

CA

28

PROPERTIES AND PROPERTIES INDEX

Comparative evaluation of several activated carbons. K. Smolewski and W. Zera. *Gaz. Chem. Technol.* 72, 203-22, 260-63(1923).—The following activated carbons are tested: Norit Standard (I), Norit Superky (II), Carboraffin (III), Sumacarb Super Oxide (IV), Hlagenit, normal (V), Hlagenit, special (VI), Carbolmet, (VII) and Horodenka (VIII). I, II and III are German, IV English, V and VI Austrian, VII a Polish charcoal prepd. from molasses, and VIII another Polish product. The results are tabulated below:

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
Moisture (alc-dry)	15.50	11.91	13.46	23.05	16.13	13.38	7.30	5.80
Total ash (oven-dry)	7.42	4.31	3.13	10.85	9.87	1.22	4.75	14.07
H <sub>2</sub> O-sol. ash	1.83	0.34	0.81	3.51	2.04	0.41	2.02	2.84
H <sub>2</sub> O-sol. substances	1.34	0.22	0.50	1.37	2.01	0.24	1.20	2.00
% of H <sub>2</sub> O extracts (H <sub>2</sub> O = 6.4)	8.6	6.1	6.1	6.2	9.4	8.4	7.4	4.1

Charcoals of the carboraffin type have a pronounced ability for adsorbing cations from solutions, while those of the Norit type adsorb only minute amounts. These carbons may be divided into 3 groups: (1) those with the highest adsorption ability and the lowest filtering rate, i. e., III and IV, (2) those of a medium adsorption capacity and filtering rate, i. e., VII, VIII, VI, and (3) those of a low adsorption capacity and a high filtering rate, i. e., II, I and V.

J. Wiertelak

AS 6-5 LA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

28

Filtration in the sugar industry. Wladyslaw Zero. *Gas. Cukrovenictva* 83, 3-23(1934). The stages of filtration are described and formulas to explain the current practice are given. Increasing the Ca content (to a certain limit) reduces the org. nonsugar compds. (pectinic substances) in the mud. The ideal filtering temp. is 92-93°. The kind of beet has only a small effect on the speed of filtration. A low pressure in the thin-framed and a high pressure in the thick-framed presses give the best results.

High temp. has a greater destructive effect on the l...et cloths than has the alkyl. of the soln. The fabric tends to harden when CO<sub>2</sub> is present, owing to the formation of CaCO<sub>3</sub>. In 43 plants during 1930-7, 1000 quintals of beets required from 2.28 to 17.24 (with a mean of 6.27) sq. m. of cloth. Hemp filter cloths with a mean serviceability of 23 days were superior to jute cloths. The presence of small amts. of mud in the first satn. juices has little effect on the second satn. The use of celite and activated charcoal gives better filtration. Sixty-three references. Frank Gonet

ASACSLA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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ZERONAKI S.

Szyfowe prace (Sisyphus works), by S. Zeromaki. Reported in New Books  
(Nowe Książki), No. 4, February 15, 1956.

POLAND

SEGAL, Pawel, KIKIELA, Marian, MRZYGLOD, Stanislaw, and ZBRONSKA-ZBIERSKA, Izabela; Clinic of Eye Diseases (Klinika Chorob Oczu) WAM [Wojkowa Akademia Medyczna, Military Medical Academy] in Lodz (Director: Prof. Dr. med. P. SEGAL) and Eye Division (Oddzial Oczny), Military Hospital (Szpital Wojakowy) in Zielona Gora (Ordynator: Dr. M. KIKIELA)

"On the Coexistence of the Familiar Form of Pigmentary Degeneration of the Retina with Kartagener Triade. Case Report."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 23, 3 Jun 63, pp 809-812.

Abstract: [Authors' English summary modified] Authors report a case of Kartagener triade, pigmentary degeneration of the retina, and congenital cataract. They review briefly the literature of this problem, and note that the changes observed in this syndrome are always due to developmental difficulty or degenerative changes, and may therefore have common pathological elements with the classical symptoms of the Kartagener triade. There are 21 references, about evenly divided between Polish, German, and Western publications.

1/1

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Marginal metastatic pulmonary calcification in cases of leukemia and multiple myeloma. Pat. Pol. 15 no.3:361-368 J1-S '64.

1. Z Zakladu Anatomii Patologicznej Akademii Medycznej w Poznaniu (Kierownik: prof. dr. med. Janusz Groniowski).

WIERZCHOWIECKI, Michał; ZEROMSKI, Jan

Antiglobulin consumption and immunofluorescence tests in the diagnosis of systemic lupus erythematosus. Pol. arch. med. wewnet. 35 no.7:1019-1024 '65.

1. Z I Kliniki Chorob Wewnętrznych AM w Poznaniu (Kierownik: doc. dr. med. K. Jasinski) i z Zakładu Anatomii Patologicznej AM w Poznaniu (Kierownik: doc. dr. med. P. Gabryel).

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An author, a compatriot: an article published in the magazine Nacolin Swiata  
in 1925.

(MERZE) Vol. 11. No. 12, December 1957

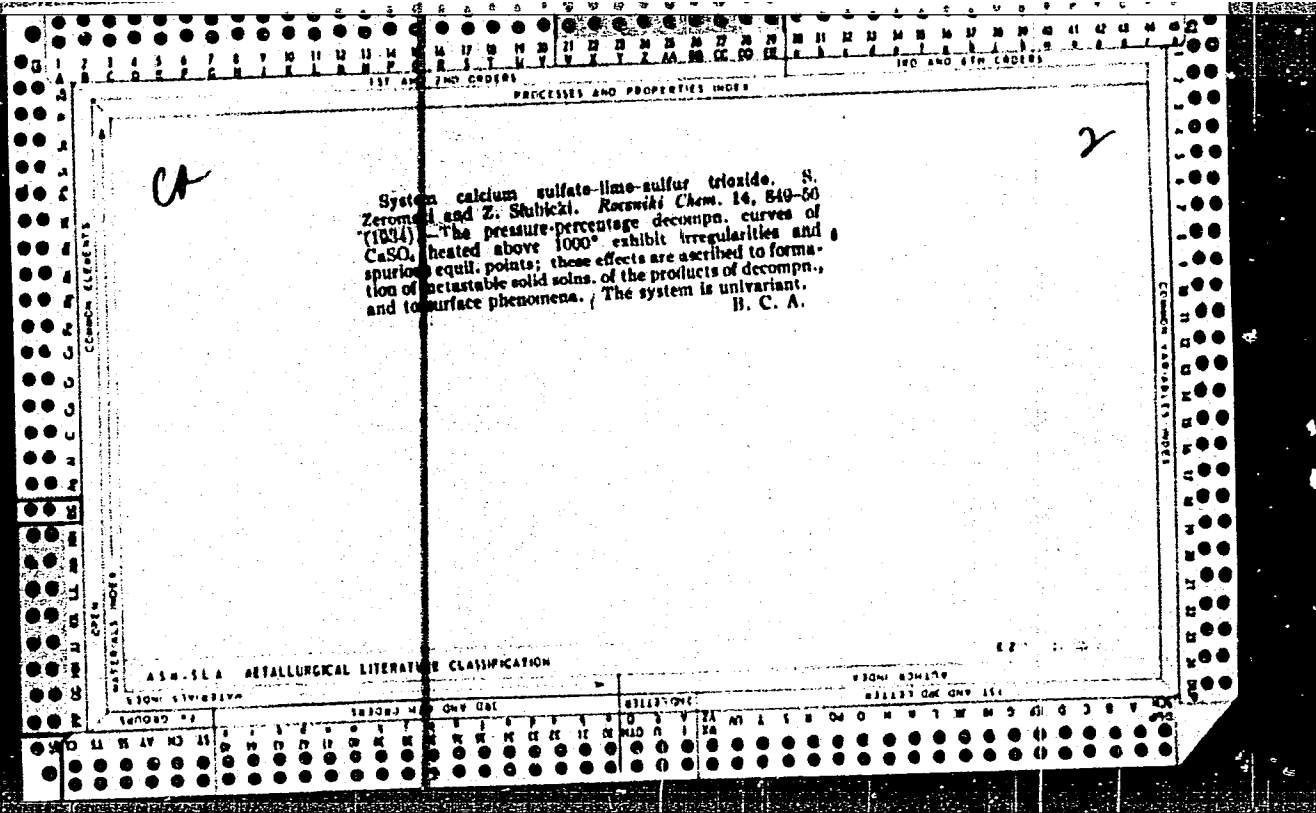
SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7. No. 5. 1958



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"Central Register of Chemical Literature in the Documentation Center of the Institute of Inorganic Chemistry in Gliwice." P. 43. "Technical-Scientific Conference of the Polish Academy of Sciences Concerning the Chemical Treatment of Coal." P. 44, (PRZEMYSŁ CHEMICZNY, Vol. 10, No. 1, Jan. 1954, Warszawa, Poland)

SO; Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955 Uncl.



1ST AND 2ND ORDERS      PROCESSES AND PROPERTIES INDEX      140 AND 1TH ORDERS

Common Elements

Common Valence

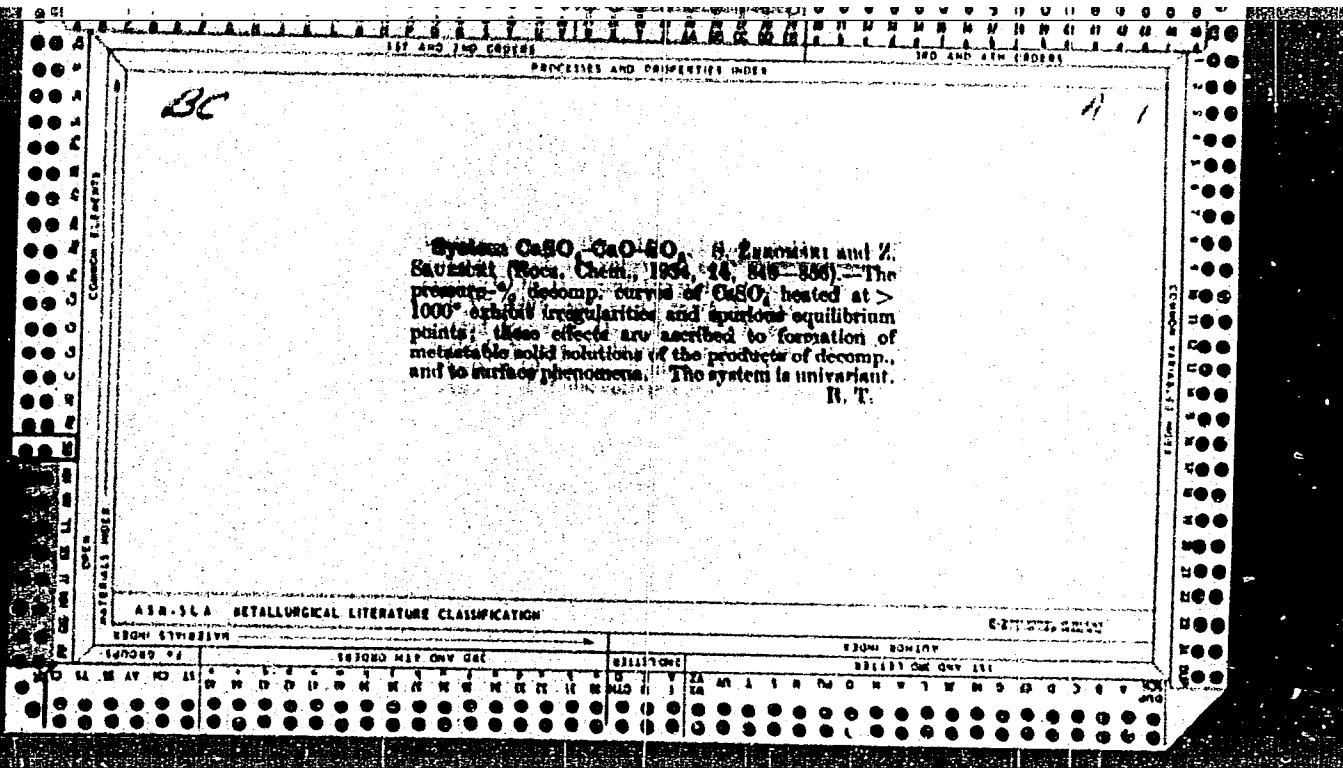
ASB-564 METALLURGICAL LITERATURE CLASSIFICATION

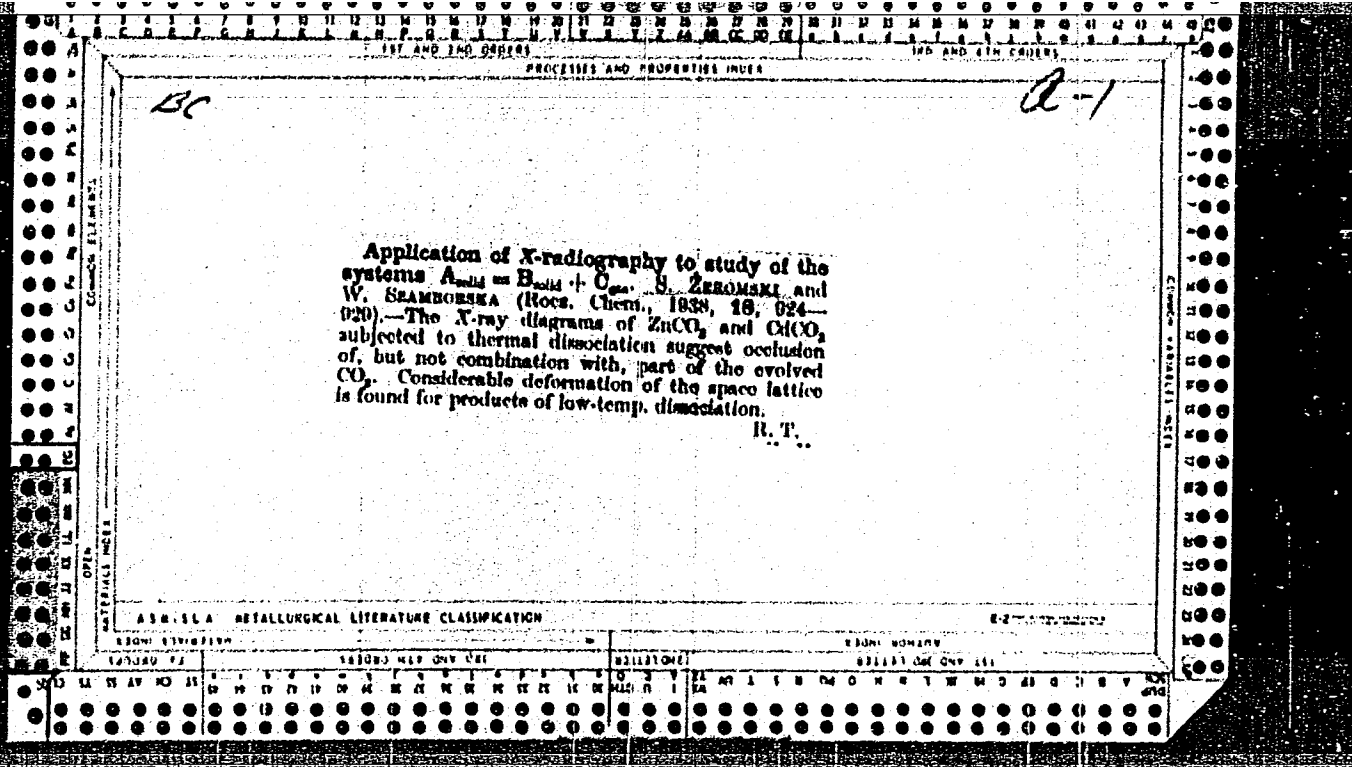
Application of x-rays to study of the systems Acacia - Beams + Crac. S. Zeromski and W. Szamborska. *Rozprawy Chem.* 18, 824-8 (in French, 929) (1935).—X-ray Analysis was used for examining thermal decompos. of ZnCO<sub>3</sub> and CdCO<sub>3</sub>. By this method one can judge what quantity of gas is still combined in the substance and what adsorbed by the solid phase. The results are discussed.  
M. Wojciechowski

Common Elements

Common Valence

1ST AND 2ND ORDERS      PROCESSES AND PROPERTIES INDEX      140 AND 1TH ORDERS





CA

18

PROGRESS IN THE MANUFACTURE OF SULFURIC ACID IN RECENT YEARS. III. ST. ZERUMSKI. *Przemysl Chem.* 13, 514-21(1930); cf. C. A. 23, 3744.—Purification, concn., pumping of H<sub>2</sub>SO<sub>4</sub>, obtaining pure acid and contact oxidation of SO<sub>2</sub>, are described. A. C. Z.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS

OPEN MATERIALS INDEX

COMMON ELEMENTS

1ST AND 2ND LETTERS

3RD AND 4TH LETTERS

5TH AND 6TH LETTERS

7TH AND 8TH LETTERS

9TH AND 10TH LETTERS

11TH AND 12TH LETTERS

13TH AND 14TH LETTERS

15TH AND 16TH LETTERS

17TH AND 18TH LETTERS

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87TH AND 88TH LETTERS

89TH AND 90TH LETTERS

91ST AND 92ND LETTERS

93RD AND 94TH LETTERS

95TH AND 96TH LETTERS

97TH AND 98TH LETTERS

99TH AND 100TH LETTERS

ZEROMSKI, Z.

USSR / Chemical Technology. Chemical Products and Their Application. Food Industry.

Ref Zhur - Khimiya, No 3, 1957, No 10397

Author : Zeromski, Z.

Inst : ~~Not given~~

Title : An Evaluation of Polish Cheeses

Orig Pub : Przegl. mleczarski, 1956, Vol 4, No 5, 19-23

Abstract : A commission of specialists has evaluated 147 specimens of various types of cheeses of Polish manufacture submitted by 131 plants; 28% of the samples were classed in class I, 46% in class II, and 21% in class III; 5% of the samples were returned for further processing. It has been established that the dominant defects fell into the following categories: sub-standard taste and odor, molds, structure, consistency, color, appearance, and defective

Card : 1/2

USSR / Chemical Technology. Chemical Products and Their Ap-  
plication. Food Industry.

I-30

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, No 10397

Abstract : paraffin coating. The commission found that 91.9% of the  
samples submitted met the State Standard on salt content  
and that 47% of the samples showed deviations from the Sta-  
te Standard on fat content; high moisture was observed in  
48.95% of the samples.

Card : 2/2



ZEROMSKI, Z.

4036  
637.33.004.5  
Zeromski Z. Preliminary Investigations over Early Paraffin Covering  
of Tilted Cheese.  
„Wstępne oświadczenia nad wczesnym parafinowaniem sera ty-  
czkiego” (Prace Inst. Przem. Mi. ...)  
Semi-fat Tilted Cheese was prepared ...

MD

POLAND / Chemical Technology. Food Industry.

H-28

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 79464.

Author : Zeromski, Z.

Inst : ~~Not given.~~

Title : The IV-th Evaluation of Cheese Quality in PNR  
/Polish People's Republic/.

Orig Pub: Przegl. mleczarski, 1957, 5, No 11, 10-12.

Abstract: These are the results on the evaluation of the quality of cheeses produced in PNR. The evaluation was conducted by the In-ut and Central Administration of Dairy Industry.

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No. 10, 1950.

Monthly List of Russian Accessions, Library of Congress  
August 1952. UNCLASSIFIED.

1. ZEROV, D. K.
2. USSR 600
4. Pollen, Fossil
7. "Analysis of fossils of pollen and spores and its application in paleogeography."  
V. P. Grichuk, YE. D. Zaklinskaya, "Jurassic chalk as a guide to spores and  
pollen." V. S. Malyavkina. "Pollen analysis" I. M. Polrovskaya. Reviewed by  
D. K. Zerov, Bot. zhur (Ukr) 8, No. 1, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

ZEROV, D.K.

Discovery of the Mediterranean Sea liverwort (*Oxymitra paleacea* Bisch.) in the vicinity of Kanev. Bot.zhur.[Ukr.] 8 no.3:80-81 '51. (MIRA 6:9)  
(Kanov, Ukraine--Hepaticae) (Hepaticae--Kanov, Ukraine)

KURSANOV, L.I., redaktor; ZEROV, D.K. [reviewer].

"Botany," vol. 2: Classification of plants. L.I.Kursanov, ed. Reviewed by  
D.K.Zerov. Bot.zhur.[Ukr.] 9 no.3:95-97 '52. (MLRA 6:11)  
(Botany--Classification)

ZEROV, D.K.

Three new species of liverworts in the flora of the U.S.S.R. from Maritime Territory. Bot.zhur.[Ukr.] 10 no.1:101-105 '53. (MLRA 6:8)  
(Maritime territory--Hepaticae) (Hepaticae--Maritime territory)

ZEROV, D.K.

Genus *Jubula* Dum. in the flora of the U.S.S.R. Bot.zhur. [Ukr.] 10 no.3:  
85-90 '53. (MLRA 6:8)

1. Instytut botaniky Akademiyi nauk Ukrayins'koyi RSR, viddil sporovykh  
roslyn. (Jubula)



ZEROV, D.K., redaktor; KOPOV, M.I., professor, doktor biologichnikh nauk;  
KLOKOV, M.V., professor, doktor biologichnikh nauk; VISYULINA, O.D.  
kandidat biologichnikh nauk; BARBARICH, A.I., kandidat biologichnikh  
nauk; KRILOV'S'KA, N.S., tekhredaktor

Rose family. A.I. Barbarich and others. Flora URSS no. 6:5-300 '54.  
(MIRA 8:11)

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(Ukraine--Roses)

*Zerov, D.K.*  
ZEROV, D.K., redaktor; KOTOV, M.I., professor, doktor biologichnikh nauk;  
KLOKOV, M.V., professor, doktor biologichnikh nauk; VISYULINA, O.D.  
kandidat biologichnikh nauk; BARBARICH, A.I., kandidat biologichnikh  
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Legume family. A.I. Barbarich and others. Flora URSS no. 6: 301-573  
'54. (MLRA 8:11)

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(Ukraine--Leguminosae)

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Afrykan Mykolaievych Kryshstofovych. Bot.zhur.[Ukr.] 11 no.2:92-97 '54.  
(Kryshstofovych, Afrykan Mykolaievych, 1885-1953) (MLRA 8:7)

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1. Institut botaniki AN URSR, viddil sporovikh roslin.  
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LAZARENKO, Andrey Sozontovich; SHILO, V.N., redaktor; ZEROV, D.K., redaktor;  
SIVACHENKO, Ye.K., tekhnicheskiy redaktor

[Guide to the mosses (Musci) of the Ukraine] Opre delitel' listvennykh  
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Ukrainskoi SSR 1955. 465 p. (MLFA 9:2)

1. Deystvitel'nyy chlen AN USSR (for Zerov)  
(Ukraine--Mosses)

ZEROV, D. K.

Basic trends in the development of the vegetable kingdom. Bot.  
zhur.[Ukr.] 12 no.2:3-16 '55. (MIRA 8:10)

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(Phylogeny (Botany))

ZEROV, D.K.

Distribution of xerothermophilic liverworts in the Ukrainian S.S.R.  
Bot. zhur. [Ukr.] 12 no. 3: 91-96 '55. (MLRA 8:11)  
(Ukraine--Hepaticae)

MODILEVSKIY, Yakov Samuilovich; ZEROV, D. K., akademik, otvetstvennyy redaktor;  
GRUDZINSKAYA, O.S., redaktor izdatel'stva; ROKHLINA, N.P.,  
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[The history of Russian embryology of higher plants] Istorii  
otechestvennoi embriologii vysshikh rastenii. Kiev, Izd-vo  
Akademii nauk USSR, 1956. 201 p. (MLRA 9:11)

1. Akademiya nauk USSR (for Zerov)  
(Botany--Embryology)



KHOLODNIY, Nikolay Grigor'yevich; BELOKON', I.P.; redaktor; ZEROV, D.K.,  
redaktor; OKANNENKO, A.S., redaktor; POGREBNIYAK, P.S., redaktor;  
RUBENCHIK, L.I., redaktor; SHILO, V.N., redaktor izdatel'stva;  
SIVACHENKO, Ye.K., tekhnicheskiy redaktor

[Selected works; in three volumes] Izbrannye trudy; v trekh tomakh.  
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(Botany--Physiology)

KHOLODNYI, Nikolay Grigor'yevich; BELOKON', I.P., redaktor; ZHROV, D.K., redaktor; OKAMENKO, A.S., redaktor; POGREBNIYAK, P.S., redaktor; RUBENCHIK, L.I., redaktor; NEMIROVSKIY, R.M., redaktor; SIVACHENKO, Ye.K., tekhnicheskiiy redaktor.

[Selected works in three volumes] Izbrannyye trudy v trekh tomakh. Kiev, Izd-vo Akademii nauk USSR. Vol.1. [Works on plant physiology] Raboty po fiziologii rastenii. 1956. 478 p. (MLRA 9:6)  
(Botany--Physiology)

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Mosses of steppe preserves of the Academy of Sciences of the  
Ukrainian S.S.R. Ukr.bot.zhur.13 no.2:78-84 '56.(MIRA 9:9)

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KHOLODNYI, Nikolay Grigor'yevich; BELOKON', I., redaktor; ~~ZEROV, D.K.~~,  
redaktor; OKAHENKO, A.S., redaktor; POGREBHYAK, P.S., redaktor;  
RUBENCHIK, L.I., redaktor; SHILO, V.H., redaktor izdatel'stva;  
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525 p.

(Microbiology) (Botany--Ecology)

(MLA 10:7)

ZEROV, D.K.; SHCHEKINA, N.O.

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(Ukraine--Botanical research)

(Paleobotany)

BARBARICH, A.I. [Barbarych, A.I.], kand. biol. nauk; BRADIS, Ye.M., doktor biol. nauk; VISYULINA, O.D., doktor biol. nauk; VOLODCHENKO, V.S.; DOBROCHAYEVA, D.M., kand. biol. nauk; KARNAUKH, Ye.D.; KATINA, Z.F., kand. biol. nauk; KOTOV, M.I., doktor biol. nauk; KUZNETSOVA, G.O. [Kuznetsova, H.O.], kand. biol. nauk; OLYANITSKOVA, L.G. [Olianits'ka, L.H.]; OMEL'CHUK, T.Ya., kand. biol. nauk; POYARKOVA, O.M.; PROKUDIN, Yu.M., doktor biol. nauk; PROTOPOPOVA, V.V.; SLYUSARENKO, L.N.; SMOLKO, S.S.; KHRZHANOVSKIY, V.G. [Khrzhanovs'kyi, V.H.], doktor biol. nauk; ZEROV, D.K. akademik, otv. red., ONISHCHENKO, L.I., red.

[Key for the identification of plants in the Ukraine] Vyznachnyk roslyn Ukrainy. Vyd.2., vypr. 1 dop. Kyiv, Urozhai, 1965. 876 p. (MIRA 18:9)

1. Akademiya nauk URSR, Kiev. Instytut botaniky. 2. AN Ukr.SSR (for Zerov). 3. Moskovskaya sel'skokhozyaystvennaya akademiya im. K.A.Timiryazeva (for Khrzhanovskiy).

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[Flora of liverworts and sphagnum mosses] Flora pechinoch-  
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SOLOV'YEVA, A.I., red.; REKES, M.A., tekhn.red.

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[Problems of physiology, cytoembryology and flora of the  
Ukraine] Pytannia fiziologii, tsytoembriologii i flory  
Ukrainy. Kyiv, Vyd -vo AN URSR, 1963. 222 p.  
(MIRA 17:2)

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(Russian language--Dictionaries--Ukrainian)

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KLOKOV, M.V.; OKSIYUK, P.F. [deceased]; SHCHITKOVSKAYA,  
V.L. [Shchitkivs'ka, V.L.]; BILOSHTAN, A.P., red.-  
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[Russian-Ukrainian dictionary of botanical terminology and  
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1962. 340 p. (MIRA 16:4)

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(Botany--Dictionaries)  
(Russian language--Dictionaries--Ukrainian)

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'62. (MIRA 15:7)

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red.; BARBARICH, A.I. [Barbarych, A.I., red.; KONDRATYUK,  
Ye.M., red.; SITNIK, K.M. [Sytnyk, K.M.], red.; KOVAL', V.A.,  
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In memory of Petr Fedorovich Oksiuk. Ukr. bot. zhur. 17 no.4:89-  
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Il'ia Grigor'evich Borshchov. Ukr.hot.zhur. 16 no.3:87-93  
'59. (MIRA 12:8)

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MASYUK, Nadezhda Prokhorovna; ZEROV, D.K., akademik, otv. red.; ~~BEGLITSKIY, L.P.~~  
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ROMANENKO, I.N., akademik, otvetstvennyy red.; MOVCHAN, V.A.;  
RODIONOV, S.P.; TYLENEV, N.A.; DAVYDOV, G.M., kand. ekon. nauk;  
KUGUKALO, I.A., kand. ekon. nauk; BEREZIKOV, V.S.; FEDUN, A.D.;  
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(Polesye--Natural resources)

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ROMANENKO, I.N., akademik, otvetstvennyy red.; VLASYUK, P.A., akademik, red.;  
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 red.; PSHEVICHENNY, P.D., akademik, red.; DAVYDOV, G.M., kand. ekon.  
 nauk, red.; KUGUKALO, I.A., kand. ekon. nauk, red.; BEREZIKOV, V.S.,  
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6. Chlen-korrespondent Akademii nauk USSR (for Rodionov, Tyulenev).
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VLADIMIROV, V.I.[Vladymyrov, V.I.], doktor biol. nauk,  
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(UKRAINE, WESTERN—CHALCID FLIES)  
(UKRAINE, WESTERN—GRASSES—DISEASES AND PESTS)

ZEROVA, M.D.

Species of the genus *Tetramesa* Wlk. (Hymenoptera, Eurytomidae)  
damaging *Stipa*, *Bromus*, *Zerna* in the Ukrainian S.S.R. Ent. oboz.  
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ZEROVA, M.D.

A new species of eurytomid flies of the genus *Tetramesa* Wik.  
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BELAVIN, Oleg Vasil'yevich, dots.; ZEROVA, Margarita Vladimirovna,  
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[Modern means of radio navigation] Sovremennye sredstva ra-  
dionavigatsii. Moskva, Sovetskoe radio, 1965. 279 p.  
(MIRA 18:10)

AUTHORS: Levin, G.A. and Zerova, M.V. Sov/106-58-2-1/16  
TITLE: Tuning Error in a Pulse-signal Receiver Using a.f.c.  
With a Diode-phantastron Control Circuit (Oshibka v  
nastroyke priyemnika impul'snykh signalov pri primenenii  
APCh s diodno-fantastronnoy skhemoy upravleniya)  
PERIODICAL: Elektrosvyaz', 1958, Nr 2, pp 3 - 11 (USSR).

ABSTRACT: The input signal is mixed with a local oscillation whose frequency may be controlled by a voltage. The output of the mixer is fed via a tuned amplifier to a discriminator, the cross-over frequency of the discriminator and the centre frequency of the amplifier being the same. The voltage pulses out of the discriminator are amplified and fed to the diode-phantastron circuit. In the absence of discriminator output, the phantastron produces a saw-tooth voltage waveform, causing the local oscillator to "search" over the frequency scale. The grid of the phantastron is returned to earth via the diode, connected as a d.c. restorer. Discriminator pulses appearing across the diode produce a negative voltage which stops the search. The anode voltage of the phantastron is now dependent on the voltage at its grid and behaves like an ordinary "integrator". The following assumptions are made in

Card1/3

Sov/106-58-2-1/16

Tuning Error in a Pulse-signal Receiver Using a.f.c. with a Diode-phantastron Control Circuit

the analysis of the circuit:- within the working limits, the discriminator characteristic, the control characteristic of the local oscillator and the anode-grid relation of the phantastron valve when used as an amplifier are all linear; the pulses are rectangular; distortion suffered in transit through the narrow-band and video amplifiers are neglected; the diode characteristic is piecewise linear. Since the relations in the rest of the loop are independent of time, interest is centred on the behaviour of the control circuit. Analysis of the circuit of Figure 4 yields equations (9) and (10) which describe the way in which the grid voltage of the phantastron varies in the interval between pulses. Eqs.(13), (14) and (15) give the deviation of local oscillator frequency from nominal value and the time-rate of change. Because of the periodic nature of the signal, the local oscillator frequency will also have a saw-tooth variation. The tuning error is defined as the peak deviation of local oscillator frequency from the cross-over point of the discriminator and is given by Eq.(20). This error will be the less, the higher the video gain and

Card2/3

Sov/106-58-2-1/16  
Tuning Error in a Pulse-signal Receiver Using a.f.c. with a Diode-  
phantastron Control Circuit

discriminator slope, the greater the ratio of pulse-length to charge time of capacitor  $C_1$ , the smaller the ratio of repetition period to discharge time of  $C_1$ . When the tuning error is large, it is sometimes advisable to displace the crossover frequency of the discriminator away from the nominal amplifier band-centre.  
There are 7 figures and 1 Soviet reference.

SUBMITTED: March 4, 1957

Card 3/3    1. Electronic equipment--Performance    2. Electric circuits--Analysis  
              3. Electron tubes--Control systems

ACC NR: AM6003233

Monograph

UR/

Belavin, Oleg Vasil'yevich; Zerova, Margarita Vladimirovna

Modern methods of radio navigation (Sovremennyye sredstva radionavigatsii) Moscow, Izd-vo "Sovetskoye radio", 65. 0279 p. illus.; biblio. Errata slip inserted. 9,300 copies printed.

TOPIC TAGS: spacecraft navigation equipment, radar tracking, radar system, doppler tracking, artificial satellite orbit, orbit parameter

PURPOSE AND COVERAGE: This book views the principles of operation of modern radar devices and systems and describes their basic characteristics. Special attention is given to radar systems designed to secure guidance of cosmic flight instruments. Methods are given for determining orbit parameters by measuring navigational dimensions with statistical determinations. Variants of schemes for units or radar devices are given as well as estimates of measurement precision. This book is recommended as a text for students of radio technology specialties in aviation institutes, and it can also be useful to engineers working with radar devices.

TABLE OF CONTENTS: (abridged):

Foreword--3

Ch. I. Determining orbit parameters of artificial Earth satellites by measuring one navigational dimension--5

Card 1/2

UDC:621.396.981(075)

ACC NR: AM6003233

- Ch. II. Determining orbit parameters of artificial Earth satellites by measuring several navigational dimensions--27
- Ch. III. Radar tracking systems of artificial Earth satellites--39
- Ch. IV. Determining the position of the flying apparatus by signals from the artificial Earth satellite--87
- Ch. V. Doppler meters of the velocity vector--103
- Ch. VI. Radar astronavigation devices--171
- Ch. VII. Vertical-incidence radar--192
- Ch. VIII. Hyperbolic phase systems without signal modulation--207
- Ch. IX. Phase systems with signal modulations--241
- Suppl. to ch. 2: Estimates of the precision of measurement of orbit parameters by measuring three navigational dimensions--263
- Bibliography--273

SUB CODE: 17,22/SUEM DATE: 21Aug65/ ORIG REF: 052 OTH REF: 025

Card 2/2

ACC NR: AT6037046

SOURCE CODE: UR/0000/66/000/000/0078/0096

AUTHOR: Zerova, M. V. (Candidate of technical sciences, Docent)

ORG: none

TITLE: Transformation of the frequency spectrum when a pulse-phase modulated signal passes through a delay system and an amplifier which is switched by the input undelayed signal

SOURCE: Moscow. Aviatsionnyy institut. Teoriya i tekhnika radiolokatsii (Radar theory and techniques); sbornik statey, no. 1. Moscow, Izd-vo Mashinostroyeniye, 1966, 78-96

TOPIC TAGS: Doppler radar, pulse phase modulation, frequency conversion

ABSTRACT: The article considers the time structure and the frequency spectrum of a signal at the output of a device consisting of a delay circuit and an amplifier which is switched by the pulse-phase modulated input signal. It is assumed that the input signal consists of an infinite sequence of rectangular pulses of duration  $\tau_p$  with a time position given by the expression

$$t_k = kT_0 + \Delta t_k;$$

$$\Delta t_k = \Delta T \sin \Omega k T_0;$$

where

$$\Omega = \frac{2\pi}{NT_0}$$

Card 1/2

UDC: 621.396.962.23(04)

ACC NR: AT6037046

is the wobulation frequency. Expressions are derived which make it possible to find any component of the output signal frequency spectrum. The nature of this frequency spectrum is affected by the delay time of the input signal. As an example, the variation in the constant component and in the amplitude of the first, second and third harmonic wobulation frequency as a function of the delay time, is considered. In this case only the intensity of the spectrum components varies when going from one period to another. Orig. art. has: 8 figures, 25 formulas.

SUB CODE: 17,09/      SUBM DATE: 15Jul66/      ORIG REF: 003/      OTH REF: 002

Card 2/2



SOV/106-59-3-5/12

AUTHOR: Zerova, M.V.

TITLE: The Capture Processes in an A.F.C. System with Diode-Phantastron Control Circuit in the Transition from a Search Regime to Automatic Tuning (Protssessy ustanovleniya v sisteme apch s diodno-fantastronnoy skhemoy upravleniya pri perekhode ot poiskovogo rezhima k avtopodstroyke)

PERIODICAL: Elektrosvyaz', 1959, Nr 3, pp 32-40 (USSR)

ABSTRACT: The circuit (Ref 1,2) can be described by the block diagram of Fig 1; a control circuit is shown in Fig 2 and waveforms in Fig 3. The present article is devoted to the transition from search to follow; it is assumed that during this time the signal remains at a fixed frequency. Eq 1 (from Ref 1) gives two expressions, the first is for the deviation of a local oscillator frequency from a steady-state value at the end of the N-th period, in terms of that at the beginning of a period; the second expression is an analogous one for the rate of change of the local oscillator frequency. Fig 4 shows diagrammatically the frequency deviation of a local oscillator during the search regime, it corresponds to

Card 1/3

SOV/106-59-3-5/12

The Capture Processes in an A.F.C. System with Diode-Phantastron  
Control Circuit in the Transition from a Search Regime to Automatic  
Tuning

the amplitude of the pulse at the output of the amplifier equalling the voltage across the input condenser to the phantastron. The exact course of the transient response depends on the initial conditions, that is, the initial frequency deviation. Eq 5 is a general expression for the transient response, the exact form of the response depends on the relative values of  $a$ ,  $a_{k1}$ ,  $a_{k2}$ ; when  $a \leq a_{k1}$  the response is always monotonic. When  $a = a_{k1}$  the speed of working is greatest, for this condition the response is given in Fig 5 for various time constants. When  $a > a_{k2}$ , three other cases may arise: the signal may be captured after a damped oscillation, a continuous oscillation may develop, or the signal may be captured temporarily, then finally lost for good. When  $a$  lies between the values of the other two coefficients it is possible for the signal to be lost but there is very wide latitude in the choice of circuit time constants. The values of the

Card 2/3

SOV/106-59-3-5/12

The Capture Processes in an A.F.C. System with Diode-Phantastron  
Control Circuit in the Transition from a Search Regime to Automatic  
Tuning

a-coefficients are defined at the top of page 36. The  
author thanks Professor G.A. Levin for valuable advice.  
There are 8 figures and 2 Soviet references.

SUBMITTED: 31st January 1958

Card 3/3

SOV/106-58-11-3/12

AUTHOR: ~~Zerova, M.V.~~

TITLE: The Transient Process Caused by a Change in Signal Frequency in an AFC System with a Diode-Phantastron Control Circuit (Perekhodnyy protsess v sisteme AFCh s diodno-fantastromnoy skhemoy upravleniya, obuslovlennyy izmeneniyem chastoty signala).

PERIODICAL: Elektrosvyaz', 1958,<sup>12</sup> Nr.11, pp.18-28 (USSR)

ABSTRACT: The block diagram is shown in Fig.1 and the arrangement of diode and phantastron is given in Fig.2. The behaviour of this type of circuit is different for positive and negative control signals from the video amplifier, and in this article only the first type of change is considered as being the more interesting. The basis of the study is the results obtained in a previous article by the author (Ref.1) in which the diode characteristic was approximated by a stepwise-linear curve which enabled the connection to be established between system conditions at the end of the n-1 and n-th periods. The point of departure is the linear transformation (1). Here  $\Delta f_g$  is the deviation

Card 1/4

SOV/106-58-11-3/12

The Transient Process Caused by a Change in Signal Frequency in an AFC System with a Diode-Phantastron Control Circuit.

of frequency from its nominal value,  $d\Delta f_g/dt$  is the rate of change of frequency and all ...  $a_{23}$  are constant coefficients dependent on the parameters of the a.f.c. system. This transformation may be succinctly expressed in terms of the matrix  $A$ . It also follows that the connection between the states of the system at the ends of the  $n$ -th period and initially is given by  $A^n$ . To determine this transformation it is convenient to transform coordinates. The elements of the converting matrix are found by solving the equation system (2). The basic equation of the a.f.c. system is given by (3), (4), (5) and (6) while the matrix elements are in (8). Eq.(12) describes the transient process in the circuit when there is a step-change in signal frequency, while (13) estimates the variation in rate of change of frequency during the process. The response is aperiodic when the roots of the characteristic equation  $\theta_1$  and  $\theta_2$  are positive and less than unity. If  $\theta_1 \neq \theta_2$ , then the number of periods required to reduce the initial detuning by a factor  $\mu$  is given by the

Card 2/4

SOV/106-58-11-3/12

The Transient Process Caused by a Change in Signal Frequency in an AFC System with a Diode-Phantastron Control Circuit.

expression for  $n$  (near the foot of p.23). If  $\theta_1 = \theta_2$  the corresponding formula is (16). This latter condition for the roots is only fulfilled if (17) for  $a$  is satisfied. Fig.3 shows the number of periods  $n$  for detuning correction as a function of  $a$  for various values of  $e^{-\gamma}$  and  $\mu = 10$ . The greater the coefficient  $a$ , the more rapidly does the system approach the steady-state. The operating speed of the system is increased for an increase in system gain, the ratio  $T/RC_2$ , the ratio  $t_d/T_3$  and  $T_1/T$ . If the transient response is permitted to have an overshoot, two important cases may be distinguished.

1. When  $a > 1$ . The maximum frequency deviation occurring is (18). It is evident from Figs.4 and 5 that a considerable overshoot occurs, and in practice this leads to a reduction in operating speed.
2.  $\mu_k < a < 1$ . The equation for the transient process is (19), the maximum frequency deviation (21), the number of periods  $n$  to reduce detuning by a factor  $\mu$  is in Fig.6. The magnitude of the overshoot increases with the initial

Card 3/4

SOV/106-58-11-3/12

The Transient Process Caused by a Change in Signal Frequency in an  
AFC System with a Diode-Phantastron Control Circuit.

frequency deviation, the system gain, the ratio  $T/RC_2$ ,  
the ratio  $t_v/T_3$  and the ratio  $T_1/T$ . The author thanks  
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7 figures and 1 Soviet reference.

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Card 4/4

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