various sets $\sigma_{\alpha_1} \ldots \sigma_{\alpha_N}$, are related by the following equation

$$\left[N - \frac{N^2}{4} - S(S+1)\right] X + \sum_{k>l}^{1} P_{kl} X = 0$$

The number of independent equations is less than the number of sets. Therefore, certain X's in equation (1) play the role of indeterminate constants, and the remainder are expressed in terms of these constants. Using this method, the author obtained CF for states of He, Li and Be with various values of s. In analogy with the functions obtained, the CF was also written down for the general case. It represents linear combinations of products of pairs of the Fok determinants $\Psi^{(1)}$ and $\Psi^{(2)}$, each made up of single-electron CF's. The individual pairs differ in that certain arguments are interchanged between the two determinants. It is shown that such a function actually has the properties of the Schroedinger coordinate function.

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PETRASHEN', M.I.; ABARENKOV, I.V.

Semiempirical method of calculating the probability of optical transitions in monovalent atoms. Vest.Len.un. 9 no.5:141-148 My '54. (MLRA 9:7)
(Atomic theory) (Spectrum, Atomic)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACC NR: AP7005316 SOURCE CODE: UR/0181/67/009/001/0010/0012

AUTHOR: Logachev, Yu. A.; Abarenkov, I. V.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Calculation of the binding energy of ionic crystals by the model-potential method

SOURCE: Fizika tverdogo tela, v. 9, no. 1, 1967, 10-12

TOPIC TAGS: ionic crystal, binding energy, potential well, wave function

ABSTRACT: The authors show how the method of the model potential can be used to calculate the binding energy of ionic crystals. The method consists of using a density matrix which takes into account the overlap of all the functions of the nearest neighboring ions. A concrete example is presented using the NaCl crystal with values obtained for the parameters of the model potential of the free Na^+ ions. The binding energy as a function of the distance between ions, the equilibrium ion distance, and the compressibility are all calculated and listed. The results are in good agreement with experiment. Advantages claimed for the method of the model potential is that it is relatively simple and does not call for the calculation of each individual term separately. Orig. art. has: 11 formulas and 2 tables.

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

L 21401-66 EWT(m)/EWP(t) IJP(c) JD
ACC NR: AP6003794 SOURCE CODE: UR/0181/66/008/001/0236/0238

AUTHORS: Abarenkov, I. V.; Vedernikov, M. V.

ORG: Institute of Semiconductors AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Fermi surface and thermal emf of copper

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 236-238

TOPIC TAGS: copper, gold, silver, thermal emf, Hall constant, Fermi level

ABSTRACT: The authors attempt to explain theoretically the experimental facts that the noble metals (copper, silver, and gold) have a positive thermal emf at high temperatures. Particular attention is paid to the possibility that the discrepancy between theory and experiment may be due to the fact that the Fermi surface of noble metals is definitely not spherical, and the deviation from sphericity is larger than that proposed by J. M. Ziman (Adv. Phys. v. 10, 1, 1961). The authors attempt further to show that a more detailed allowance

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ACC NR: AP6003794

for the shape of the Fermi surface with the aid of the Slater-Coster formula will result in an appreciable positive contribution to thermal emf, and calculate the possible shape of the Fermi surface for several values of one of the parameters in the formula. The results indicate that the complexity of the shape of the Fermi surface greatly influences the thermal emf of the noble metals. This influence can lead to a positive sign of the thermal emf even though the Hall constant can remain negative. Orig. art. has: 1 figure, 2 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 30Jul65/ OTH REF: 006

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ACCESSION NR: AP4011771 S/0181/64/006/001/0297/0300

AUTHORS: Lebed', B. M.; Abarenkova, S. G.

TITLE: Magnetic spectra of polycrystalline yttrium aluminum and yttrium gadolinium garnet ferrites

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 297-300

TOPIC TAGS: magnetic spectrum, yttrium aluminum garnet, yttrium gadolinium garnet, ferrite, garnet ferrite, polycrystalline garnet ferrite

ABSTRACT: The authors have made experimental studies on the magnetic spectrum of the investigated mineral ferrites in the frequency range from 0.1 to 3000 megacycles. Results are shown in Figs. 1 and 2 and in Table 1 on the Enclosures. Their temperature measurements show that the dispersion of radio frequencies apparently has a relaxation character as other authors have indicated. The precise nature of this dispersion is not easy to determine, however, since the observed permeability maximum is very broad and difficult to locate accurately. Orig. art. has: 2 figures, 1 table, and 2 formulas.

ASSOCIATION: none

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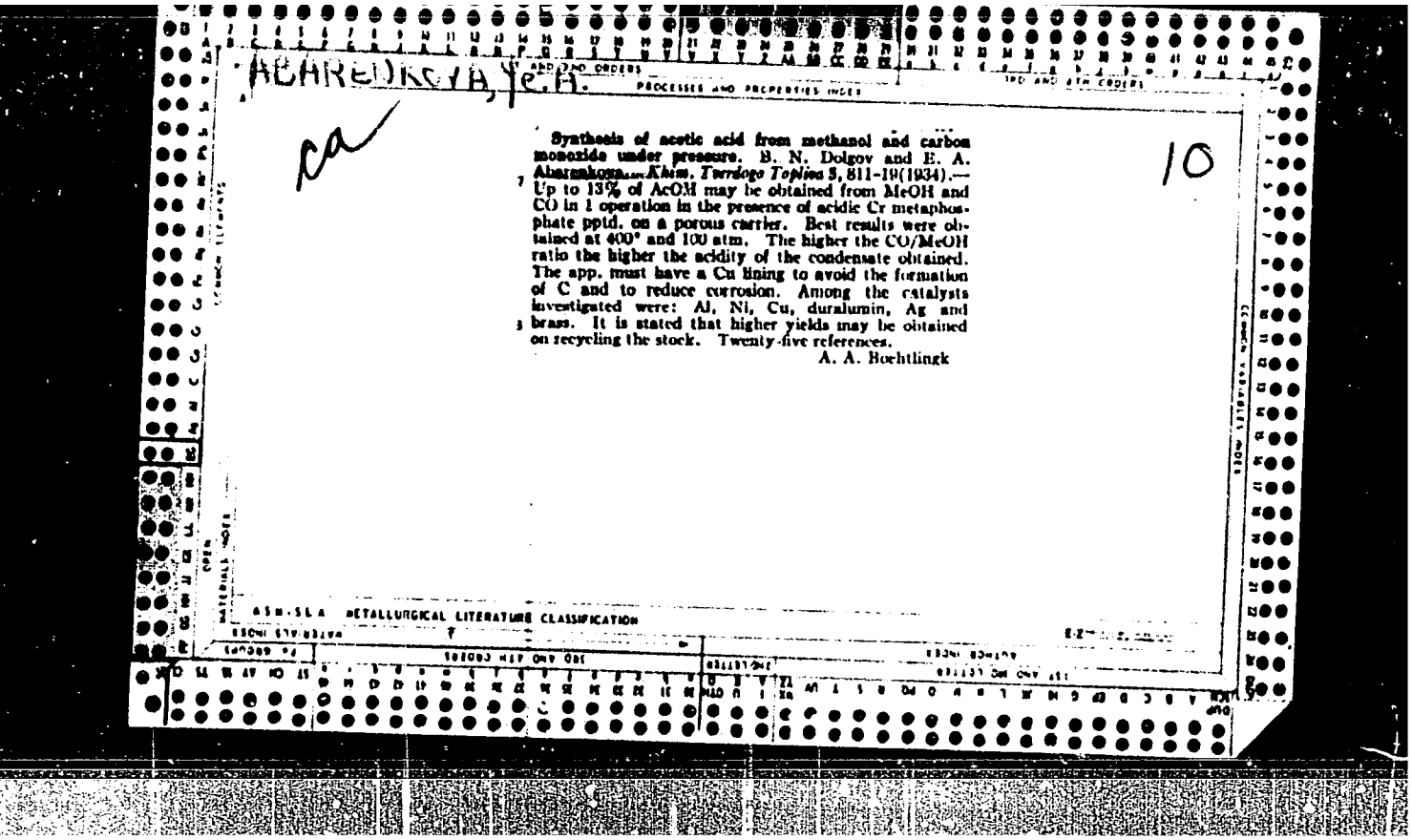

ABAREDKOVA, Ye.A.

CA

10

Synthesis of acetic acid from methanol and carbon monoxide under pressure. B. N. Dolgov and E. A. Abarenkova. *Khim. Tverdogo Topliva* 5, 811-19(1934).—Up to 13% of AcOH may be obtained from MeOH and CO in 1 operation in the presence of acidic Cr metaphosphate pptd. on a porous carrier. Best results were obtained at 400° and 100 atm. The higher the CO/MeOH ratio the higher the acidity of the condensate obtained. The app. must have a Cu lining to avoid the formation of C and to reduce corrosion. Among the catalysts investigated were: Al, Ni, Cu, duralumin, Ag and brass. It is stated that higher yields may be obtained on recycling the stock. Twenty-five references.

A. A. Boehtlingk

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

KLYUKVIN, N.A., prof.doktor tekhn.nauk; ABARENKOVA, Ye.A., dots.kand.tekhn. nauk; TARASENKOVA, Ye.M., dots. kand.khim.nauk

Studying catalytic conversions of shale tar. Trudy LIEI no.20: 106-116 '57. (MIRA 11:9)
(Oil shales)

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KLYUKVIN, N.A., prof.doktor tekhn.nauk; ABARENKOVA, Ye.A., dots.kand.tekhn. nauk; TARASENKOVA, Ye.M., dots. kand.khim.nauk

Studying the effect of carbon dioxide on changes in the properties of products of the thermal decomposition of Baltic shales. Trudy LIKI no.20:117-125 '57. (MIRA 11:9)
(Oil shales) (Carbon dioxide)

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ABARENKOVA, YE. A.

PHASE I BOOK EXPLOITATION SOV/3896

Leningrad. Inzhenerno-ekonomicheskiy institut

Khimiya i khimicheskiye proizvodstva (Chemistry and Production of Chemicals) [Leningrad] Izd-vo Leningradskogo univ., 1959. 177 p. (Series: Its: Trudy, vyp. 25) Errata slip inserted. 2,500 copies printed.

Ed. (Title page): N. A. Klyukvin and A. F. [illegible]; Ed. (Inside book): Ye. V. Chekmareva; Tech. Ed.: Ye. [illegible]

PURPOSE: This collection of articles is intended for [illegible] engineers and technicians in general, and [illegible] engaged in coal semicoking and gas production from oil shale.

COVERAGE: The collection contains papers on the [illegible] chemical industry in the [illegible] automation and mechanization of chemical [illegible] productivity in the [illegible] lower the production cost of [illegible] process of molding [illegible] intensify this process by [illegible] frequency generators and [illegible] Results of the utilization of tailings [illegible] production of gas from oil shale are given. [illegible] with economic aspects of combined production [illegible] made in the semicoking of oil shale [illegible] with the aid of a moving heat carrier are [illegible] planation of the interaction of carbon dioxide [illegible] decomposition. The advantage of using a [illegible] exchangers, heaters, regenerators of pyrolysis [illegible] in one paper, and the selection of material for heat carriers is discussed. The experimental study of the synthesis of [illegible] hydrocarbons achieved by the alkylation of [illegible] is also explained as is the polarization of X-rayed fluorite crystals in photoconductivity. The editors thank Docent [illegible], Professor L. A. [illegible], and Docent [illegible]. References accompany most of the articles.

TABLE OF CONTENTS:

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

KLYUKVIN, N.A., doktor tekhn.nauk prof.; ABARENKOVA, Ye.A., kand.tekhn. nauk, dots.; TARASENKOVA, Ye.M., kand.khim.nauk

Reaction of carbon dioxide with shale decomposition products. Trudy LIKI no.25:111-120 '59. (MIRA 12:11)
(Oil shales) (Carbon dioxide)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARENKOVA, Ye.A., kand.tekhn.nauk, dotsent; VELIKANOV, Ye.P., student

Methods of preparing monomers and polymers for synthetic fibers manufactured for industrial and experimental purposes. Trudy LIEI no.36:23-51 '61. (MIRA 15:1)
(Polymers) (Textile fibers, Synthetic)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABARENKOVA, Ye.A., kand.tekhn.nauk, dotsent; TARASENKOVA, Ye.M., kand.-khimicheskikh nauk, dotsent

Thermocatalytic conversion of hydrocarbons of the medium tar fraction of Baltic shales. Trudy LIEI no.36:65-75 '61. (MIRA 15:1)
(Shale) (Hydrocarbons)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

TARASENKOVA, Ye.M.; ABAMENKOVA, Ye.A.; MANZON, F.A.; VAGNER, V.V.

Catalytic transformations of n-heptane over manganese oxides.
Trudy LIEI no. 46:96-102 '63. (MIRA 17:6)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1

ABAMENKOVA, Ye.A.; GUMAN, A.K.

Studying the possibility of producing and using certain salts of aromatic sulfonic acids. Trudy LIEI no. 46:92-95 '63. (MIRA 17:6)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000100110007-1"